



BMJ Open Optimising transitions of care for acute kidney injury survivors: protocol for a mixed-methods study of nephrologist and primary care provider recommendations

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To cite: May HP, Krauter AK, Finnie DM, *et al.* Optimising transitions of care for acute kidney injury survivors: protocol for a mixed-methods study of nephrologist and primary care provider recommendations. *BMJ Open* 2022;**12**:e058613. doi:10.1136/bmjopen-2021-058613

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2021-058613>).

Received 28 October 2021
Accepted 19 May 2022



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ABSTRACT

Introduction Acute kidney injury (AKI) affects nearly 20% of all hospitalised patients and is associated with poor outcomes. Long-term complications can be partially attributed to gaps in kidney-focused care and education during transitions. Building capacity across the healthcare spectrum by engaging a broad network of multidisciplinary providers to facilitate optimal follow-up care represents an important mechanism to address this existing care gap. Key participants include nephrologists and primary care providers and in-depth study of each specialty's approach to post-AKI care is essential to optimise care processes and healthcare delivery for AKI survivors.

Methods and analysis This explanatory sequential mixed-methods study uses survey and interview methodology to assess nephrologist and primary care provider recommendations for post-AKI care, including KAMPS (kidney function assessment, awareness and education, medication review, blood pressure monitoring and sick day education) elements of follow-up, the role of multispecialty collaboration, and views on care process-specific and patient-specific factors influencing healthcare delivery. Nephrologists and primary care providers will be surveyed to assess recommendations and clinical decision-making in the context of post-AKI care. Descriptive statistics and the Pearson's χ^2 or Fisher's exact test will be used to compare results between groups. This will be followed by semistructured interviews to gather rich, qualitative data that explains and/or connects results from the quantitative survey. Both deductive analysis and inductive analysis will occur to identify and compare themes.

Ethics and dissemination This study has been reviewed and deemed exempt by the Institutional Review Board at Mayo Clinic (IRB 20–008 793). The study was deemed exempt due to the sole use of survey and interview methodology. Results will be disseminated in presentations and manuscript form through peer-reviewed publication.

INTRODUCTION

Acute kidney injury (AKI) affects nearly 20% of all hospitalised patients¹ and the 80%–90% who survive hospitalisation are

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The sampling frame for both the quantitative and qualitative strands broadly represents the spectrum of post-AKI care providers, enhancing the generalisability of findings.
- ⇒ Iterative qualitative data collection and analysis and inclusion of an inductive analytic approach will facilitate adaptation of the sampling approach and interview guide over the course of the study and allow for exploration of new or unanticipated themes.
- ⇒ Integration of data among and between both strands to explore concordance or discordance enhances the veracity and internal validity of study findings.
- ⇒ Non-response bias is a concern with survey research and therefore some basic demographic information will be collected for the entire invited sample (including non-responders) to assess and describe this.
- ⇒ This survey measures provider recommendations through a small number of simulated cases and results may not accurately reflect real-time decisions made in practice; therefore, clinician views are explored in greater detail through qualitative interviews.

at higher risk for poor long-term outcomes compared with those discharged free from AKI. These complications, which include a 1.5–2.5-fold higher risk of chronic kidney disease (CKD), a 1.9-fold higher risk of cardiovascular disease^{2–7} and frequent rehospitalisations,² decrease the quality of life for AKI survivors and strain healthcare resources.^{8–10}

This significant risk of poor outcomes can be partially attributed to gaps in kidney-focused care and education during transitions. A minority of AKI survivors receive dedicated kidney health follow-up after discharge and prescription of potentially nephrotoxic

