Symptoms of Lower Urinary Tract Dysfunction Research Network (LURN)

Protocol 2: Recall Study

Manual of Operations
Version 2.0

August 23, 2017

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1. GENERAL

1.1. Overview

The study Manual of Operations (MOO) is supplied to each participating site to aid in the conduct of the LURN Protocol 2, Recall Study. The role of the MOO is to facilitate consistency in protocol implementation and data collection across participants and study sites.

A MOO is a handbook that details a study's conduct and operations. It transforms the study protocol into a guideline that describes a study's organization, operational data definitions, recruitment, screening, enrollment, follow-up procedures, and data collection methods.

The MOO is a dynamic document that will be updated throughout the conduct of the study to reflect any protocol or consent amendments as well as the refinement of any forms, surveys or study procedures. Each page of the MOO will contain the version number and date. As pages are revised, an updated version number and associated date will replace the original page(s) in the MOO. All previous versions should be archived.

The MOO will include all of the relevant sections that apply to the specific study.

Please refer to **Appendix A** to view the LURN Protocol 2. Details not outlined in the protocol are in this manual. The current version of the MOO and protocol documents are available on a website maintained by the Data Coordinating Center (DCC) at https://nih-lurn.org/.

1.2. Sponsor

The LURN project is a cooperative research network sponsored by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), a division of the National Institutes of Health (NIH). Ziya Kirkali, MD, is the NIDDK Project Officer.

1.3. Study Organization and Responsibilities

The goal of the Symptoms of Lower Urinary Tract Dysfunction Research Network (LURN) is to increase our understanding of lower urinary tract dysfunction (LUTD) by 1) improving the measurement of patient experiences of LUTD; 2) identifying and explaining the important subtypes of LUTD; and 3) disseminating data, research tools and biosamples to the research and clinical communities. This increased understanding of LUTD can inform strategies to prevent and/or manage disease and thus improve the lives of patients who suffer from the symptoms of LUTD.

The network plans to create a state-of-the-art resource for measuring patient-reported health for patients with lower urinary tract dysfunction (LUTD). In order to learn more about the dysfunctions of the lower urinary tract, the project will include a group of clinical centers and a DCC to study a number of causes and risk factors for LUTD in men and women.

The LURN Network is comprised of six US clinical sites and a DCC. The Steering Committee is the governing body, consisting of the NIDDK Project Officer and the Principal Investigators (PIs) from each of the clinical sites and the DCC.

This LURN Protocol 2 represents the second protocol of the LURN project. The study falls under the category of an Observational Study defined as a biomedical or behavioral research study of human subjects.

The NIH further defines an observational study as one which is "designed to assess risk factors for disease development or progression, assess natural history of risk factors or disease, identify variations based on geographic or personal characteristics (such as race/ethnicity or gender), track temporal trends, or describe patterns of clinical care and treatment in absence of specific study-mandated interventions."

Please reference the Study Directory on the study website (https://nih-lurn.org/) for participating sites' contact information.

1.3.1. Data Coordinating Center (DCC)

Arbor Research Collaborative for Health is the DCC for LURN. The DCC provides project management, logistical coordination, and statistical leadership for the development, implementation, and analysis of the LURN studies. In addition, the DCC will conduct training in protocol implementation, data management, monitoring, quality control, and development and maintenance of the MOO. The DCC also supports regulatory and technical functions (i.e., LURN data entry website). For a complete list of DCC personnel, their roles, and contact information, please refer to the Study Directory on the study website (https://nih-lurn.org/).

1.3.1.1. DCC Contact Information

- Robert M. Merion, MD, FACS, Principal Investigator –
  bob.merion@arborresearch.org,
  Phone: 734-665-4108

- Melissa Fava, Project Manager –
  melissa.fava@arborresearch.org
  Phone: 734-369-9770

- Peg Hill-Callahan, Clinical Study Process Manager –
  peg.hill-callahan@arborresearch.org
  Phone: 734-369-9674

- Tim Buck, Study Monitor –
  timothy.buck@arborresearch.org
  Phone: 734-369-9958

- LURN Administration – LURN-Admin@arborresearch.org
- Monitoring Staff – LURN-Monitors@arborresearch.org
- Fax – 734-665-2103

The DCC recommends that study personnel use the LURN-Admin group email to ensure timely responses.

