

Research Survey
for Kidney Disease Control Promotion Project

**Policy Recommendations on
Strengthening Chronic Kidney Disease Strategies:
Challenges and Solutions in
Seeking Medical Care
from the Perspective of Patients
and Those Affected**

Health and Global Policy Institute (HGPI)



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Contents

I Introduction	2
II Executive Summary	3
III Quantitative Survey on Behavioral Challenges in Seeking Medical Care	5
1. Methods	5
2. Results.....	7
3. Summary	11
IV Qualitative Interview Survey of Patients on Seeking Medical Care	12
1. Methods	12
2. Results.....	13
3. Summary	23
V Policy Recommendations on Strengthening CKD Strategies: Challenges and Solutions in Seeking Medical Care from the Perspective of Patients and Those Affected Introduction	24

I Introduction

Chronic kidney disease (CKD) is defined as a condition in which reduced kidney function or kidney damage persists for over three months, and is estimated to affect one in five adults in Japan.¹⁾ Early-stage CKD has few subjective symptoms, and it is not uncommon for the disease to have progressed by the time symptoms appear. As previous studies indicate that CKD is a risk factor for end-stage renal disease (ESRD) and cardiovascular disease (CVD),²⁾ we consider early detection and appropriate intervention to be important issues in the CKD field. In 2023, there were 343,508 patients on chronic dialysis in Japan, of whom 100,436 were under the age of 65,³⁾ which makes it essential to accommodate working-age generations in CKD countermeasures. In a study of data collected by the Health Insurance Association for Architecture and Civil Engineering Companies, out of roughly 70,000 people screened in specific health checkups in fiscal 2014, about 6% (approx. 4,200) were diagnosed with CKD for the first time.⁴⁾ Of this 6%, approx. 5% (approx. 210 people: 2% within the next six months, 3% within the next 12 months) visited a healthcare institution for consultation, meaning that approx. 95% (approx. 3,990 people) did not.⁴⁾ It could be said that the most important issue in CKD policymaking is devising measures for this 95% who did not or could not seek consultation at a healthcare institution despite specific health checkup findings suggestive of CKD. However, there are not many studies that quantitatively analyze health checkup data, health checkup questionnaires, and health insurance claims data to determine the differences between people who did not seek medical consultation after findings suggestive of CKD, and people who did. Consequently, there has not been enough study into how and why the latter did seek medical consultation after receiving the findings.

In consideration of the above, HGPI conducted quantitative (part III) and qualitative (part IV) surveys to shed light on the options, decisions, and difficulties experienced by people with health checkup findings suggestive of CKD in the process from checkup to treatment. Based on the results, an advisory board meeting was held on March 18, 2025, bringing together nephrologists and specialists in occupational health, public health, health economics. The meeting discussed means of improving CKD control such as intensifying post-checkup treatment recommendations for certain groups, and put together various policy recommendations (part V).

1) Japanese Society of Nephrology. Clinical Practice Guidebook for Diagnosis and Treatment of Chronic Kidney Disease 2024. Tokyo Igakusha. 2024.

2) Edited by the Japanese Society of Nephrology. Evidence-based Clinical Practice Guideline for CKD 2023. Tokyo Igakusha. 2023.

3) Masaki T et al. 2023 Annual Dialysis Data Report, JSDT Renal Data Registry. Journal of Japanese Society for Dialysis Therapy. 2024; 57(12):543-620.

4) Yamada Y, Fukuma S. et al. Undiagnosed and untreated chronic kidney disease and its impact on renal outcomes in the Japanese middle-aged general population. J Epidemiol Community Health. 2019 Dec;73(12):1122-1127.

II Executive Summary

Quantitative Survey on Behavioral Challenges in Seeking Medical Care

This survey used health checkup and health insurance claim statement data from the Health Insurance Association for Architecture and Civil Engineering Companies during the period from February 2020 to March 2024 to study the behavior of people with findings suggestive of CKD in seeking medical care. Individuals over 20 years of age with an eGFR <60 mL/min/1.73 m² or urinary protein $\geq 1+$ were classified as having CKD, and were collectively defined as the CKD group. ICD-10 disease names associated with CKD that were recorded within 12 months of the checkup were deemed as CKD-related disease names, and the primary outcome was defined as receiving treatment for a CKD-related disease.

The results showed that individuals in the CKD group were more likely to be male, older, and have a high BMI than in the non-CKD group. Most cases of CKD detected in the health checkups were mild to moderate, with many showing an eGFR of 45–59 mL/min/1.73m² with a negative result for urinary protein. Although 10% of the CKD group received treatment for CKD-related disease names after the checkup, this figure rose to nearly 50% when hypertension and diabetes disease names were included. Factors associated with receiving treatment were female sex, abstention from smoking, and presence of comorbidities. Barriers to receiving treatment after the checkup included lack of time (17.5%) and lack of information about where to seek treatment (9.3%).

This survey revealed that health screening often identified CKD at an early stage. In addition to targeting individuals in the early stages of CKD, further investigation is needed into effective and appropriate methods of providing information and interventions for populations that are less likely to seek treatment, such as men, smokers, and those without comorbidities like hypertension or diabetes.

Qualitative Interview Survey of Patients on Seeking Medical Care

This survey aimed to clarify non-dialysis-dependent patients' experiences in the process from checkup to treatment. Interviews were conducted between December 2024 and February 2025 with five CKD patients (four men and one woman, aged 30–70) attending clinics with board-certified nephrologists or general internists on staff. All of the patients had been flagged for kidney disease in a health checkup. The interviews were recorded as audio, transcribed, and analyzed with qualitative descriptive methods.

The results indicated that patients sought health checkups in a wide range of settings, including at local government or workplace checkups. The lag between health checkups and treatment varied: some patients consulted a healthcare institution soon after the checkup as directed, some consulted a healthcare institution after being repeatedly contacted by a public health nurse or occupational physician, and some did not undergo further tests in checkups after the initial checkup, and were diagnosed in a voluntary consultation several years later. The process from checkup to treatment is not simple for CKD patients, and consultation was put off for a variety of reasons including personal factors, institutional factors, and factors in healthcare delivery. Meanwhile, in cases where patients sought treatment, a crucial factor was proactive intervention in the form of a consultation recommendation by an occupational physician or public health nurse, or referral by a nephrologist.

Policy Recommendations on Strengthening CKD Strategies: Challenges and Solutions in Seeking Medical Care from the Perspective of Patients and Those Affected

1. Standards for recommending consultation in cases with suspected CKD under the current health checkup system are applied in a one-size-fits-all manner, and do not adequately account for diverse medical circumstances such as comorbidities or the degree of reduced kidney function and proteinuria. As such, they are not necessarily effective standards for promoting medical consultation that reflects a patient's risk of further reduced kidney function. It is therefore necessary to provide consultation recommendations that take into account the comorbidities and risk factors present at the time of health checkup. Evidence-based standards for consultation recommendations should be formulated and unified in interdisciplinary discussions among specialists from a variety of fields.
2. CKD presents few subjective symptoms in its early stages, and the population presenting findings suggestive of the disease varies widely in attributes such as age, sex, and socioeconomic circumstances. It is necessary to identify groups that should be prioritized for intervention and consider how to provide consultation recommendations that accommodate patient attributes.
3. In treating non-communicable diseases (NCDs) including CKD, it is necessary to clarify roles and develop a system applicable across a wide range of diseases that facilitates coordination among clinical departments and disciplines. At the same time, ICT and health professional education should be promoted to ensure that medical care and prescription in all healthcare settings take patients' kidney function into account.
4. It is necessary to accumulate lifetime medical and checkup data, organize the data to facilitate long-term kidney function monitoring, and issue appropriate consultation recommendations in response to changes in patients' conditions.
5. It is necessary build momentum in society for evidence-based measures against kidney disorders by coordinating among specialists across disciplines to generate research results with a focus on consultation-seeking behavior and health disparities, while visualizing the cost-effectiveness of early detection and intervention and reflecting the figures in evaluation metrics.
6. To ensure that people found to have proteinuria or reduced kidney function in health checkups seek appropriate treatment, it is necessary to raise awareness from a patient-centered standpoint by providing evidence-based information and guidance on where to seek medical consultation, in coordination with insurers, occupational physicians, and other professionals.

III Quantitative Survey on Behavioral Challenges in Seeking Medical Care

1. Methods

1.1 Study design

Cohort study

1.2 Data sources

Data were drawn from health checkups, additional health checkup questionnaires, and health insurance claim statements accumulated by the Health Insurance Association for Architecture and Civil Engineering Companies.

1.3 Subjects

The study population consisted of individuals aged 20 years old or older who underwent health checkups during the period from February 2020 to March 2024, responded to the additional health checkup questionnaire, and received serum creatinine and qualitative urinary protein testing.

