

Supplemental material is neither peer-reviewed nor thoroughly edited by CJASN. The authors alone are responsible for the accuracy and presentation of the material.

Survey of Kidney Biopsy Clinical Practice and Training in the United States

Supplements

Supplement 1 (page 2-9): Walter Reed Graduate Survey

Supplement 2 (page 10-17): Program Director Survey

Supplement 3, Figure (page 18): Flow of respondents through the surveys, with response and completion rates

Renal Biopsy Practice Survey of Walter Reed Nephrology Fellowship Graduates

* 1. I am presently working as a nephrologist in clinical practice managing nephrology patients.

☐

Yes.

☐

No. Thank you for taking the survey!

Renal Biopsy Practice Survey of Walter Reed Nephrology Fellowship Graduates

* 2. I am an interventional nephrologist.

☐ Yes

☐ No

* 3. The number of years I have practiced nephrology (including fellowship training) is

☐ < 5 years

☐ 5-10 years

☐ >10-20 years

☐ >20 years

* 4. I presently practice in the following geographic area

☐ a. Northeast (CT, ME, MA, NH, RI, VT, NJ, NY, PA)

☐ b. Southern (FL, GA, MD, NC, SC, VA, WV, DE, AL, KY, MS, TN, AR, LA, OK, TX, DC, Puerto Rico)

☐ c. Midwest (IL, IN, AI, KS, MI, MN, MO, NE, ND, SD, OH, WI)

☐ d. West (AZ, CO, ID, MT, NV, NM, UT, WY, AK, CA, HI, OR, WA)

* 5. My present practice is predominantly

☐ urban

☐ suburban

☐ rural

Renal Biopsy Practice Survey of Walter Reed Nephrology Fellowship Graduates

* 6. I was adequately prepared to perform native kidney biopsies without direct supervision at the end of my nephrology fellowship.

Strongly Disagree

Disagree

Neither Agree or Disagree

Agree

Strongly Agree

☐

☐

☐

☐

☐

* 7. I was adequately prepared to perform transplant kidney biopsies without direct supervision at the end of my nephrology fellowship.

Strongly Disagree

Disagree

Neither Agree or Disagree

Agree

Strongly Agree

☐

☐

☐

☐

☐

* 8. I was adequately prepared to perform interpretation of kidney biopsy tissue at the end of my nephrology fellowship.

Strongly Disagree

Disagree

Neither Agree or Disagree

Agree

Strongly Agree

☐

☐

☐

☐

☐

Renal Biopsy Practice Survey of Walter Reed Nephrology Fellowship Graduates

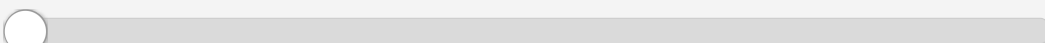
* 9. Do you do native kidney biopsies?

☐ Yes

☐ No

10. Approximately how many native kidney biopsies do you do a year? (Skip the question if you don't do native kidney biopsies.) If you do more than 100 a year, please indicate in the comments at the end of the survey.

0 50 100

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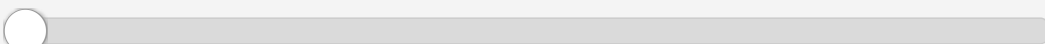
* 11. Do you do transplant kidney biopsies?

☐ Yes

☐ No

12. Approximately how many transplant kidney biopsies do you do a year? (Skip the question if you don't do transplant kidney biopsies.) If you do more than 100 a year, please indicate in the comments at the end of the survey.

0 50 100

A horizontal slider bar with a circular handle at the 0 position. The bar is light gray with a darker gray track. The numbers 0, 50, and 100 are positioned above the bar. To the right of the bar is a small rectangular text input box.

Renal Biopsy Practice Survey of Walter Reed Nephrology Fellowship Graduates

* 13. If you no longer do native kidney biopsies, how many years ago did you stop? (Please choose the best answer.)

- ☐ Not applicable, I continue to do native kidney biopsies
- ☐ I never did them after completing fellowship
- ☐ <5 years
- ☐ 5-10 years
- ☐ >10-20 years
- ☐ >20 years

* 14. If you no longer do transplant kidney biopsies, how many years ago did you stop? (Please choose the best answer.)

- ☐ Not applicable, I continue to do transplant kidney biopsies
- ☐ I never did them after completing fellowship
- ☐ <5 years
- ☐ 5-10 years
- ☐ >10-20 years
- ☐ >20 years

* 15. To whom do you refer patients for kidney biopsy, if you no longer do them or not all of them? (Select all that apply.)