**Table 1** Components of kidney follow-up care

K	Kidney function assessment with laboratory testing
A	Awareness and education
M	Medication reconciliation and review
P	Individualised blood Pressure monitoring
S	Sick day education

medications occurs commonly in AKI survivors.^{11 12} The Acute Disease Quality Initiative, an internationally recognised group of experts in kidney health, recommends a multidisciplinary approach to post-AKI care that includes implementation of the KAMPS framework (table 1) and encourages follow-up with a nephrology specialist for those with severe and/or prolonged AKI.¹³ Each KAMPS element is designed to minimise AKI complications and promote patient engagement with kidney health. We previously demonstrated that 1 in 5 AKI survivors fail to receive a serum creatinine assessment (the ‘K’ in KAMPS) within 30 days of discharge. Incidence of a kidney function assessment and a healthcare visit (a necessary step to achieve the other KAMPS elements including education, medication review, blood pressure individualisation and counselling) was only 70% at 30 days.¹⁴ Evidence describing the optimal processes for achieving of these objectives has yet to be elucidated. The limited reports of existing post-AKI care models describe routine incorporation of laboratory monitoring, patient education and medication review.^{15–18} These models primarily rely on nephrologists to oversee all elements of kidney health follow-up and education, however only a small portion of AKI survivors engage in this follow-up. Studies demonstrate that individuals at highest risk for poor outcomes, such as those with AKI requiring dialysis, pre-existing CKD, and minimal kidney function recovery at the time of hospital dismissal, are seen by a nephrologist in only 36%–43% of cases^{19 20} and the overall incidence of nephrology follow-up in AKI survivors may be as low as 8%.^{14 21} Additionally, concerns have been raised regarding the accessibility and scalability of AKI survivor care models dependent solely on nephrologists. Specifically, limitations include lack of access to nephrology specialty care, particularly in low-income and rural areas, patient reluctance to add more doctors to their healthcare team, and the inability of nephrology practices to meet the growing demand for their services.^{17 22 23} For these reasons, the broad implementation of AKI survivor care and components of the KAMPS framework cannot rely solely on nephrology specialists. Thus, there is a critical need to develop new pathways for delivery of key elements of post-AKI care and prioritise referral to nephrology specialty care for those highest risk patients who stand to benefit most.

Building capacity across the healthcare spectrum by engaging a broader network of providers to facilitate follow-up care represents a key mechanism to address these needs.²⁴ Primary care providers (PCPs) play an

integral role in facilitating continuity of care during transitions from the hospital to a community setting, often using established transition models to reduce emergency department visits, rehospitalisations, costs, and improve quality of life and self-rated health.^{25–29} These cost-effective, team-based strategies could be successfully leveraged to deliver better care for AKI survivors, as PCPs and nephrologists frequently and collaboratively care for patients with kidney disease.^{22 30–32} To optimise cooperative care processes and healthcare delivery for AKI survivors, additional study is needed to understand how nephrologists and PCPs approach post-AKI care after hospitalisation, including implementation of the KAMPS framework.

This manuscript presents a mixed-methods protocol for a study to answer the research question: how do PCPs’ and nephrologists’ recommendations for post-AKI care compare? We will explore methods for implementing KAMPS elements, multispecialty collaboration, and care process-specific and patient-specific factors influencing healthcare delivery.

METHODS AND ANALYSIS

Overview and design

We will perform an explanatory sequential mixed-methods study to assess PCP and nephrologist recommendations for kidney follow-up care in the context of AKI survivorship during transitions of care (figure 1). The quantitative strand will be guided by a postpositivism worldview to assess clinical decision-making using case-based scenarios. Qualitative research will employ a realism framework to explain differences and further explore the perspectives of the two groups. This study was reviewed, deemed ‘exempt’ due to the sole use of survey and interview procedures, and approved by the Institutional Review Board (20–008793) at Mayo Clinic on 21 October 2020, and data collection is currently ongoing. All research will be conducted during the global COVID-19 pandemic and is anticipated to conclude in 2022.