1.4 Primary outcome

The primary outcome, “CKD-related disease name,” was defined as any ICD-10 disease name related to CKD in the health insurance claim statements.

ICD-10 codes: Diseases of the genitourinary system (N00, N01, N02, N03, N04, N05, N06, N07, N08, N10, N11, N12, N14, N16, N17, N18, N19); kidney-related diseases of the circulatory system (I12, I13); kidney-related endocrine, nutritional and metabolic diseases (E102, E112, E122, E132, E142)

“ICD-10 disease names” are disease names listed in the International Statistical Classification of Diseases and Related Health Problems (ICD) maintained by the World Health Organization (WHO), which are recorded in the diagnosis fields of health insurance claim statements.

1.5 Variables

At the time of the health checkup, subjects filled out a self-administered questionnaire on their weekly working hours (<40 hours, 40–59 hours, 60–79 hours, and ≥80 hours) and reasons for not seeking consultation at a healthcare institution (multiple reasons allowed: “Don’t know where to go for consultation,” “Not enough time,” “Worried about medical costs,” “No primary care physician,” “Psychological burden”).

Comorbidities were defined as the presence of hypertension, diabetes, or dyslipidemia in the health checkup data. Hypertension was defined as a systolic blood pressure ≥140 mmHg, diastolic blood pressure ≥90 mmHg, or current use of antihypertensive medication. Diabetes was defined as an HbA1c ≥6.5%, fasting plasma glucose ≥126 mg/dL, or current use of hypoglycemic medication. Dyslipidemia was defined as an LDL cholesterol level ≥140 mg/dL or current use of hypolipidemic medication.

1.6 Methods of analysis

CKD was defined as either an eGFR <60 mL/min/1.73 m² or a qualitative urinary protein level 1+ or greater (urinary protein ≥1+). Subjects were classified according to presence or absence of CKD (CKD group, non-CKD group).

CKD stage was classified with a combination of eGFR (≥60, 45–59, or <45 mL/min/1.73 m²) and urinary protein (– or ±, vs. ≥1+), and the distribution of stages was recorded.

The presence or absence of medical treatment within 12 months of a health checkup was recorded for each CKD stage.

For the group that did not receive treatment for a CKD-related disease within 12 months of the health checkup, the reasons for not seeking consultation were recorded.

A risk ratio regression model was used to explore factors associated with CKD treatment. CKD treatment was set as the outcome variable, and age, sex, smoking status, working hours, CKD stage, BMI, hypertension, diabetes, and dyslipidemia were set as explanatory variables. Prevalence ratios and 95% confidence intervals (CI) were estimated.

1.7 Ethical considerations

Analyses were conducted with anonymized data.

Explanation of terminology

For the purposes of this quantitative survey, the terms below are used according to the following definitions. It must be noted that these definitions differ from those in CKD clinical practice guidelines.

CKD: eGFR (≥ 60 , 45-59, or < 45 mL/min/1.73 m²) and urinary protein (– or \pm , vs. $\geq 1+$), according to health checkup data.

CKD group: The group of subjects who meet the above definition of CKD

Non-CKD group: The group of subjects who do not meet the above definition of CKD

CKD-related disease name: An ICD-10 disease name related to CKD that appears in a health insurance claim statement

2. Results

2.1 Subject characteristics

Table 1. Characteristics of study subjects

	Non-CKD group 86,917 people People (%)	CKD group 25,434 people People (%)
Age (y.o.)		
20-39	35,255 (40.6%)	2,363 (9.3%)
40-59	40,521 (46.6%)	14,125 (55.5%)
≥60	11,141 (12.8%)	8,946 (35.2%)
Female sex	38,093 (43.8%)	606 (2.4%)
BMI (kg/m²)		
<18.5	7,136 (8.2%)	395 (1.6%)
18.5-24.9	57,493 (66.1%)	13,669 (53.7%)
25-29.9	17,723 (20.4%)	9,173 (36.1%)
≥30	4,563 (5.2%)	2,197 (8.6%)
Smoking	19,166 (22.1%)	6,427 (25.3%)
Working time (hours)		
<40	15,290 (26.3%)	3,798 (18.2%)
40-59	35,232 (60.6%)	14,979 (71.7%)
60-79	6,319 (10.9%)	1,829 (8.8%)
≥80	1,279 (2.2%)	284 (1.4%)
Hypertension	18,999 (21.9%)	12,188 (47.9%)
Diabetes	4,188 (4.8%)	3,155 (12.4%)
Dyslipidemia	28,082 (32.3%)	11,599 (45.6%)

Comparing the subjects according to CKD status, it can be seen that the CKD group was older (90.7% of the CKD group were ≥40 y.o., compared with 59.4% of the non-CKD group) and contained fewer women (2.4% of the CKD group were female, vs. 43.8% of the non-CKD group). Furthermore, the CKD group had more high-BMI individuals (44.7% vs. 25.6% had a BMI ≥25), more smokers, and more comorbid hypertension, diabetes, and dyslipidemia.

2.2 Distribution of CKD stages

Table 2. Distribution of CKD stages

eGFR (mL/min/1.73m ²)	Urinary protein – or ± People (%)	Urinary protein ≥1+ People (%)
≥60	86,917 (77.4%)	1,659 (1.5%)
45-59	19,710 (17.5%)	661 (0.6%)
<45	2,910 (2.6%)	494 (0.4%)

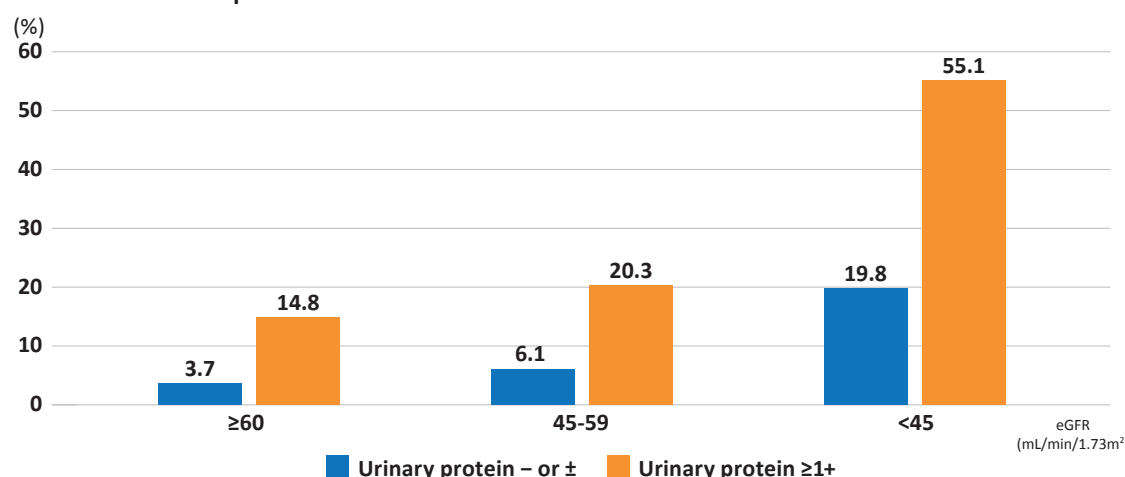
CKD stage classified by eGFR (≥60, 45-59, or <45 mL/min/1.73 m²) and urinary protein results (– or ±, vs. ≥1+)

Most of the CKD cases identified in the health checkups were mild to moderate, with the largest subgroup having an eGFR of 45-59 mL/min/1.73 m² and urinary protein test results in the “–” or “±” range (n=19,710, 17.5%).

2.3 Medical consultation behavior following health checkup

2.3.1 Results according to CKD stage

Figure 1. Percentage of subjects that received treatment for a CKD-related disease name within 12 months of the health checkup



Out of the CKD group (eGFR <60 mL/min/1.73 m² or urinary protein ≥1+), 9.5% (2,423 out of 25,434) of subjects sought consultation with a CKD-related disease name.

A high proportion of subjects that received treatment for a CKD-related disease name within 12 months of the health checkup had a low eGFR or urinary protein ≥1+. Among subjects that were treated with urinary protein ≥1+ and an eGFR ≥45 mL/min/1.73 m², the treatment rates for a CKD-related disease name were 14.8% and 20.3%, respectively. Among subjects with only mildly reduced eGFR, the treatment rates were under 20%.