1.3.2. Clinical Sites and Principal Investigators

Duke University
Durham, NC
Co-Principal Investigators: Cindy L Amundsen, MD; Kevin P. Weinfurt, PhD (Steering Committee Co-Chair)

Washington University in St. Louis
St. Louis, MO
Co-Principal Investigators: Gerald Andriole, MD; Henry Lai, MD

Northwestern University
Chicago, IL
Co-Principal Investigator: David Cella, PhD

NorthShore University Health System (Northwestern Sub-site)
Glenview, IL
Co-Principal Investigator Brian T. Helfand, MD, PhD

University of Michigan
Ann Arbor, MI
Co-Principal Investigator: Quentin Clemens, MD, FACS, MSCI

Washington University
Seattle, WA
Co-Principal Investigator: Claire Yang, MD

University of Iowa
Iowa City, IA
Co-Principal Investigators: Catherine S. Bradley, MD MSCE; Karl J. Kreder, MD, MBA

The following site identifying numbers are used in conjunction with survey communication.

Centers	Site Numbers
Duke University	01
Washington University	02
Northwestern University	03
NorthShore University Health System	04
University of Michigan	05
University of Washington	06
University of Iowa	07

1.3.2.1. Role and Responsibilities of Investigators and Study Sites

The roles and responsibilities of the investigators and study sites will include:

- Maintenance of a study binder;
- Participation in protocol finalization and preparation of study materials;
- Compliance with protocol, MOO, IRB, and Federal and State regulations;
- Membership in a Steering Committee and other committees;
- Recruitment, screening, and enrollment of participants;
- Protections of participants' rights;
- Data collection and participant follow-up through study completion;
- Transfer of data to the DCC and resolution of queries;
- Retention of study specific records;
- Communication of questions, concerns, and/or observations to the DCC.

1.3.3. External Expert Panel (EEP)

The EEP has been established by the NIDDK. The EEP is currently composed of clinical urologists, researchers, epidemiologists, psychometricians, government

agency representatives, and biostatisticians. The EEP will provide scientific oversight and advice for the duration of the Network. The Panel reports to the NIDDK. The EEP will meet in person at least once per year to provide a review of all study protocols prior to implementation for their likelihood to achieve the overall goals established by the NIDDK. Telephone conference calls of the EEP will be scheduled on an as needed basis. The EEP will evaluate the study progress, review ancillary study proposals (if applicable) prior to implementation, and monitor the safety of study participants. Reference the EEP Responsibilities and Operating Procedures for additional information regarding the EEP.

1.3.4. LURN Website

Publicly accessible information about the LURN project is available on the LURN website home page. Some portions of the website are password-controlled to limit access to study group members (Clinical Centers, DCC, NIDDK, and the EEP), protect the integrity, security, and confidentiality of sensitive project information and the information system, and allow auditing of appropriate use.

The website contains workgroup/subcommittee member lists, meeting agendas, materials, and minutes, slides and presentations, master documents (including final protocols and consent templates), calendar of events, and study directory.

1.3.5. Website URL and Access Instructions

The URL for the LURN website is https://nih-lurn.org/. Website management resides with the DCC. The DCC is responsible for login accounts, study directory updates, postings, and maintenance. Upon assigning a username and password, an automatic welcome email will be generated, informing the user that access has been granted to the restricted areas of the website. Users must change their system-assigned password within 72 hours of the welcome email receipt or website access will be denied.

Usernames and passwords should not be shared. New personnel requiring access to the LURN website should request a unique username and password. For new account requests or trouble with usernames and passwords, please contact LURN-Admin@arborresearch.org.