Patient and public involvement

No patient or member of the public was directly involved in the study design. The research question and outcome measure(s) in both quantitative and qualitative strands were informed by patients’ priorities, experiences and preferences sourced from published data from clinical trials, qualitative patient interviews and patient-inclusive workshops and focus groups.^{16 17 33 34}

Phase 1—quantitative strand

Survey development

A survey instrument was developed with the objective to assess provider recommendations and clinical decision-making in the context of post-AKI care (online supplemental appendix 1). Survey questions were developed using an emerging contextual framework, KAMPS, for construct validity. The KAMPS framework is derived

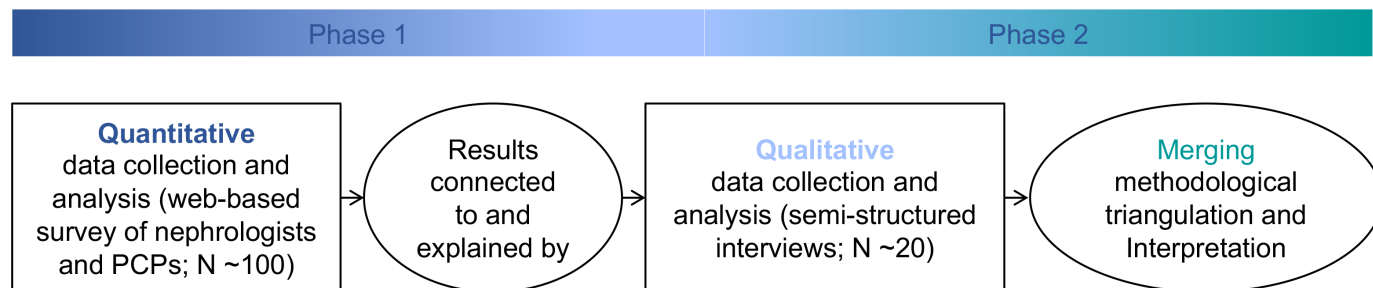


Figure 1 Explanatory sequential mixed-methods study design.

from expert recommendations for components of kidney follow-up care.¹³ The survey measures behaviour related to kidney function monitoring, recognition of CKD, comorbid disease management, medication and lifestyle modification, and nephrology specialist referral through fictitious, case-based questions. The KAMPS framework primarily addresses what components of care should be delivered but not how to meet those goals. After construction by select study team members (HPM, AKK, EFB), cases were pilot tested and reviewed by board certified physicians in nephrology and primary care (KBK, RGM), study team members with >5 years of postgraduate experience in AKI survivorship care. Additional pilot testers were then recruited from among trainees in nephrology and primary care. Respondent debriefings were conducted with pilot testers to assess the content and face validity of the survey, and results used to iteratively refine the items. Construct validity is derived from comparison to KAMPS criteria, case review by study team members internationally recognised as experts in AKI care quality (KBK, EFB),¹³ and existing literature demonstrating these specific gaps in post-AKI transitions of care.^{14 17 35–37}

Sample and study setting

The sampling frame will include physicians and advanced practice providers (APPs; nurse practitioner or physician assistant) within the Divisions of Nephrology and Primary Care who provide posthospital care for AKI survivors at Mayo Clinic in Rochester, Florida, Arizona and the Mayo Clinic Health System. The Mayo Clinic Health System includes clinics, hospitals and other healthcare facilities across southern Minnesota, western Wisconsin and northeastern Iowa.³⁸ Facilities include large regional medical centres, community hospitals and rural primary care clinics that collectively offer over 100 medical and surgical services and specialties that serve patients in their communities. Resources are shared across the Mayo Clinic Enterprise, including Florida, Arizona and the Health System. This sampling approach targets individuals affiliated with both academic and community or rural settings, and individuals with patients from a variety of sociodemographic backgrounds. Members of the Division of Nephrology at Mayo Clinic in Rochester provide specialty services to patients within the Mayo Clinic Health System on a referral basis through in-person appointments at multiple health system sites, including

outreach clinics in rural areas. Additional nephrology physicians and APPs are employed by individual health system sites. Availability and provider experience with telemedicine increased prior to the study period due to the COVID-19 pandemic. Within the Mayo Clinic Enterprise, telemedicine is employed by multiple disciplines (eg, medicine, nursing, pharmacy) when clinically appropriate and as supported by state and federal governments. Transitional and in-home primary care programmes were implemented in select locations within the Mayo Clinic Enterprise prior to the pandemic.^{29 39} In 2021, a new transitional post-AKI care programme was piloted in primary care in Rochester.⁴⁰ No formal changes were made to nephrology or primary care posthospital follow-up practices and new patient capacity was unchanged. Email addresses will be obtained from departmental contact lists. Respondents must certify they have been in practice a minimum of 1 year following terminal postgraduate medical training, practice in an outpatient clinic setting a minimum of ½ day per week, and have experience caring for patients recently discharged from the hospital. Remuneration will not be offered for completing the survey.