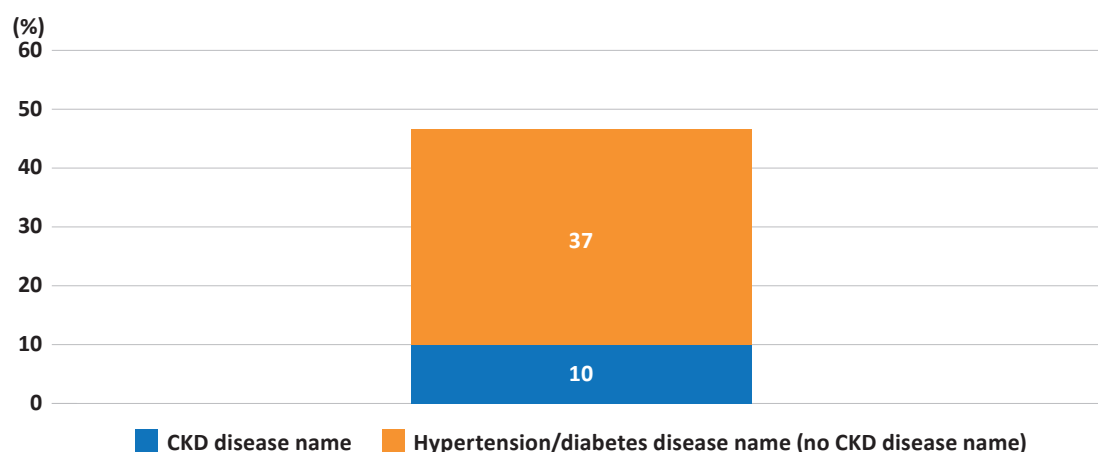
2.3.2 Medical treatment in the CKD group in the 12 months of the health checkup

Table 3. Percentages of subjects

	Treated for hypertension/ diabetes disease name	Not treated for hypertension/ diabetes disease name
CKD group, treated	2,177 (8.6%)	246 (1.0%)
CKD group, not treated	9,292 (36.5%)	13,719 (53.9%)

Analysis of CKD group (subjects with an eGFR <60 mL/min/1.73 m² or urinary protein ≥1+) (n=25,434)

Figure 2. Percentages of subjects who received treatment for a CKD-related disease name or for a hypertension/diabetes-related disease name (no CKD-related disease name) within 12 months of the health checkup



The treatment rates were recorded for subjects that “received treatment for a CKD-related disease name” or “received treatment for a hypertension/diabetes-related disease name (no CKD-related disease name)” within 12 months of the health checkup. Although 10% of subjects receive treatment for a CKD-related disease name, this figure rose to nearly 50% when hypertension and diabetes disease names were included. A certain number of patients in the CKD group received treatment for hypertension and diabetes even though they did not receive treatment for a CKD-related disease name specifically. This suggests that there are opportunities to medically intervene for CKD in this group.

2.4 Reasons for not seeking consultation at a healthcare institution (multiple answers allowed)

Table 4. Reasons for not seeking consultation at a healthcare institution (multiple answers allowed)

Reasons for not seeking consultation	%
Don't know where to go for consultation	9.3%
Not enough time	17.5%
Worried about medical costs	4.4%
No primary care physician	2.1%
Psychological burden	4.1%

Analysis of CKD group subjects who did not seek medical consultation (n=23,011)

For subjects in the CKD group who did not receive treatment within 12 months of the health checkup, factors that prevented their seeking medical consultation were identified based on their responses to an additional questionnaire that was self-administered at the time of health checkup. A relatively high proportion of these subjects responded “Not enough time” (17.5%) and “Don’t know where to go for consultation” (9.3%).

2.5 Factors associated with seeking treatment for CKD

Table 5. Factors associated with seeking treatment for CKD

		Prevalence ratio (95% CI)
Age (y.o.)		
	20-39	1.00 (ref)
	40-59	0.96 (0.79-1.16)
	≥60	1.07 (0.87-1.32)
Female sex (vs. male)		1.58 (1.18-2.11)
Smoking		0.87 (0.79-0.95)
Working time (hours)		
	<40	1.00 (ref)
	40-59	0.93 (0.84-1.02)
	60-79	0.96 (0.80-1.16)
	≥80	0.61 (0.36-1.01)
CKD stage		
	Urinary protein ≥1+ and eGFR ≥60	1.91 (1.60-2.28)
	Urinary protein – or ± and eGFR 45-59	1.00 (ref)
	Urinary protein ≥1+ and eGFR 45-59	2.42 (2.01-2.91)
	Urinary protein – or ± and eGFR <45	2.64 (2.37-2.94)
	Urinary protein ≥1+ and eGFR <45	4.88 (4.28-5.58)
BMI (kg/m²)		
	<18.5	1.23 (0.86-1.75)
	18.5-24.9	1.00 (ref)
	25-29.9	1.08 (0.99-1.18)
	≥30	1.07 (0.93-1.21)
Hypertension		1.47 (1.33-1.62)
Diabetes		3.14 (2.85-3.46)
Dyslipidemia		1.04 (0.96-1.13)

Analysis of CKD group (n=25,434)

Factors associated with seeking treatment for CKD were female sex, non-smoking, CKD stage (urinary protein ≥1+ and eGFR ≥60 mL/min/1.73 m², urinary protein ≥1+ and eGFR 45–59 mL/min/1.73 m², urinary protein – or ± and eGFR 45–59 mL/min/1.73 m², urinary protein ≥1+ and eGFR <45 mL/min/1.73 m²), and the presence of comorbidities such as hypertension or diabetes.

3. Summary

This survey revealed that most cases of CKD detected in health checkups were in early stages, with mild eGFR reduction being particularly common. It also revealed that a certain number of subjects in the CKD group received treatment for relevant diseases such as hypertension and diabetes despite not receiving treatment for CKD-related disease names. This suggests that there are opportunities to medically intervene for CKD. Furthermore, it revealed that lack of time and lack of information about suitable clinics were barriers to seeking consultation.

Subgroups less likely to seek consultation for CKD were men, smokers, people with early-stage CKD, and people with no comorbid hypertension or diabetes. It is necessary to consider how to help these subgroups to seek consultation at a healthcare institution after a health checkup. Additionally, further consideration is needed on whether these subgroups require medical intervention, what information should be provided, and how to appropriately make use of checkup results and otherwise follow up.

This survey has several limitations that should be noted. Firstly, the analyzed data was drawn from a working-age population in a single industry (construction-related work). Even so, as the insurer operates nationwide and covers a wide range of occupations including field workers, regular employees, sales staff, and managers, the results can be generalized to the wider working-age population. However, as most of the health checkup subjects were men, caution must be exercised when generalizing the results to women. In the future, it will be necessary to study populations that include significant numbers of women and seniors. Secondly, as the various factors affecting treatment-seeking were extracted from observational data, it is difficult to determine their causal relationship between each factor and consultation behavior. In the future, scientific evidence from a rigorous interventional study will be required to evaluate factors for improving treatment rates.

IV Qualitative Interview Survey of Patients on Seeking Medical Care

1. Methods

1.1 Subjects

The participants of this survey were four men and one woman who were receiving ongoing treatment for non-dialysis-dependent CKD on November 29, 2024 at either bedless Clinic A, which had a nephrologist on staff, or at bedless Clinic E, which had a general internist on staff. The survey was conducted after confirming that each participant had consulted the healthcare institution following a health checkup, had no physical or psychosocial issues according to their primary physician, and had consented to participating in the survey.

1.2 Survey period and methods

Interviews were conducted between December 2024 and February 2025 using an interview guide. Audio was recorded using a digital recorder after obtaining the participants' consent.

1.3 Aggregation

The audio was transcribed, then the interview data was categorized, and the patients' experiences were recorded.

1.4 Ethical considerations

The survey was explained to the participants in writing. Participants were informed that the survey was voluntary, that non-participation would not disadvantageously affect their treatment, and that consent could be revoked once given. Before publishing the policy recommendations, participants were informed that the published material would not personally identify them, and that all materials would be managed in accordance with the HGPI Privacy Policy. After the participants were informed, their written consent was obtained.

2. Results

2.1 Basic information

Table 6. Basic participant information

	Participant A	Participant B	Participant C	Participant D	Participant E
Age (decade of life)	70s	50s	30s	50s	50s
Sex (male or female)	Female	Male	Male	Male	Male
Underlying kidney disease	Unknown	IgA nephropathy	Secondary focal glomerulosclerosis due to hypertension	-	IgA nephropathy
Clinic attended (A or E)	A	A	A	E	E

2.2 Interview results

2.2.1 Health and hospital visitation circumstances prior to detection of reduced kidney function

Overview

One participant (Participant A) had a childhood history of kidney disease. Another (Participant D) was receiving medication for hyperuricemia and other conditions. The other three (Participants B, C, and E) had no history related to kidney function prior to receiving treatment for kidney disease. Specifically, Participant A had a history of nephrosis in childhood, and was prescribed medication affecting kidney function for approximately five years at an orthopedic clinic following a fall from a bicycle roughly 10 years prior to the survey. Participant B had a history of asthma and atopy from a young age, but no history of kidney disease. Participant C had no notable history of medical visits apart from consultation for a bone fracture. Participant D had been taking medication for blood pressure, uric acid, and cholesterol. Participant E had no notable history of medical visits.