2. IRB SUBMISSION AND REGULATORY DOCUMENTS

2.1. Protocol Version Control, Finalization, and Approval Process

Protocol version control is extremely important to ensure that all participating sites and their respective Institutional Review Boards (IRBs) receive identical documents. Before a

protocol is considered final and versioned (e.g., Version 1.0), it must go through a formal review by the LURN Steering Committee. The protocol is then reviewed by the EEP and the NIDDK. Once finalized, the protocol document, consent templates, and any supplemental materials will be distributed to the sites by the DCC. Sites should submit only materials distributed by the DCC to their IRBs. Finalized protocols must NOT be edited, changed, or altered.

All amendments (a written description of a change(s) to or formal clarification of a protocol) must undergo a similar approval process. Sites should only submit protocols and amendments to IRBs as instructed by the DCC or NIDDK.

2.2. Consent Form Finalization and Approval Process

Protocol-specific consent document templates will be provided to all LURN sites. Site-specific language should be inserted into the templates. Please refer to **Appendix J** to view the Consent Templates.

Each site-specific informed consent (IC) form will be reviewed by the DCC for inclusion of all essential elements and compliance with Federal Regulations and NIDDK Repository language. The DCC and the NIDDK Repository staff will review the sites' consents, and return the reviewed/edited draft consents to the sites for correction and submission to the IRBs. Below is a set of instructions detailing the DCC and NIDDK Repository review/approval process of the site-specific consent form(s).

The first seven steps below must be completed prior to submitting any consent documents to the IRB.

1) Forward the IC documents to the DCC for review (LURN-Monitors@arborresearch.org).
2) Once IC documents have been reviewed and changes made, the DCC will return the reviewed/edited draft IC documents to the site.
3) The site will make the required changes to the consent forms, and send the revised consents to the DCC for re-review.
4) The DCC will forward the draft IC documents to the NIDDK Repository reviewer for review of the particular NIDDK Repository language.
5) The NIDDK Repository reviewer will send their comments to the DCC as to whether the consents have NIDDK approval or need changes made in the consent documents.
6) The DCC will notify the site of the NIDDK reviewer response to the review of the consents. If further changes are requested by the NIDDK, the site makes the consent changes, and sends the consents to the DCC lead clinical monitor for review and approval.
7) If the NIDDK reviewer approves the consents, the DCC will send the notification to the site who will submit the consent documents to its respective IRB.

8) The IRB may require changes to the consent form(s). Please forward requested changes to the DCC lead clinical monitor for review prior to resubmission to the IRB.
9) The IRB approval will be in the form of a letter or memo. The notification should include the title of the protocol, version number, PI name, and the IRB members. The memo should state that approval has been granted to open or continue the study.
10) The site will send a copy of the IRB approval and copies of the IRB approved consents to the DCC lead clinical monitor.
11) The DCC will then forward the site IRB approval and copies of the approved consents to the NIDDK Repository reviewer who will generate an approval letter addressed to the PI of the site.
12) The NIDDK Repository reviewer will send the NIDDK approval letter to the site PI and the DCC.
13) The site will file the NIDDK approval letter in their regulatory file.

File the IRB-approved consent documents (memo, consent, and other documents) in the site regulatory binder. Scan all IRB approved documents and send electronically to the DCC. Throughout the course of the study, the DCC will request these documents when there is an amendment to the LURN Protocol 2, and at the time of each site's IRB annual renewal.

The DCC will send their annual IRB Continuing Renewal approval to the NIDDK Repository reviewer until the study is closed. The NIDDK Repository does not require receipt of copies of the site's annual IRB Continuing Renewal approvals.

2.3. Essential Documents for the Conduct of an Observational Study

Essential documents are those documents that individually and collectively permit evaluation of the conduct of a study and the quality of the data produced. These documents serve to demonstrate the compliance of the investigator, sponsor, and the monitor with the standards of Good Clinical Practice (GCP) and with all applicable regulatory standards. The following is the list of minimum essential documents that have been developed.

Required regulatory documents are to be kept on file at the site.

If the site maintains master files for Curricula Vitae (CVs), regulatory documents, etc., then a note to file should be placed in the study-specific regulatory binder to reflect the location of the documents.

Remember, when the study is finished and ready for archiving, all documents in the master files must be copied to be study-specific. During the conduct of the study, the documents will be stored for the length of time designated by the sponsor (NIDDK).