- ☐ Interventional Radiologist
- ☐ Interventional Nephrologist
- ☐ Not applicable (I do all biopsies)
- ☐ Other (please specify)

Renal Biopsy Practice Survey of Walter Reed Nephrology Fellowship Graduates

* 16. If you perform kidney biopsy, do you continue to do so because (chosed all that apply).

- ☐ I enjoy doing the procedure.
- ☐ I am an interventional nephrologist.
- ☐ I practice in an area where there is limited/no access to an interventional radiologist or interventional nephrologist willing and able to do a kidney biopsy.
- ☐ All nephrologists should be willing and able to do a kidney biopsy.
- ☐ It is a source of RVUs and reimbursement.
- ☐ Not applicable (I no longer perform kidney biopsy.)
- ☐ Other (please specify)

* 17. If you perform some or all of your kidney biopsies, how do you visualize the kidney? (Check all that apply).

- ☐ Real-time ultrasound
- ☐ Ultrasound localization only
- ☐ CT localization
- ☐ Fluoroscopy
- ☐ Physical landmarks only (Native kidneys)
- ☐ Physical landmarks only (Transplant kidneys)
- ☐ NA (I no longer perform kidney biopsy)

* 18. Which of the following are barriers to performing or continuing to perform kidney biopsy (chose all that apply).

- ☐ Logistics of setting up the biopsy.
- ☐ Time to do the biopsy.
- ☐ Difficulty in arranging/performing adequate post-biopsy observation.
- ☐ Difficulty in obtaining/maintaining credentials to do kidney biopsy.
- ☐ Disinterest in doing kidney biopsy.
- ☐ Lack of adequate reimbursement.
- ☐ Risk of procedural complications.
- ☐ Cost of liability insurance.
- ☐ Loss of kidney biopsy skills.
- ☐ Other (please specify)

19. Do you have any comments or suggestions?

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Renal Biopsy Practice Survey of Walter Reed Nephrology Fellowship Graduates

Thank you for taking the survey. Please click done if you are finished.

Renal Biopsy Training Survey of Nephrology Program Directors

You received the survey link because the ACGME website has identified you as the Nephrology Program Director at your institution. If you are not the program director, please do not complete the survey--and if possible, forward the link to the program director. Thank you!

* 1. I am the Nephrology Program Director at my institution

☐ Yes

☐ No

Renal Biopsy Training Survey of Nephrology Program Directors

About You and Your Program

* 2. The number of years I have practiced nephrology (including fellowship training) is

☐ < 5 years

☐ 5-10 years

☐ >10-20 years

☐ >20 years

* 3. How many clinical fellows (both first and second year) did you have in Training Year 2015-2016?

* 4. How many clinical fellows (both first and second year) did you have in Training Year 2016-2017 (last year)?

Renal Biopsy Training Survey of Nephrology Program Directors

Numbers of Kidney Biopsies Available to your Fellows

Feel free to enter "NK" (Not known), if you do not know the answer to a question. Some programs do not keep these records.

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5. How many NATIVE kidney biopsies were done at your institution (including all training sites in aggregate) in Training Year 2015-2016 (year before last)?

6. How many NATIVE kidney biopsies were done at your institution (including all training sites in aggregate) in Training Year 2016-2017 (last year)?

7. How many TRANSPLANT kidney biopsies were done at your institution (including all training sites in aggregate) in Training Year 2015-2016 (year before last)?

8. How many TRANSPLANT kidney biopsies were done at your institution (including all training sites in aggregate) in Training Year 2016-2017 (last year)?

Renal Biopsy Training Survey of Nephrology Program Directors

Numbers of Kidney Biopsies Done by your Fellows

Feel free to enter "NK" (Not known), if you do not know the answer to a question. Some programs do not keep these records.

9. How many NATIVE kidney biopsies were done by your fellows in Training Year 2015-2016 (year before last)?

10. How many NATIVE kidney biopsies were done by your fellows in Training Year 2016-2017 (last year)?

11. How many TRANSPLANT kidney biopsies were done by your fellows in Training Year 2015-2016 (year before last)?

12. How many TRANSPLANT kidney biopsies were done by your fellows in Training Year 2016-2017 (last year)?

Renal Biopsy Training Survey of Nephrology Program Directors

* 13. Do you have a minimum threshold number of biopsies that must be done to satisfactorily demonstrate readiness for unsupervised practice and complete fellowship?

☐ Yes

☐ No

Comment?

* 14. If you have a minimum threshold number of biopsies, what are they? (If you do not have a minimum number, enter "none".)