Comments by participants

“In the first year of elementary school, I got an illness called nephrosis. I was treated and took a month off school, but there was nothing after that.” **(Participant A)**

“About 10 years ago, I saw an orthopedist after I fell off a bicycle, and I haven’t really taken medication since then except for some sleeping pills when I can’t sleep.” **(Participant A)**

“I’m predisposed to allergies, and I’ve had asthma and atopy since I was a child. I think the hypertension appeared after my kidneys started to hurt.” **(Participant B)**

“Until I was told about my high blood pressure and kidneys, I thought I was healthy. I played American football when I was a university student. I wasn’t taking medication, supplements, or anything. I went to a hospital for a broken bone long ago, but apart from that, I didn’t even know how to get medical consultation.” **(Participant C)**

“Before I began going to Clinic E, where I currently go, I was receiving medication for blood pressure, uric acid, and cholesterol at another clinic.” **(Participant D)**

“I used to ride a motorcycle and play rugby, so I’ve been injured many times, but did not really ever (have any diseases requiring that I) seek medical consultation.” **(Participant E)**

2.2.2 Health checkup and consultation circumstances prior to detection of reduced kidney function

Overview

One participant (A) underwent a health checkup after being informed that health checkups had begun to be offered in her neighborhood. Two participants (C and D) underwent regular health checkups at work every year. One participant (E) underwent his first health checkup in his late twenties after changing jobs. One participant (B) did not undergo a general health checkup, but received individual testing at his usual healthcare institution.

Comments by participants

“I worked from age 19 to 24, but I don’t think there were any workplace health checkups. After group health checkups began in the neighborhood and I got a notice about them, I began going with all the neighbors.”

(Participant A)

“After I graduated from university, I had a health checkup at work every year.” **(Participants C and D)**

“I had my first health checkup at work after I changed jobs in my late twenties. Until then, I wasn’t undergoing health checkups (because my workplace did not promote them).” **(Participant E)**

“I did not undergo workplace health checkups. Instead, I went to a hospital and had tests done and had a doctor check them.” **(Participant B)**

2.2.3 Circumstances surrounding initial findings of reduced kidney function and subsequent process leading up to initial consultation for kidney disease

Table 7. Checkup results and process leading up to initial consultation at a healthcare institution

	Checkup results	Consultation recommended by physician or public health nurse after checkup	Time to first consultation / events leading to consultation / impetus for seeking consultation	Notes
Participant A	Positive for occult blood in urine	Yes (Two consultation recommendations from municipal public health nurse)	(Time) 1–2 weeks (Events) Checkup → 1st consultation recommendation → 2nd consultation recommendation ~1 month later → sought consultation 1–2 weeks after (Impetus) At the time of the second home visit by the public health nurse, her husband had recently passed away, and she was able to attend to her own needs as she no longer had caregiving responsibilities, so she sought consultation with little delay.	Did not seek consultation after the first recommendation by the public health nurse, but sought consultation 1–2 weeks after the second recommendation. Did not consider the matter serious after the first recommendation, but decided it was important after the second, and sought consultation.
Participant B	Positive for proteinuria and hematuria	No	(Time) Soon after checkup (unclear exactly when) (Events) Sought consultation after seeing “positive for proteinuria and hematuria” in checkup results (Impetus) Decided to seek treatment after seeing his test results. However, on his first consultation, the physician recommended observation, and no further tests or treatment were administered.	Five years passed between the first consultation and a second consultation that led to treatment. The impetus for seeking the second consultation was a recommendation from his spouse, a nurse, who saw the test results.
Participant C	Proteinuria and high blood pressure	Yes (Received 2 consultation recommendations from occupational physician)	(Time) Approx. 2 years (Events) Checkup → 1st consultation recommendation → 2nd consultation recommendation → sought consultation (Impetus) Received a second referral to clinic with a nephrologist from an occupational physician.	About 15 years passed between first becoming aware of proteinuria in the checkup and seeking consultation. Became aware of high blood pressure in a health checkup two years ago.
Participant D	High blood pressure and uric acid	Yes (Received consultation recommendation from occupational physician)	(Time) Soon after checkup (unclear exactly when) (Events) Checkup → consultation recommendation → sought consultation (Impetus) Consultation recommended by occupational physician.	
Participant E	Positive for proteinuria	No	(Time) Soon after checkup (unclear exactly when) (Events) Checkup → sought consultation (Impetus) Sought consultation after seeing “repeat testing required” in checkup results.	

Overview

Of the five participants, two (B and E) did not receive a consultation recommendation after receiving their health checkup results, but sought consultation at healthcare institutions soon after receiving results containing “positive” or “repeat testing required.” The three other participants (A, C, and D) sought medical consultation after various delays: 1–2 weeks, approximately two years, and an unknown period, respectively. The consultations were prompted by the visit of a municipal public health nurse or strong urging from an occupational physician.

Although Participant B sought consultation promptly, the physician recommended observation. However, no follow-up examinations or testing were conducted. It was not until five years later that Participant B sought examination at the urging of his spouse (a nurse) and began receiving treatment.

Participant A

Participant A tested positive for urine occult blood in a health checkup conducted by her local government. At the time, neither the health checkup physician nor the local internist she was seeing recommended further testing or consultation, but a municipal public health nurse raised concerns about her kidney function and visited her home twice to recommend consultation. Although she did not consider the matter to be particularly consequential after the first recommendation, she sought consultation after the second. The second visit by the public health nurse made her realize that the matter was important, and as her husband no longer required care because he had recently passed away, she was able to attend to her own needs, and so she decided to seek consultation.

Participant B

Participant B’s abnormal kidney function was pointed out in the results of a urine test he underwent upon joining a new company. Soon afterwards, he visited General Hospital B for consultation, but the physician of first contact chose to monitor the issue. At the recommendation of his spouse, a health professional, he sought consultation again roughly five years later, underwent a kidney biopsy, and was diagnosed with IgA nephropathy.

Participant C

Participant C’s proteinuria was flagged in a health checkup roughly 15 years before this study, but he did not receive a specific recommendation to seek consultation at the time. In 2023, he was flagged for high blood pressure by an occupational physician in a workplace health checkup, and received a referral letter (first consultation recommendation), but did not seek consultation. Then, roughly one year later, he received a second consultation recommendation from the occupational physician, and was referred to Clinic A, which had a nephrologist on staff.

Participant D

Participant D was flagged for high blood pressure and uric acid levels by an occupational physician in a workplace health checkup roughly 20 years before this study. As he was aware of the risks due to his own family history, he soon sought consultation. About 10 years before this study, he was referred by another occupational physician to Clinic E, where he was diagnosed with CKD and began undergoing treatment. He did not have a clear recollection of treatments that he had received before beginning care at Clinic E.

Participant E

Participant E consulted General Hospital F on his own initiative soon after seeing “repeat testing required” for an abnormal urinary protein level in his workplace health checkup results. At General Hospital F, he underwent a kidney biopsy and was diagnosed with IgA nephropathy.

Comments by participants

“When I got the results of the group health checkup five or six years ago, the city public health nurse came to my house and asked me, ‘Have you gone to the hospital yet?’ I said ‘No, not yet,’ and the nurse ‘Please go, okay?’ At the time, I was busy caring for my husband, so I said ‘I’ll go when I have time.’” **(Participant A)**

“A little while after the first visit, the public health nurse visited for a second time. The nurse asked me, ‘Have you been to the hospital?’ I replied ‘No, I don’t know where to go.’ I told the nurse that my local internal medicine doctor looked at my kidney function and told me it was ‘Fine.’ The nurse said, ‘I’ll introduce you to the nephrologist at Clinic A.’ Because the public health nurse gave me a referral, and visited me twice, I thought it was important and decided to go. The second visit by the public health nurse came at a time when I was just beginning to be able to attend to my own situation, so yeah, I decided to go and see.” **(Participant A)**

“When I was 23 years old, I had a health checkup before joining a company, which came back showing proteinuria and hematuria. After the checkup, I went to General Hospital B of my own initiative. It was the first time a health checkup made me think, ‘What?!’ But the doctor who saw me—might have been a resident, not sure—said something like, ‘Let’s wait and see’ and that was all. **(Participant B)**

“My spouse is a nurse. She didn’t have particularly detailed knowledge about kidneys, but she thought my results weren’t normal, and referred me to General Hospital C, where first I began treatment for high blood pressure. There was no nephrologist at General Hospital C at the time, so I was being monitored by the primary care physician. After that—probably soon after—I had a kidney biopsy and learned that the disease was IgA nephropathy. This was about five years after the abnormality came to light in the health checkup.” **(Participant B)**

“In 2023, my occupational physician wrote me a referral letter and told me to go to hospital because my blood pressure was at an all-time high.” **(Participant C)**