The following documents must be maintained in the regulatory binder throughout the study:

1) **Study Protocol**
    - Maintain a copy of the original IRB/Ethics Research Committee (ERC)-approved protocol for the study and any subsequent IRB/ERC-approved revisions/amendments to the protocol.
    - Any changes to the protocol must be submitted to and approved by the IRB prior to implementation.
    - Include full copies of all final versions, stored in reverse chronological order with the current approved version first.
    - IRB/ERC submission/approval of revisions/amendments should be filed under Section IRB Approvals in the Regulatory Binder.

2) **Curriculum Vitae (CV): Investigators and Sub-Investigators**
    - To document qualifications and eligibility to conduct studies and/or provide medical supervision of subjects. Ensure the CV is complete and contains the following information:
        - Current appointments/positions/citations, etc.
        - Start and end dates (or "to present") for all appointments and positions (no date gaps).
        - Signed and dated (on first page) by the investigator (or sub-investigator) and all study personnel to verify document is current.
    - Updated CVs are to be filed bi-annually.
    - CVs may be kept in a "Master File" during the conduct of the study, but all the CVs must be archived with the study at the end of the trial.

3) **Medical Licenses**
    - Maintain copies of all licenses for licensed personnel (e.g., MDs, PhDs, Nurses, etc.) for the duration of the study.
    - Licenses may be kept in a "Master File" during the conduct of the study, but all the licenses must be archived with the study at the end of the study.

4) **IRB Approval**
    - Documentation of the provision of IRB review and approval of the protocol ensures that the study is conducted with the appropriate local regulatory oversight. IRB approval will be obtained prior to the initiation of the study, and maintained throughout the conduct of the study and data analysis phase. Sites should maintain current IRB approval until directed by the DCC to close the study.
    - All IRB approval letters must be on file. They include, but are not limited to, the protocol, consent(s), study advertisement(s), training and educational materials, participant letters, questionnaires, or any other documents receiving IRB approval or opinion. All of these documents must be forwarded

to the DCC. **NOTE:** If contingent approval is granted, evidence of final approval must be present before the study can be implemented.

- All annual or periodic renewals.
- Approval letter for any protocol amendments and modifications (the sponsor and the IRB must approve all protocol changes prior to implementation unless the change is intended to eliminate an apparent immediate hazard to subjects).
- Any local or country-specific regulatory authorization relating to the protocol.
- All approval letters from the IRB should be addressed to the PI and should include the following information:
    - Protocol title, number, and version;
    - Actual date of IRB approval;
    - Specifically state approval of the protocol;
    - IRB chairperson's or designee's signature;
    - Renewal date or statement indicating when the approval must be renewed;
    - List of the documents approved;
    - List of all sites covered by the IRB approval.

5) **IRB Membership List**

- The IRBs composition is constituted in agreement with GCP.
- IRB/ERC information including membership list, chairperson, and general assurance number or a letter stating that the IRB complies with GCP.
- IRB membership list must be current.
    - If your IRB does not release its membership list, a DHHS Multiple Assurance Number must be submitted on the IRB letterhead.
    - If the IRB does not allow access to their membership list, then an anecdotal note must be written to reflect the standard operating procedure of the IRB and the note must be filed in the regulatory binder.

6) **Screening Logs**

- Maintain electronic screening logs throughout the course of the study.
- Screening logs contain information (including reason for failure to screen) regarding all potential participants approached for participation in the study and the outcome of that encounter. Please refer to Section 7 for further details about eligibility.

7) **Roles and Responsibilities**

- Contains the list of all study personnel who are involved in the primary conduct of the study at the site. It documents responsibilities assigned to research team members and their dates of involvement in the project. It helps to ensure the appropriate delegation of study related tasks, and documents

authenticity of the written signature of personnel involved in the conduct of the study.

- Maintain a list of all study personnel on appropriate form and include:
  - Initials;
  - Printed name;
  - Legal signature, including first and last name;
  - List of delegated responsibilities;
  - Start and end date for delegated responsibilities.
- Included as appendix to regulatory binder.