Data collection

Demographic data collected includes sex, specialty, degree, practice location (Mayo Clinic Rochester, Mayo Clinic Arizona, Mayo Clinic Florida or the Mayo Clinic Health System), location of medical training (yes/no to any completed at a non-Mayo Clinic site) and years in practice. The invitation to participate in the study will be extended via email and the survey will be administered using RedCap survey technology. The survey will be active for a period of 3 weeks before a reminder email will be distributed to all individuals who have not yet completed the survey. The outcomes measured will be the survey answers selected by respondents.

Analysis

Descriptive statistics will be used for demographic variables in both groups. The Pearson's χ^2 or Fisher's exact test for categorical variables will be used to compare results for each question between groups. Select questions (see online supplemental appendix 1) with a 'best answer' (eg, based on guideline recommendations, package insert guidance for drug dosing in kidney dysfunction) will be scored, with 1 point assigned for each best answer

selected and 0 points assigned for incorrect answers, for a maximum total of 5 points. In cases where a 'best answer' cannot be determined, differential responses will be described and compared between groups. Mean scores will be compared between groups using the students t-test. We will use a connecting and merging approach for mixed-methods data integration and results from the survey will inform the sample for the qualitative strand.

Detecting a mean between-group difference (nephrologist vs PCPs) of 2 points, assuming a SD of 2, with 80% power and using an alpha 0.05 will require 18 participants per group. Departmental contact lists indicate 61 providers employed within the included Divisions of Nephrology and over 700 PCPs employed by Mayo Midwest Primary Care. A response rate of 3% (for PCPs) to 29% (for nephrologists) will make it feasible to meet our recruitment targets.

Phase 2—qualitative strand

Sample

Purposeful sampling of survey responders will be used to recruit up to 20 providers, who routinely care for AKI survivors in the postdischarge setting, for semistructured interviews. The final number of participants will be guided by thematic saturation.²⁸ Participants from the quantitative strand will be sampled for variation on key factors including sex, specialty, provider type (physician or APP), and practice setting to provide insight from the breadth of providers represented in the sampling frame and explain survey results that are of greatest interest. Additional individuals will be recruited from among the sampling frame identified in the quantitative strand, if needed to achieve thematic saturation. Data collection and analysis will be iterative and additional interviews will be added if other important viewpoints are revealed. This will facilitate the selection of information-rich cases while capturing significant variations of experience.

Data collection

An open-ended question guide was developed using a pragmatism approach to gather rich, qualitative data on provider views on timing and implementation of KAMPS elements, multispecialty collaboration for post-AKI care, influential patient-specific factors, and challenges and methods to facilitate care improvements for these patients (online supplemental appendix 2). It will also be informed by emerging themes from quantitative data analysis, including differences between groups based on specialty and/or other key demographics. Interviews will be conducted by a consistent member of the study team who is an expert in the field of qualitative research (DMF) for optimal dependability. They will be carried out via phone and will be recorded and transcribed verbatim with permission from the participants. The interviewer will record field notes following the conclusion of each interview and reflexivity will be acknowledged through reflective journaling to enhance neutrality.

Data analysis and integration

Interview transcripts will be uploaded into NVivo software, a qualitative data analysis tool. NVivo aids investigators by facilitating coding of source data, data sorting and identification of concepts indicative of themes. Codes assign meaning to pieces of data or text and facilitate organisation, categorisation and interpretation. Both deductive analysis (a priori codes related to the KAMPS framework domains) and inductive analysis (identification of emerging themes) will occur. Emerging themes will be discussed by content experts (HPM, EFB) and the qualitative data analyst (DMF) to ensure they capture the full range and depth of interview data, and a preliminary codebook will be developed. This codebook will then be applied to all source data. Themes identified by nephrology specialists and PCPs will be compared. The quantitative and qualitative data will be integrated using joint display tables organised according to KAMPS domains as well as highlight areas of complementarity (eg, domains describing different facets of the larger phenomenon of care transitions in AKI survivors), concordance and discordance (similarities or differences between nephrologists and PCPs, location of primary practice site, and/or between quantitative and qualitative datasets). Divergence will be addressed through reconciliation, which will include careful examination of existing biases, reviewing data with a deliberate focus on understanding divergent results, and formation of hypotheses about divergence and why it occurred. These can be explored through further data collection or as a part of future research efforts. Investigators will examine and disclose important changes or new discoveries that have occurred in the evolving field of post-AKI care to promote dependability of study findings.