“During my 2024 health checkup, the occupational physician told me that if I didn’t go to the hospital this time, it would be my own fault. Proteinuria had been sporadically appearing in my health checkup results. So the occupational physician at work referred me to Clinic A, where a nephrologist colleague worked. As my father had collapsed from a stroke once, I thought it was important to get consultation.” **(Participant C)**

“I don’t remember clearly because it happened about 20 years ago, but an occupational physician at work told me in a health checkup that I had high blood pressure and urea, and that I should get consultation. My father collapsed from a stroke. I’ve always had high blood pressure, so I think it might be partly hereditary.” **(Participant D)**

“About 10 years ago, I began going to Clinic E after an occupational physician at work referred me there. I think I was told about the proteinuria at Clinic E. I didn’t have any subjective symptoms leading up to the consultation.” **(Participant D)**

“After changing jobs, I think I had a health checkup every year. When I was about 28, the workplace health checkup flagged me for proteinuria, and the result said ‘repeat testing required,’ so I went on my own initiative to General Hospital F for consultation. I didn’t have any subjective symptoms at the time.” **(Participant E)**

“I don’t think much time passed between the health checkup and the consultation. I went for consultation after seeing ‘repeat testing required’ in the health checkup results. I had a kidney biopsy done at age 28 when I went to General Hospital F for consultation. That was when I was diagnosed with IgA nephropathy.” **(Participant E)**

2.2.4 Reasons for not seeking consultation despite detection of reduced kidney function (or hypertension etc.)

Overview

Participants gave various reasons for not seeking consultation despite being flagged for reduced kidney function. Two participants (A and C) cited a lack of subjective symptoms, a belief that the condition was not serious, and lack of time due to work. Participant A also cited a lack of knowledge about kidney diseases, and the fact that neither the health checkup physician nor the doctor at the local clinic she saw for another illness clearly explained the necessity of treatment. Participant D was told by his occupational physician to monitor his blood pressure at home, so although he did monitor his blood pressure, he did not seek consultation for his kidney function.

Comments by participants

“It was around the time my husband died, so I think I trivialized it. And I remembered the health checkup physician’s words—‘You’re more or less fine at the moment’—and I assumed that was true and continued as I was. Also, kidney disease doesn’t have very noticeable symptoms, does it? I would have gone if it had given me all kinds of symptoms like pains or itches, but there was nothing like that. I felt fine, so I didn’t wasn’t even particularly careful about what I ate. The fundamental problem was that I was ignorant. I regret that very much.” **(Participant A)**

“At the time of the health checkup, the urine test came back positive for occult blood, but the internist doing the health checkup didn’t say ‘You should seek treatment soon,’ and my local internist said that level was fine, so I continued with life without worrying about it.” **(Participant A)**

“I know it’s an excuse, but I didn’t go because I was busy with work. It’s not as if there were noticeable symptoms.” **(Participant C)**

“When I was told my blood pressure was high in a health checkup about 20 years ago, the occupational physician asked me to monitor my blood pressure at home. So I bought a blood pressure monitor and was measuring my blood pressure.” **(Participant D)**

2.2.5 Treatment prior to receiving consultation at current clinics (Clinics A and E)

Overview

Of the five participants, two (Participants B and E) had been receiving treatment for kidney disease before receiving consultation at their current clinic. Participant B had been receiving treatment at General Hospital C for the approximately 15-year period between around 2001–2015. After receiving consultation at General Hospital C, he underwent pharmacotherapy and followed the directions of a registered dietitian, proactively improving his dietary habits and adhering to his medication regimen. Participant E was initially examined at General Hospital F roughly 30 years before the study, where he underwent a kidney biopsy and continued follow-up visits for about 15 years, taking medication continuously. Although he followed the dietary advice of a registered dietitian at one point, he discontinued the diet after a short time due to weight loss.

Comments by participants

“When I had a kidney biopsy at General Hospital C, I began pharmacotherapy, and I think the registered dietitian told me to get plenty of energy but limit my protein intake to about 50 g per day. My food intake dropped sharply, and my body weight started to decrease. At the time, I was only following the doctor’s instructions, and I don’t think I was particularly motivated. I reduced my protein intake somewhat, and I started to enjoy the taste of the new diet after I got used to it, so there was no psychological burden at the time.” **(Participant B)**

“When I was diagnosed at General Hospital C about 10 years ago, the doctor only said that my kidney function was lower than a normal person’s, that the cells were damaged, and that I had to do some things to prevent it from getting worse. I skimmed through a few books on kidney health, folk medicine, and so on, and they basically said that the kidney damage wouldn’t progress if I didn’t eat too much protein, so I assumed that would be the right thing to do.” **(Participant B)**

“I took the same medication for about 15 years after I was diagnosed with IgA nephropathy at General Hospital F. After my diagnosis, I was instructed by a registered dietitian to restrict my intake of protein and salt, which I tried to do, but it was very difficult. I wasn’t eating three meals a day in the first place, so I ended up with a calorie deficit, and was told to eat some sweets before going to bed. I didn’t think I could do that, and I would have kept losing weight on the diet, so I stopped after a short time. When I was on the restricted diet, I had to think about how much I would eat that day, so I was burdened in that respect, but there was no particular psychological burden aside from that.” **(Participant E)**

2.2.6 Treatment after receiving consultation at current clinics (Clinics A and E)

Overview

The abovementioned two participants who had been going to other healthcare institutions (Participants B and E) were referred to regional healthcare institutions after their numbers stabilized. Participant B searched the Japanese Society of Nephrology’s website and chose a clinic with a nephrologist; Participant E was counter-referred to his current clinic by his hospital.

All five participants are currently continuing treatment with a positive attitude under the guidance of their primary care physicians, and kidney function in each case has either improved or has shown no significant changes. Participants A, B, and C are making efforts to exercise and improve their diets (reduce salt intake). Participant A in particular was going to a rehabilitation hospital introduced by Clinic A, but due to the distance opted to exercise at home based on guidance provided at a local exercise facility. Participant C is reducing his salt intake with his spouse as a family effort.

Comments by participants

“After I started going to Clinic A, the doctor taught me a lot about kidneys. It was the first time I gained a proper understanding of my condition, and it helped me to try harder. The doctor specifically told me two things—to drink water, and to exercise. I try to use less miso in miso soup and less soy sauce in nimono stew. For exercise, I was going to a rehabilitation hospital that the doctor at Clinic A referred me to, but it was too far, so now I go to a local exercise facility to learn exercises that I can do at home. In my case, my red blood cell level declines when my kidneys are bad. So, I get injections to supplement that.” **(Participant A)**

“Until about 10 years ago, I was going to General Hospital C. When my illness had settled down, they suggested I transfer to a local clinic, so I moved my care to Clinic A. I found Clinic A by searching for a nephrologist on the nephrology society website, and narrowing the results down to easily accessible places near my home.” **(Participant B)**

“I avoid eating too much salt. Previously, my eGFR hardly ever went below 38 or 35—especially 35—but it fell to around 14 when I had some kind of unexplained illness in September 2024. I feel that my eGFR hasn’t bounced back well since then.” **(Participant B)**

“After I got consultation at Clinic A, I was referred to General Hospital D and had a kidney biopsy in August 2024. When I had the kidney biopsy, my spouse was with me at General Hospital D, and we received nutritional guidance from a registered dietitian. We were told that overeating wasn’t good, but that I still needed to consume enough calories, and most surprisingly, that I didn’t need to restrict the amount I ate. The meals I ate while in hospital for my kidney biopsy were quite large, and I would think, ‘I’m allowed to eat so much!’ I think it was a 2,000-kilocalorie diet containing six grams of salt. Ever since I was discharged, my spouse has making meals according to those guidelines and books that she bought. I’m grateful and enjoying the journey.” **(Participant C)**

“My kidney function and blood pressure have improved. With my family’s help, I reduced my salt intake, and do my best to have no more than six grams of salt per day. When we eat out or buy food at the convenience store, my family helps me check the salt content. Also, when I’m traveling on business, I check the salt content of my food and try to keep my overall daily intake under control—such as by minimizing salt in the morning if I will eat salty food during the day. My physician told me, ‘Don’t overdo it—it’s like a marathon,’ so I don’t feel any stress about my diet.” **(Participant C)**

“At Clinic E, they’re telling me to lose weight. Every month, they check not only urinary protein but also uric acid over time. They plot them on graphs, so it’s easy to understand. My father collapsed from a stroke once, so I know how grave the consequences of not taking medication can be, and I take mine rigorously.” **(Participant D)**

“Due to circumstances at General Hospital F, I happened to be referred to Clinic E, which is near where I used to live. I recall that my medication regimen gradually changed after I started going to Clinic E. At General Hospital F, I was being prescribed one type of medication, but this increased to three types at Clinic E. My kidney condition has been gradually deteriorating with age, and that’s being kept in check with various drugs, but I haven’t noticed much change in my daily life. My doctor is keeping it under control, so I don’t worry about my creatinine level and so forth.” **(Participant E)**

“After I transferred to Clinic E, I received dietary guidance from a registered dietitian once, but my doctor doesn’t emphasize any particular dietary restrictions, so I’m not really told to restrict any part of my diet.” **(Participant E)**

2.2.7 Care provided by health professionals at healthcare institutions

Overview

In the interviews, a few notable themes were apparent in comments that the five participants made about their previous experiences seeking consultation, and about the service provided by health professionals at the clinics they currently visit. Favorable comments included “The certified nephrologist answered every question I had about kidneys,” “They showed me the cells they collected in the kidney biopsy,” “They provided flexible guidance tailored to my own lifestyle,” and “They provided explanations whenever the disease progressed.” Participants also voiced opinions on the importance of having a relationship of trust with physicians, and for physicians to communicate and provide guidance not in a perfunctory manner, but in a way that considers the patient’s lifestyle.