8) **Human Subjects Research Certification**

- All investigators, sub-investigators, and study personnel listed on the delegation of responsibilities log must complete research ethics training.
- Any course on the protection of human subjects provided by your institution will meet this requirement. The course title, student's name, and dates of completion and expiration (if applicable) must be on the certificate. A brief description of the course must also be placed on file. If the site-specific course is one that does not expire, this should be outlined in the description provided.
- Training and certification can also be obtained at the following website:
  - NIH: Protection of Human Research Subjects – http://ohsr.od.nih.gov
- New study personnel must complete all of the required human subjects training, and their addition must be approved by the IRB prior to their contributing to the study.

9) **Safety Reporting – Serious Adverse Event (SAE)**

- There will be no need for SAE reporting in this observational study.
- Participants in the study will be told as part of the IC process that they may drop out of the study if they experience any discomfort.

10) **Major Sponsor, DCC, and IRB Correspondence**

- Maintain a copy of all correspondence (e-mails, letters, faxes, memoranda, and phone contacts) between the investigator or research staff, Sponsor, and DCC relating to the **clinical** conduct of the study, especially correspondence pertaining to:
  - Site activation letter;
  - Protocol decisions (by phone or e-mail);
  - Protocol deviations;
  - Protocol modifications;
  - EEP roster and letters from the Project Officer.
- Maintain a copy of all pertinent communications with the IRB relating to the study (e.g., Study Hold, Removal of Subject, Protocol Deviation, and Notice of Final Study Report).

11) **Investigator Signature Page**

- Documents investigator and sponsor agreement to the protocol and/or amendment(s).
- Site PIs are required to sign the investigator signature page.
- The site PI must sign a new signature page for any amendment.
- Submit a scanned copy to the DCC (LURN-Monitors@arborresearch.org) and file the original in this section.

12) **IRB-Approved IC Forms**

- Maintain copies of the original IRB approval and any subsequent IRB approved revisions/amendments to IC or consent addenda. Additional consent documents (e.g., screening consents) should be obtained per site requirements.
- Ensure that a version number and date is included on all consent documents.
- Include IRB approval letter with the IC if the IRB does not stamp the document.
- IRB approved consent documents should not be altered by the subject or study staff personnel during the consenting process. Check-offs, signatures, and dates are the only pieces of information that need to be written in on the consent. Crossing out sections or adding additional comments in the consent are not allowed according to federal regulations.
- Consent form documents must be stored in reverse chronological order with the current approved version first. Place the most currently approved consent form(s) in a plastic sleeve. **NOTE**: Any changes to the consent form must be submitted to, and approved by the site's IRB prior to use.

13) **Advertisements/Educational Materials**

- After IRB approval, maintain copies of all advertisements (e.g., fliers, radio announcements, newspaper/internet advertisements), and educational materials (e.g., slide shows) utilized for the study.
- All materials filed in this section and used in the study should be IRB approved and clearly listed on IRB approval letters/notices.

CVs, medical licenses, IRB approvals, laboratory certifications/accreditations (if applicable) should be kept current. Current copies of required documents (IRB approvals) should be forwarded electronically to the DCC when available. The DCC will assist sites in monitoring annual IRB renewals.

3. SITE TRAINING AND ACTIVATION

3.1. Site Training

Site staff will receive study training prior to implementation of the study. Training will include, but not be limited to, review of:

- Main protocol;
- Informed consent process;
- MOO;
- Data collection;
- Study-specific procedures;
- Use of RecallLink.

Please notify the DCC of new study team personnel so they can receive the appropriate training and website access.

4. STUDY MONITORING

Each PI will be responsible for overseeing the trial at their institution and the DCC will be responsible for monitoring the conduct of the study. Monitoring responsibility will extend to determination of accurate and effective conduct of the protocol, and to make recommendations regarding closure of the study. The NIDDK has appointed an independent EEP that will review the protocol prior to any clinician or participant recruitment, and will continue to monitor the study's safety and progress through regular reports prepared by the DCC and periodic meetings.

Oversight of monitoring will be performed to ensure that: 1) monitoring activities are appropriate to the study; 2) monitoring is accomplished in a regular, timely, and effective manner; and 3) recommendations that result from study monitoring are implemented in a timely fashion.