DISCUSSION

Integrating PCPs into the AKI survivor care pathway represents an important strategy to address the limitations of existing practices that rely primarily on nephrologists. AKI survivors express concerns about increasing the number of specialists involved in their outpatient care and the travel time required to reach tertiary care centres where specialists are located.^{17 41} Providing core components of post-AKI care in the patients' home of primary care may increase the frequency and timeliness of kidney follow-up in this population. Uncovering a deeper understanding of PCPs' and nephrologists' existing beliefs and approaches to post-AKI care is critical to optimising cooperation and communication between disciplines. This information will also assist in identifying opportunities to improve implementation of best practices, such as the KAMPS framework. Results from this study will describe contemporary recommendations for post-AKI care from a diverse group of providers involved in AKI survivor care transitions, with a focus on best practices, multispecialty collaboration and healthcare delivery processes. Future research can include validation of these findings in other

health systems and practitioners operating in unique settings.

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Contributors HPM, EFB, AKK designed and revised the survey instrument; HPM conducted pilot testing of the survey instrument; RGM, ADR, KBK, JMG reviewed and revised the survey instrument; HPM, EFB, DMF, JMG conceived the methods for the qualitative strand, including sampling approach, data collection and analysis. All authors reviewed and approved the final version of the study protocol, as well as this manuscript submission.

Funding This work was supported in part by the Mayo Midwest Pharmacy Research Committee, Mayo Midwest Clinical Practice Committee Innovation Award, American College of Clinical Pharmacy, the National Institute of Allergy and Infectious Diseases under award number K23AI143882 (PI; EFB), and the Agency for Healthcare Research and Quality HS028060-01 (PI; EFB). The funding sources had no role in study design, data collection, analysis or interpretation, writing the report or the decision to submit the report for publication. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the NIH.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement No data publicly available for this protocol.

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Supplementary Appendix 1 – Survey Instrument

Case 1. 40-year-old male admitted after being found down in his home following a massive pulmonary embolism. The patient develops rhabdomyolysis (CK 49380) and KDIGO stage 3 acute kidney injury, warranting emergent hemodialysis on hospital day 2. He receives 1 additional session of hemodialysis over the course of a 2-week hospital stay, with gradual improvement in kidney function after that.

Pertinent PMH: asthma, bipolar disorder, hyperlipidemia

Discharge medication list:

- Albuterol inhaler 2 inhalations q4-6h as needed for shortness of breath/wheezing
- Apixaban 5 mg twice daily
- Aripiprazole 15 mg daily
- Atorvastatin 20 mg daily
- Fluticasone/salmeterol inhaler 250/50 1 inhalation twice daily
- Lithium 300 mg in the morning, 600 mg in the evening

Pertinent labs:

Lab	2 months prior to admission	Day 1 (day of admission)	Day 14 (day of discharge)	Reference Range
K, mmol/L	4.3	6.9	4.1	3.6-5.2
BUN, mg/dL	22	72	21	8-24
SCr, mg/dL	1.0	3.5	1.8	0.74-1.35
eGFR, mL/min/BSA	83	19	45	≥ 60
UACR, mg/g creatinine		11		< 17

*UACR – urine albumin-to-creatinine ratio

1. What kidney function follow-up tests, if any, would you recommend for kidney function monitoring after discharge? (Select all the apply)
 - a. None
 - b. Serum creatinine
 - c. Cystatin C
 - d. Urine albumin: creatinine ratio
 - e. Other
2. When would you recommend follow-up laboratory monitoring of kidney function?
 - a. Within 14 days
 - b. Within 1-2 months
 - c. Within 6 months
 - d. Defer timing as indicated for other health care needs
3. How would you optimize this patient's medication regimen at discharge?
 - a. Switch atorvastatin to rosuvastatin
 - b. Monitor lithium levels and consider dose reduction (best answer)
 - c. Discontinue apixaban and initiate warfarin therapy
 - d. None of the above
 - e. Unsure
4. To what extent do you agree that this patient should be referred to a nephrologist for follow-up at the time of hospital discharge?