On the other hand, regarding the service provided by some health professionals, some participants voiced a desire for treatment that took kidney health into consideration. Observations included “When I was going to a different hospital, I was given medication that affects kidney function without having my kidney function tested,” and “Physicians other than the certified nephrologist did not emphasize kidney health.”

Comments by participants

Good aspects of service

“When my doctor organizes a symposium and sends out flyers, I go and listen.” **(Participant A)**

“I tell my primary certified nephrologist everything that is necessary. My nephrologist is easy to talk to, and explains about eGFR and everything else I ask about. I don’t think I get such detailed answers if I go to see an ordinary internist and ask about kidney diseases. That’s why I thought I needed to go to that kind of place.” **(Participant A)**

“When I had my health checkup, I thought that I shouldn’t just consult any random internist. Because I think it’s meaningless to go a place where they don’t emphasize kidney health. It was thanks to the public health nurse’s visit that I first learned that I needed to consult a nephrologist.” **(Participant A)**

“I guess it’s all about who one meets. It has to be a good doctor. For me, what matters is that I met a doctor who listens to what I have to say.” **(Participant A)**

“Even though it wasn’t part of the routine, the doctor who did my kidney biopsy showed me the cells so that I could see my own condition.” **(Participant B)**

“The doctor I’m seeing now is a local physician, who, rather than dealing with things in a black-and-white manner, can take a more flexible view that can accommodate 80%, 70%, or even 30% of the ideal, depending on the situation.” **(Participant B)**

“My current doctor was the first one to properly explain that I would need dialysis if I did not get treatment.” **(Participant C)**

“I’m not timid, but if a specialist told me to keep taking medication, I wouldn’t be able to quit on my own—I trust my doctor. I think I can keep my kidney disease managed at this level if I more or less follow my doctor’s instructions.” **(Participant C)**

“I like that my doctor easy to talk to, cheerful, and approachable.” **(Participant D)**

“My physical condition fluctuates, and if there’s anything that causes my doctor to be concerned—even high blood work figures unrelated to kidney function—then my doctor will add extra blood test items and say ‘I’ll let you know if there’s anything of concern,’ so I leave everything up to my doctor.” **(Participant E)**

Aspects of service that could be improved

“I used to go to my local internist for medication to help me sleep, but that doctor never suggested doing blood tests or anything.” **(Participant A)**

“I took the medication I received from the orthopedic clinic I consulted for five years without knowing that some of the drugs burdened my kidneys. When I consulted Clinic A—my current clinic—they asked me what medication I was taking, and they called orthopedics for me and stopped me from taking the medicine.” **(Participant A)**

2.2.8 Measures needed for early detection and treatment, and expectations for society

Overview

The results of the survey suggest that to facilitate early detection and treatment, it is necessary not only to conduct health checkups appropriately, but also to encourage people to seek treatment by presenting the checkup results in a thoughtful manner—such as by illustrating the severe consequences of kidney disease progression, which presents few subjective symptoms in its early stages. Expectations for society included promoting correct understanding and distributing accurate information including firsthand accounts, quantifying and visualizing malaise and other symptoms that tests do not show, and expanding online healthcare services. Some participants also expressed a desire for information on local clinics' specializations.

Comments by participants

Measures necessary for early detection and treatment

"If they don't discover the disease at an early stage, it will continue to deteriorate, so we need to control that with medication. So I think early steps like health checkups are crucial. If I hadn't undergone the company health checkup, I probably wouldn't have gone to hospital, so if I had been self-employed or at a company without health checkups, it would have taken even longer to discover my illness." **(Participant E)**

"If a doctor wants someone to go to hospital after the health checkup flags something, it might be better to tell the person more stridently after the checkup, like, 'These are the consequences of neglecting this disease.' If the doctor downplays it, then the person might chalk the results up to their condition at the time and neglect to go for consultation." **(Participant E)**

Future expectations for society

"I can't tell what the local clinics' areas of expertise are. I want to know that information." **(Participant A)**

"I think that if people don't increase their knowledge, they might make decisions based on the wrong information. Which will only lead them down the wrong path. So, it's important to make an effort to disseminate that information, to address health issues more in everyday media. I think it will be even better if people with lived experience of disease were involved in disseminating information." **(Participant B)**

"I think there's a generally held belief that when one's kidneys deteriorate, there are symptoms like sluggishness and more persistent fatigue. It's probably true, and doctors probably know it, but I've been told it's impossible to scientifically prove. Personally, over the past five years or so, I've found myself more often wanting to rest and actually lying down. If possible, I think it would be good if researchers could do a follow-up survey to scientifically prove things like fatigue." **(Participant B)**

"Lately I have been taking paid leave to go to the doctor, but when I am working, clinic hours are a concern, so I think it would be good if there were more comprehensive online services. I think it would be good if the medical records were shared so that doctors can provide the same treatment no matter which healthcare institution people consult." **(Participant D)**

"I understand that my current condition is being maintained thanks to the hospital visits. It could suddenly deteriorate without regular hospital tests, so it's important for me to remain aware that have kidney disease. Because I don't have any subjective symptoms at all." **(Participant E)**

3. Summary

These interviews surveyed the process from health checkup to CKD treatment in five individuals who sought consultation under various circumstances. By listening to the details of each patient journey from health checkup to consultation, we were able to identify the specific reasons for seeking consultation. Personal factors leading to consultation included recommendations from an occupational physician, public health nurse, or family member, or personal judgement based on checkup results. External factors leading to consultation included doctors' reactions and the ability to receive consultation during working hours. These factors appeared to influence consultation-seeking behavior. Participants also mentioned that in seeking consultation at a regional clinic, they desired to know what the clinic's specialty was, and that they wanted to know more about CKD before treatment. We think that going forward, it will be necessary to consider what policies and outreach are needed from the perspective of people with lived experience of CKD.

One limitation of this study is that there can be a long delay between detection and treatment due to the lack of subjective symptoms presented by CKD. This means that the interviews relied on participants' recollections from several years in the past, making it difficult to accurately identify timeframes.

V Policy Recommendations on Strengthening CKD Strategies: Challenges and Solutions in Seeking Medical Care from the Perspective of Patients and Those Affected

The quantitative and qualitative surveys revealed various issues in the process from detecting reduced kidney function to treatment. As health checkup findings suggestive of CKD typically catch the disease in its early stages, the subgroup without comorbidities tends not to seek medical consultation, and the subgroup with early-stage CKD and no comorbidities often neglects the disease without treating it. This suggests it is necessary to consider providing appropriate information and intervening. The process from detecting findings suggestive of CKD until treatment is not always smooth, and may be affected by various personal, institutional, and healthcare delivery-related factors. The survey results also suggested that proactive post-checkup intervention by health professionals may encourage people to seek healthcare appropriately.

In light of these survey results, we convened an advisory board meeting that brought together specialists from industry, government, academia, and civil society to discuss measures for promoting timely medical consultation among individuals with health checkup findings suggestive of CKD. Drawing on these discussions, the following section presents policy recommendations for future CKD countermeasures.

1. Standards for recommending consultation in cases with suspected CKD under the current health checkup system are applied in a one-size-fits-all manner, and do not adequately account for diverse medical circumstances such as comorbidities or the degree of reduced kidney function and proteinuria. As such, they are not necessarily effective standards for promoting medical consultation that reflects a patient's risk of further reduced kidney function. It is therefore necessary to provide consultation recommendations that take into account the comorbidities and risk factors present at the time of health checkup. Evidence-based standards for consultation recommendations should be formulated and unified in interdisciplinary discussions among specialists from a variety of fields.