Minimum Number of
Native Kidney Biopsies

Minimum Number of
Transplant Biopsies

* 15. What do you think the minimum threshold number of biopsies should be? Feel free to enter "Not Known" or "No Opinion".

Minimum Number of
Native Kidney Biopsies

Minimum Number of
Transplant Biopsies

Renal Biopsy Training Survey of Nephrology Program Directors

Questions about your Kidney Biopsy Process

* 16. Approximately what percentage of fellow-performed NATIVE kidney biopsies at your program are overseen by:

Nephrology faculty

Interventional
Nephrologist

Interventional Radiologist

Other

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17. If you answer "Other" to Q.16, please indicate who.

* 18. How are kidneys visualized for biopsy at your institution(s)? (Check all that apply).

- ☐ Real-time ultrasound
- ☐ Ultrasound localization only
- ☐ CT localization
- ☐ Fluoroscopy
- ☐ Physical landmarks only (Native kidneys)
- ☐ Physical landmarks only (Transplant kidneys)

Comments?

Renal Biopsy Training Survey of Nephrology Program Directors

Nephropathology Training

* 19. Do you have a Nephropathologist at your institution who interprets kidney biopsies?

- ☐ Yes
- ☐ No

Comment

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* 20. How are kidney biopsies done at your institution reviewed with the Nephropathologist/Pathologist and the fellows? (Chose all that apply).

- ☐ Fellows do not review the biopsy specimens of most biopsies done at our institution with the Nephropathologist/Pathologist. They just review the printed report.
- ☐ Fellows review most biopsy specimens with Nephrology faculty only.
- ☐ Fellows review biopsy specimens with the Nephropathologist/Pathologist only if the fellow performed the biopsy.
- ☐ Fellows review most of the biopsy specimens that they and other fellows perform with the Nephropathologist/Pathologist.
- ☐ Fellows review most of the biopsy specimens of most biopsies done at our institution with the Nephropathologist/Pathologist.
- ☐ We have a formal biopsy conference during which at least some biopsy specimens from biopsies done at our institution are reviewed with the Nephropathologist/Pathologist.
- ☐ Other (please describe)

* 21. How often are your formal biopsy/nephropathology conferences (if you have them)?

- ☐ Weekly
- ☐ Twice Monthly
- ☐ Monthly
- ☐ Quarterly
- ☐ We do not have a formal biopsy/nephropathology conference.
- ☐ Other (please specify)

Renal Biopsy Training Survey of Nephrology Program Directors

Kidney Biopsy Training Practices and Opinions

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* 22. Other than directly doing the kidney biopsy, and keeping track of the number done, our program also trains fellows by (Chose all that apply):

- ☐ Doing a kidney biopsy simulation under real-time ultrasound at our own institution.
- ☐ Attending a procedural training simulation course at another site or institution, including a national meeting.
- ☐ Hosting a lecture series/biopsy conference at which renal tissue interpretation is systematically reviewed.
- ☐ Attending a renal biopsy interpretation course given at another institution (such as the "Renal Biopsy in Medical Disease of the Kidney" course).
- ☐ Interventional nephrology rotation at our institution under the supervision of an interventional radiologist or nephrologist.
- ☐ No other specific training.
- ☐ Other (please describe)

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* 23. Which of the following are barriers to obtaining kidney biopsy competency for fellows (Chose all that apply).

- ☐ Logistics of setting up the biopsy.
- ☐ Time to do the biopsy.
- ☐ Difficulty in arranging/performing adequate post-biopsy observation.
- ☐ Lack of an Interventional Nephrologist at our institution.
- ☐ Unwillingness of Interventional Nephrologist to supervise/involve Nephrology Fellows.
- ☐ Unwillingness of Interventional Radiology to supervise/involve Nephrology Fellows.
- ☐ Disinterest among fellows in doing the procedure.
- ☐ Unwillingness or inability of faculty to supervise the procedure.
- ☐ Lack of adequate reimbursement for the procedure.
- ☐ Risk of complications.
- ☐ Cost of malpractice insurance.
- ☐ Other legal liability considerations.
- ☐ Most graduates will not perform the procedure in clinical practice.
- ☐ No significant barriers.
- ☐ Other (please specify)

* 24. Do you think attaining minimal competency in PERFORMING kidney biopsy should be required for Nephrology fellowship completion for all Nephrology fellows?

- ☐ Yes
- ☐ No

Renal Biopsy Training Survey of Nephrology Program Directors

25. Why do you think attaining minimal competency in performing kidney biopsy should be required for all Nephrology fellows?

Renal Biopsy Training Survey of Nephrology Program Directors

You indicated that you do not think all fellows should be required to demonstrate competence in PERFORMING kidney biopsy.