Supplementary Appendix 1 – Survey Instrument

- a. Strongly agree
- b. Agree
- c. Disagree
- d. Strongly disagree

Case 2. 65-year-old female admitted with acute viral gastroenteritis and KDIGO stage 2 acute kidney injury from dehydration from persistent vomiting prior to admission. Her acute illness resolves and kidney function slowly improves with supportive management. The patient is scheduled to see her primary care provider 2 weeks following discharge for post-hospitalization follow-up.

Pertinent PMH: uncontrolled hypertension (pre-admission blood pressure 165/92 mmHg), type 2 diabetes mellitus, chronic back pain, gastroesophageal reflux disease

Discharge medication list:

- Amlodipine 5 mg daily
- Ondansetron 4 mg every six hours as needed
- Pantoprazole 40 mg daily
- Liraglutide 1.2 mg subcutaneously daily

Pertinent labs:

Lab	3 months prior to admission	Day 1 (day of admission)	Day 5 (day of discharge)	Reference Range
K, mmol/L	4.2	5.2	4.6	3.6-5.2
BUN, mg/dL	24	55	31	6-21
SCr, mg/dL	0.9	2.2	1.2	0.59-1.04
eGFR, mL/min/BSA	63	22	47	≥ 60
UACR, mg/g creatinine		45		< 25

*UACR – urine albumin-to-creatinine ratio

1. What kidney function follow-up tests, if any, would you recommend for kidney function monitoring after discharge? (Select all the apply)
 - a. None
 - b. Serum creatinine
 - c. Cystatin C
 - d. Urine albumin: creatinine ratio
 - e. Other
2. Based on the 2017 ACC/AHA guideline recommendations for the management of hypertension, what is an appropriate blood pressure goal for this patient?
 - a. < 140/90 mmHg
 - b. < 130/80 mmHg (best answer)
 - c. < 120/90 mmHg
 - d. < 150/90 mmHg

Supplementary Appendix 1 – Survey Instrument

3. What additional therapy, if any, would you consider adding at outpatient follow-up, based on her kidney function at the time of discharge and past medical history? (Select all that apply)
 - a. Lisinopril (best answer)
 - b. Ezetimibe
 - c. Atorvastatin (best answer)
 - d. Furosemide
 - e. None
4. To what extent do you agree that this patient should be referred to a nephrologist for follow-up at the time of hospital discharge?
 - a. Strongly agree
 - b. Agree
 - c. Disagree
 - d. Strongly disagree

Case 3. 70-year-old male admitted with upper gastrointestinal bleeding in the setting of chronic anticoagulation. He develops KDIGO stage 2 acute kidney injury due to significant blood loss. His kidney function eventually improves following an upper endoscopy with hemostasis on hospital day 2 and transfusions. He is scheduled for post-hospitalization follow-up with his primary care provider 2 weeks after discharge.

Pertinent PMH: Heart failure with preserved ejection fraction (EF 50%), unprovoked venous thromboembolism, hypertension, type 2 diabetes mellitus, 2 prior episodes of acute gouty arthritis, stage 3 chronic kidney disease

Discharge medication list:

- Allopurinol 200 mg daily
- Amlodipine 5 mg daily
- Atorvastatin 40 mg daily
- Furosemide 40 mg daily as needed (for weight increase > 2 kg)
- Insulin NPH 40 units twice daily
- Metformin 1000 mg twice daily
- Warfarin 5 mg daily

Pertinent labs:

Lab	2 months prior to admission	Day 1 (day of admission)	Day 14 (day of discharge)	Reference Range
Hgb, g/dL	10.1 g/dL	6.5 g/dL	9.5 g/dL	13.2-16.6
K, mmol/L	4.1	5.0	3.6	3.6-5.2
BUN, mg/dL	60	84	54	8-24
SCr, mg/dL	2.1	3.5	2.6	0.74-1.35
eGFR, mL/min/BSA	31	17	24	≥ 60
UACR, mg/g creatinine		205		< 17

*UACR – urine albumin-to-creatinine ratio

1. What action should be taken with regard to his metformin prescription at this time?

Supplementary Appendix 1 – Survey Instrument

- a. Discontinue (best answer)
 - b. Reduce the dose to metformin 500 mg twice daily
 - c. Continue at the current dose
 - d. Unsure
2. What other work-up, if any, would you recommend in the outpatient setting given his baseline comorbidities? (Select all that apply)
 - a. None
 - b. Rheumatologic work-up for recurrent gouty arthritis
 - c. Anemia and metabolic bone disease work-up in the setting of chronic kidney disease (best answer)
 - d. Hematologic work-up given his history of thromboembolism and bleeding
 3. To what extent do you agree that this patient should be referred to a nephrologist for follow-up at the time of hospital discharge?
 - a. Strongly agree
 - b. Agree
 - c. Disagree
 - d. Strongly disagree

Demographics

1. How many years have you been in practice following completion of post-graduate training?
 - a. 1-5
 - b. 6-10
 - c. >10
2. What is your highest medical degree?
 - a. MD or equivalent
 - b. Nurse Practitioner or Physician Assistant
 - c. Other
3. Have you completed any post-graduate training at a non-Mayo Clinic site?
 - a. Yes
 - b. No
4. What is your primary practice specialty?
 - a. Nephrology
 - b. Primary Care/Internal Medicine
 - c. Other
5. What is your primary practice site?
 - a. Mayo Clinic in Rochester
 - b. Mayo Clinic Health System
 - c. Mayo Clinic in Florida
 - d. Mayo Clinic in Arizona

Supplementary Appendix 2 – Interview Guide

Interview Guide

Housekeeping issue (tape should capture their consent to be recorded): Before we begin, I just want to note that we'd like to record this conversation. We plan to transcribe the tape and review the transcript as a team, but this will not include your name. Is that okay with you?

1. Where and when should initial follow-up care take place for AKI survivors, in your mind?
 - a. *(For all interviewees)* In our survey we found that nephrologists were more likely recommend follow-up with nephrology than primary care providers. How would you explain that trend?
 - b. *(If interviewing a primary care provider)* When would you get Nephrology involved?
 - c. *(If interviewing a nephrologist)* What is the role of the patient's primary care provider, as it relates to post-AKI care?
 - d. What clinical criteria influence your decisions about location and timing of follow-up?

Probe: characteristics about the AKI episode such as severity or extent of kidney function recovery, comorbidities, age, characteristics about recent illness or hospitalization

2. What specific components of care do you feel are the most important for AKI survivors?

Probe: tests, imaging, education, frequency of follow-up, specialist referrals/consultation

- a. How do you incorporate patient preferences and values in your decision-making?
3. What non-clinical, patient-specific factors (e.g. insurance, proximity to healthcare resources) do you consider in your decisions about follow-up monitoring and referrals?

Probe: insurance, caregiver/family/support structure, physical proximity of residence to healthcare facilities

Supplementary Appendix 2 – Interview Guide

4. What role should telemedicine (e.g. specialty consults) or virtual patient visits play in conducting outpatient follow-up for AKI survivors?

5. Ideally, how should information be communicated between different providers that are caring for the same patient?

6. What other factors haven't we touched on that are important in post-AKI care?

a. Is there anything that Mayo Clinic is missing that would make this process more successful?

7. What role can other healthcare disciplines play in conducting post-AKI care?

Probe: pharmacists, dieticians, nurses

8. What is the impact of hospital discharge practices on outpatient appointments and referrals?

9. What do you perceive as barriers to increasing the Nephrology's capacity to accommodate referrals?