- The quantitative survey (2.3.1 Results according to CKD stage) revealed that the majority of individuals with health checkup findings suggestive of CKD were identified while the disease was in its early stages. However, current standards for consultation recommendations evaluate severity based on kidney function values. Recommendations are issued in a one-size-fits-all manner, without giving sufficient consideration to comorbidities and risk factors. Removing associated comorbidities and risk factors may help to slow the reduction in kidney function. It is therefore necessary to design a system for coordinating post-checkup healthcare that comprehensively considers reduced kidney function, comorbidities, and other risk factors.
- There is a lack of consistency across guidelines for recommending consultation in cases with health checkup findings suggestive of CKD. The Clinical Practice Guidebook for Diagnosis and Treatment of Chronic Kidney Disease 2024 published by the Japanese Society of Nephrology recommends issuing consultation recommendations for individuals with urinary protein $\geq 1+$, urinary protein \pm for two consecutive years, or eGFR < 45 mL/min/1.73m² (CKD stage G3b or worse). Consultation is also recommended when eGFR is < 60 mL/min/1.73m² (CKD stage G3a) and the individual is under 40 years old.¹⁾ Meanwhile, the 2025 Criteria Category Table published by the Japan Society of Ningen Dock and Preventive Medical Care categorizes eGFR values 45.0–59.9 mL/min/1.73m² or urinary protein $+$ as “Requires re-examination and life improvement,” and eGFR values

≤ 44.9 mL/min/1.73m² or urinary protein $\geq 2+$ as “Detailed examination/treatment required.”⁵⁾ The Standard Health Examination and Health Guidance Program (FY2024 Edition) published by the Ministry of Health, Labour, and Welfare (MHLW) also sets out health checkup test item thresholds for health guidance and consultation recommendations, designating eGFR < 60 mL/min/1.73m² as the threshold for health guidance, and eGFR < 45 mL/min/1.73m² as the threshold for recommending medical consultation.⁶⁾ The MHLW’s feedback examples for proteinuria note that when serum creatinine is not measured, consultation should be recommended if urinary protein is $\geq 1+$, and when serum creatinine is measured, consultation should be recommended if urinary protein is $\geq 1+$ and eGFR is < 45 mL/min/1.73m².⁶⁾ This lack of consistency between standards for consultation recommendations is an important factor hindering their issuance. Moreover, it has been pointed out that although multiple epidemiological studies have shown associations between mild proteinuria (\pm or $1+$) and reduced kidney function,¹⁾ health insurers do not handle such cases uniformly.

- ▶ Standards for issuing consultation recommendations after health checkups should be based on scientific evidence. We hope to see academia produce research results that can form an adequate scientific basis for establishing appropriate consultation recommendation standards that take comorbidities and risk factors into account. Optimizing post-checkup consultation recommendation standards to sufficiently reflect medical backgrounds can help to accurately identify and intervene in groups that need priority medical attention.
- ▶ To ensure that health professionals involved in health checkups can seamlessly provide consultation recommendations, standards for recommending medical consultation should be unified in a collaboration between stakeholders from a wide range of relevant fields. This interdisciplinary discussion should include not only nephrologists, but also other specialists, primary care physicians, insurers, and local government personnel.
- ▶ Guiding principles for preventing CKD are being formulated in the R&D Infrastructure Development Project for Social Implementation of Prevention and Health Promotion (Infrastructure Development Project for Social Implementation of Health Care) under the Japan Agency for Medical Research and Development (AMED). We hope that scientific evidence from the AMED project and other CKD research will be used to revise the Guide to the Smooth Implementation of Health Specific Medical Checkups/Healthcare Guidance, as well as clinical practice guidelines, and facilitate the creation of effective, evidence-based CKD countermeasures.
- Further discussion is needed to determine how and how often to recommend consultation to individuals with health checkup findings suggestive of mild CKD, and how to ensure and communicate the capacity of healthcare institutions to receive such patients.
 - ▶ Regarding the optimization of consultation recommendation standards, it is necessary to discuss not only the process from health checkups to consultation at a healthcare institution, but also the process leading to the post-consultation receiving point. There is the risk that, if the feasibility of treatment is not considered in advance, it will not be possible to examine, intervene, or otherwise handle the patient in accordance with clinical practice guidelines at the clinic in question. Therefore, when reconsidering consultation recommendation standards or guidelines for health checkup and clinical practice, it is important for discussions to be interdisciplinary, including not only nephrologists, but also health checkup physicians, primary care physicians, and other health professionals who may be involved in the treatment of CKD.

5) Japan Society of Ningen Dock and Preventive Medical Care. 2025 Criteria Category Table. <https://www.ningen-dock.jp/ningendock/wp-content/uploads/2025/02/2025hanteikubun.pdf> (accessed on June 12, 2025).

6) Ministry of Health, Labour, and Welfare. Standard Health Examination and Health Guidance Program (FY2024 Edition). <https://www.mhlw.go.jp/content/10900000/001231390.pdf> (accessed on June 12, 2025).

2. CKD presents few subjective symptoms in its early stages, and the population presenting findings suggestive of the disease varies widely in attributes such as age, sex, and socioeconomic circumstances. It is necessary to identify groups that should be prioritized for intervention and consider how to provide consultation recommendations that accommodate patient attributes.

- According to the quantitative survey, individuals less likely to seek consultation for CKD were men, smokers, people with early-stage CKD, and people with no comorbid hypertension or diabetes. However, as the survey was restricted to a working-age population in a specific industry, there is a limit to how far the results can be generalized.
 - ▶ As noted in the discussion of limitations, the subjects of the quantitative survey were of a working age, and the health checkup participants were predominantly male, so control groups were lacking. In order to enable broader generalization (such as to women and the elderly), it will be necessary to conduct further surveys on populations with more variation in terms of sex, occupation, and other attributes. It will then be necessary to use the results to identify the characteristics of groups that do not seek treatment. Having done that, standards outlining the means and frequency of recommendations should be developed in collaboration with nephrologists, primary care physicians, public health nurses and other specialists involved in the consultation recommendation process.
- Early-stage CKD presents little in the way of subjective symptoms to motivate individuals to seek treatment. Moreover, health checkup results are typically returned as a simple table of results, which sometimes makes it hard for physicians and citizens who do not regularly manage CKD to understand the necessity of addressing proteinuria and reduced kidney function.
 - ▶ To encourage people to seek treatment, healthcare institutions conducting checkups should devise improvements such as attaching simple, visually striking materials (e.g. age/sex-specific eGFR quick reference tables⁷⁾) when returning results. To help recipients take appropriate action, it is necessary to raise public awareness and provide citizens with easy-to-understand information, as well as to strength coordination between local governments, health centers, businesses, etc. to build systems that can deliver consultation recommendations on an ongoing basis.
 - ▶ To promote early intervention in CKD, measures must be taken that address the lack of subjective symptoms in the early stage of the disease. A recent study has reported on nudge-based behavioral interventions for people flagged in health checkups as having a high risk of CKD progression.⁸⁾ The possibility of using approaches rooted in behavioral science should be actively considered.
 - ▶ In the qualitative survey, one patient was flagged for re-testing in a health checkup but was not treated, and only received treatment after repeated recommendations from a public health nurse and referral to a healthcare institution providing care for CKD. In this manner, high-risk individuals can be effectively motivated by proactive recommendations and unambiguous referral to a healthcare institution from a physician, public health nurse, or local government. Given the effectiveness of face-to-face consultation recommendations, we expect that repeated in-person outreach will be effective for cases suspected to involve advanced CKD.

7) Japan Society of Nephrology. Age/Sex-Specific eGFR Quick Reference Table. https://cdn.jsn.or.jp/guideline/pdf/CKDguide2012_3.pdf (accessed on June 12, 2025).

8) Fukuma S, Sasaki S, Taguri M, Goto R, Misumi T, Saigusa Y, Tsugawa Y. Effect of Nudge-Based Intervention on Adherence to Physician Visit Recommendations and Early Health Outcomes among Individuals Identified with Chronic Kidney Disease in Screens. *J Am Soc Nephrol*. 2022 Jan;33(1):175-185.

3. In treating non-communicable diseases (NCDs) including CKD, it is necessary to clarify roles and develop a system applicable across a wide range of diseases that facilitates coordination among clinical departments and disciplines. At the same time, ICT and health professional education should be promoted to ensure that medical care and prescription in all healthcare settings take patients' kidney function into account.