* 26. Should all fellows be required to demonstrate competency in knowing the indications, contraindications, and complications for kidney biopsy, as well as kidney biopsy tissue interpretation and appropriate referral for the procedure?

☐ Yes

☐ No

* 27. Should some fellows have the opportunity to obtain minimal competency in performing kidney biopsy as part of an interventional/procedural track, even if it increases the length of the fellowship?

☐ Yes

☐ No

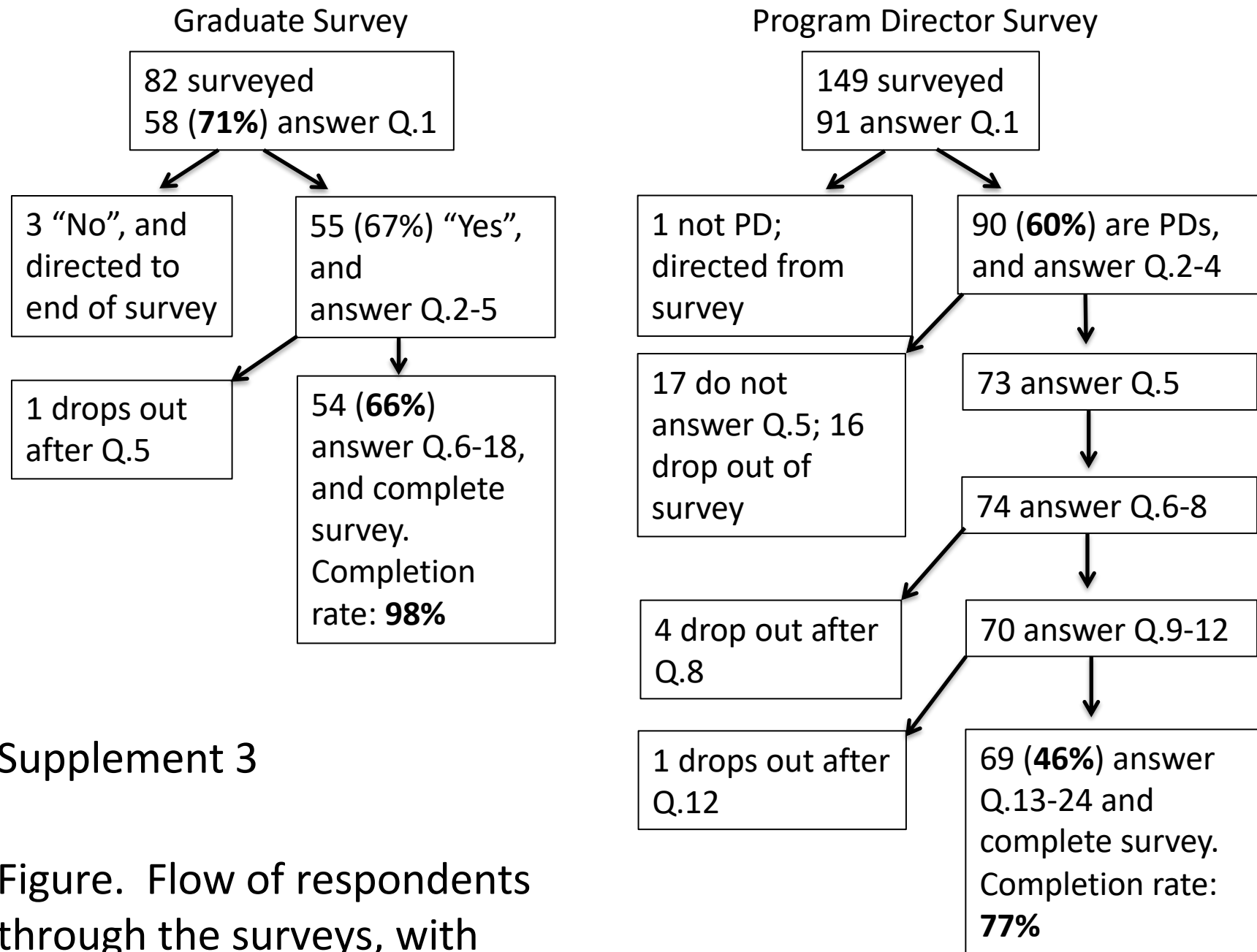
Renal Biopsy Training Survey of Nephrology Program Directors

Comments

28. Do you have any comments or suggestions?

Renal Biopsy Training Survey of Nephrology Program Directors

Thank you for taking the survey. Please click done if you are finished.



Supplement 3

Figure. Flow of respondents through the surveys, with response and completion rates