- Because CKD interacts bidirectionally with hypertension, diabetes, and CVD, it shares a common disease structure with other NCDs. These require measures that integrate prevention, raising awareness, health promotion, checkups, and treatment at all stages of life from childhood through working years into old age. Such measures are often applicable across diseases, yet current policies are siloed by disease area, causing inefficiency where measures for prevention and care overlap.
- For example, CKD is closely associated with hypertension due to a bidirectional “cardiorenal” interaction with CVD. These diseases often share the same treatments. Furthermore, it has been shown that eGFR values and eGFR change are strong prognostic indicators for heart failure risk.⁹⁾ Moreover, as the Basic Act on Cardiovascular Disease Measures emphasizes the need for coordination with CKD countermeasures, CKD is expected to serve as an entry point for improving the quality of cardiovascular disease care.
- When formulating national and local policies for disease control, it is necessary to maintain a comprehensive approach that cuts across other relevant disease areas when discussing countermeasures, rather than considering diseases in isolation. Opportunities and forums should be provided for diverse stakeholders—including nephrologists and other clinicians, health professionals, health economists, and sociologists—to discuss healthcare policy and the healthcare delivery system from an interdisciplinary perspective.
- In the quantitative survey, approximately 40% of health checkup subjects with suspected CKD were already being treated for hypertension or diabetes. This suggests that among people with health checkup results suggestive of CKD, a certain number have not been assigned a CKD-related disease name despite receiving treatment for hypertension or diabetes.
 - ▶ To ensure that patients already being treated for CKD-related diseases such as hypertension and diabetes can also receive appropriate treatment for CKD, it will be necessary to clarify the respective roles expected of physicians who regularly treat CKD and those who do not, and to disseminate this information via bodies such as medical and academic associations. Doing so should help to close information gaps between physicians, reduce variability in medical services, and facilitate interventions that leverage specialist expertise and distributed roles.
 - ▶ To address individuals who are seeing other departments in a hospital but have not yet received intervention for CKD, continuous efforts aimed at health professionals are required. These efforts should include the implementation of systems to automatically detect CKD from test results (eGFR and urine protein) in electronic patient records, and the promotion of CKD awareness by medical and academic associations among clinical departments less directly involved in its management.
 - ▶ In treating NCDs including CKD, specialists should be able to proceed with treatment with a birds-eye perspective of other fields while applying their own expertise. To ensure that this is possible, medical and academic associations should jointly discuss how coordination should be structured among clinics and medical specialists, and provide clear guidance on the matter.

9) Japanese Circulation Society and Japanese Heart Failure Society. JCS/JHFS 2025 Guideline on Diagnosis and Treatment of Heart Failure.

- The qualitative survey found a case in which medication affecting kidney function had been prescribed to a patient at an orthopedic surgery clinic for an extended period. In this case, after reduced kidney function was detected in a health checkup and a consultation recommendation was issued, the patient visited a nephrologist who discovered the prescription and had it discontinued. This highlights an issue: when physicians treat diseases outside the context of CKD and related diseases, there are cases where they prescribe medication without checking kidney function despite the prevalence of drugs that can impair it.
 - ▶ To prevent such cases from occurring, it is important to establish systems that enable prescription drugs to be chosen considering the patient's kidney function. This could take the form of a system that automatically assesses kidney function at the time of prescription, or an ICT collaboration tool that enables pharmacists and primary care physicians to easily share kidney function information. Furthermore, we hope that pharmacists will keep track of patients' kidney function and prevent inappropriate prescriptions.

4. It is necessary to accumulate lifetime medical and checkup data, organize the data to facilitate long-term kidney function monitoring, and issue appropriate consultation recommendations in response to changes in patients' conditions.

- Serum creatinine level, an indicator of kidney function, is known to fluctuate due to temporary conditions such as dehydration. Even if eGFR is calculated from serum creatinine measured in a health checkup, it only represents kidney function at that point in time, which makes it difficult to detect a long-term decline in kidney function in such examinations.
- In recent years, diverse work styles other than lifelong employment are becoming increasingly common. This is making it difficult to obtain long-term health checkup data for an increasingly large number of workers, as they typically change insurers when they change jobs.
 - ▶ The Government of Japan must create a system that gathers, accumulates, and provides access to essential medical treatment and checkup data using the Individual Number Card. As part of a national initiative to promote medical digital transformation (DX), the government has recently been advancing plans for a personal health record system providing centralized access to lifelong health insurance, medical care, and nursing care records.¹⁰⁾ In order to achieve more personalized and effective prevention, health management, and treatment, it will be necessary to select and centralize all the required information, including not only medical data but also school health checkup results, workplace health checkup results, and other lifetime health checkup data (including test items for assessing kidney function such as urinary protein and serum creatinine). Centralization of lifetime medical data will enable long-term personal changes to be detected even if insurers are changed due to life stage progression, job-hopping, or retirement. Additionally, we hope that this healthcare and health checkup data will be used to create systems that can visualize long-term medical data.

¹⁰⁾ Cabinet Secretariat Medical DX Promotion Headquarters. Progress Schedule for the Promotion of Medical DX. https://www.cas.go.jp/jp/seisaku/iryoku_dx_suishin/pdf/suisin_kouteihyou.pdf (accessed on May 28, 2025)

5. It is necessary build momentum in society for evidence-based measures against kidney disorders by coordinating among specialists across disciplines to generate research results with a focus on consultation-seeking behavior and health disparities, while visualizing the cost-effectiveness of early detection and intervention and reflecting the figures in evaluation metrics.

- At present, it is not possible to determine the overall CKD consultation rate in Japan from academic associations' medical research registries. On reason for this is that when patients visit healthcare institutions for reasons other than CKD, physicians without opportunities to regularly manage the disease may not register a CKD-related disease name. It is therefore difficult to conduct a large-scale study on consultation recommendations following health checkups due to a lack of data from which to generate research findings.
- A study on the cost-effectiveness of specific health guidance found that while the incidence of stroke was the most influential factor in reducing medical costs, kidney-related parameters also played an important role.⁹⁾ The study suggests that cost-effectiveness can be improved more by reducing the probability of transitioning from CKD stage G3a to G3b than from stage G4 to G5.¹¹⁾
- Cost-effectiveness varies depending on target group and time span, which makes it difficult to calculate for progressive diseases such as CKD. It is therefore important that insurers and health economists providing scientific evidence agree on what cost-effectiveness assessments should assess and how they should be calculated.
 - ▶ To build momentum in society for kidney disease countermeasures, academic societies, nephrologists, medical economists, and other related parties should cooperate to develop evidence for CKD countermeasures, such as analyses assessing the cost-effectiveness of seeking consultation after receiving health checkup results highlighting reduced kidney function or proteinuria.
 - ▶ Compared with other diseases, CKD is more susceptible to health impacts from disparities in medical resource availability, such as differences in insurer size or access to nearby board-certified specialists. It is necessary to not only produce research results on medical cost reduction and cost-effectiveness, but also build scientific evidence on the health disparities that arise from differences in medical resource availability.
 - ▶ There are calls for initiatives that actively address diseases significantly influenced by social determinants of health (SDH). We hope to see efforts that take not only cost-effectiveness but also social determinants of health into account to produce scientific evidence that increases the value of interventions.
 - ▶ The EBPM Action Plan 2024 (Cabinet Office) established common insurance data health plan evaluation indicators as outcome indicators for policy. To ensure that research results are accumulated nationwide, it will be important to apply CKD-related indicators in interim evaluations in the three years after 2025.

11) Akune Y, Anezaki H, Nakao YM, Goto R. Cost-effectiveness of behavioural counselling intervention compared with non-intervention for adult patients with metabolic syndrome to prevent cardiovascular diseases and type 2 diabetes in Japan: a microsimulation modelling study. *BMJ Open*. 2024 Apr 5;14(4):e072688.

6. To ensure that people found to have proteinuria or reduced kidney function in health checkups seek appropriate treatment, it is necessary to raise awareness from a patient-centered standpoint by providing evidence-based information and guidance on where to seek medical consultation, in coordination with insurers, occupational physicians, and other professionals.

- In the quantitative study, a certain number of subjects cited “Don’t know where to go for consultation” as a barrier to seeking consultation. Furthermore, the qualitative survey also included comments to the effect that the patient “didn’t know where to seek consultation after the reduced kidney function was pointed out, because there was no way to know what the local clinics’ areas of expertise were.” On the other hand, there was a case where the patient received treatment soon after the health checkup provider indicated an appropriate medical institution.
 - ▶ To ensure that people with health checkup results indicating reduced kidney function can seek consultation promptly, it is necessary to clearly indicate where to consult, from the perspective of the affected individuals.
 - ▶ We hope that insurers will try to raise awareness among policyholders and their dependents with citizen-oriented initiatives like the Jozunairyounokakarikata Project (How to Use Healthcare Services Effectively Project¹²⁾), as well as provide evidence-based health information. As insurers cover the entire population of Japan, they should leverage their position to actively raise awareness so that citizens can obtain information with certainty.
 - ▶ Occupational physicians and occupational health nurses have many opportunities to provide education in initiatives such as company training programs. For example, we have heard of cases in which an occupational physician successfully educated a workplace on cancer control by creating and distributing high-quality, easy-to-understand materials among employees. We hope that professionals across the entire occupational health field will apply such successes in other disease areas to promote awareness of CKD among employees.

12) Ministry of Health, Labour and Welfare. Jozunairyounokakarikata Project. <https://kakarikata.mhlw.go.jp/index.html> (accessed on June 12, 2025).

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Quantitative Survey

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Qualitative Survey

People with lived experience of kidney disease (5 people)

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