Accepted principles of data and safety monitoring will be observed throughout the conduct of the LURN Protocol 2. Since the study is observational, and there are no research procedures that will produce SAEs, reporting will not be necessary as there are no anticipated SAEs during the conduct of the trial.

Monitoring is the act of overseeing the progress of a study, and of ensuring that it is conducted, recorded, and reported in accordance with the protocol, Standard Operating Procedures (SOPs), GCP, and the applicable regulatory requirement(s). Monitoring will be conducted via remote monitoring. Monitoring helps to catch problems and noncompliance before the actions become repetitive. It can identify systemic issues

which can be corrected before a study is jeopardized. Screening logs will be monitored on a weekly basis by the DCC.

Remote monitoring will occur at the DCC, and site-specific information in the form of reports reflecting data completion, integrity, and quality will be produced. These reports will be generated at least monthly and will be shared with the sites and NIDDK.

4.1. Monitoring of Site Specific Information

4.1.1. Screening Logs

The Screening Log is electronic and included as functionality on the RecallLink Census Page. All screened patients, whether they are enrolled or not, should be entered into the study database.

4.1.2. Questionnaires

Subjects will complete a series of questionnaires online as part of the study. There are six (6) different questionnaires plus a bladder diary that subjects could be required to complete on varying schedules depending on which group they are randomized into:

1) Patient Screening
2) Baseline Assessment
3) 24-Hour Recall
4) 3-Day Recall
5) 7-Day Recall
6) Final Assessment / 30-Day Recall

These are included as Appendices G-I

5. OBTAINING & DOCUMENTING INFORMED CONSENT

5.1. Informed Consent Process

A signed IRB-approved IC document must be obtained from each subject. Written consent should only be obtained after the PI or investigator's delegate is confident that the subject or legal guardian understands the information presented to the subject.

An investigator or their designee shall seek consent only under circumstances that provide the prospective subject or the representative sufficient opportunity to consider whether or not to participate, and that minimize the possibility of coercion or undue influence.

If a local IRB approves its use, an IRB approved consent script may be used for consenting subjects over the phone. The consent script should cover all the essential

elements of a regular consent and be reviewed by the DCC and NIDDK prior to its use. Documentation of the consent process should be noted in the subject's medical record as well as their research record.

5.1.1. Definition of Screening Statuses

1) *Screening (Eligible)*: The subject meets the initial eligibility criteria, agrees to participate to the study, and signs the approved study consent or gives verbal consent over phone.
2) *Refused (Eligible, declined participation)*: The subject meets the initial eligibility criteria for the study, but refusals to participate in the study.
3) *Not Approached:* The subject may meet the eligibility criteria, but is not approached due to suspected compliance issues or will not be available for the whole study period.
4) *Not Eligible*: The subject does not meet the eligibility criteria (if not eligible, please give reason).
5) *Active*: The subject meets all the eligibility criteria, is randomized to a study group and begins to receive study questionnaires

5.1.2. Re-consenting Subjects Due to Amendments to the Protocol

The PI at each site determines the need for re-consenting based on the protocol amendment and the subject population. In the case of uncertainty on the part of the PI, the site's IRB should be consulted.

5.1.3. Consenting Non-English Speaking Subjects

Subjects who cannot communicate in English are specifically excluded from the LURN Protocol 2.

5.2. Documentation

Site personnel must document in the subject's medical record and research chart that the participant has signed the informed consent (or verbally consented over phone), met enrollment criteria, and was enrolled into the LURN Protocol 2 study. If the participant is recruited from the community, then the above documentation should be included in a participant's research record created for this study. Other pertinent details of the consent process, including summaries of telephone conversations with subjects, must also be carefully documented in the medical record. Refer to **Appendix K** for the form that documents the IC process.

The signed IC document should be maintained in the following locations:

- The original form is placed in the subject's research file.

- A copy is to be placed in or scanned into the participant's medical chart (if the participant is a patient at the clinic).
- Subject or legal guardian will receive a copy.

Master files of signed consents at the sites are not condoned. All the subject's study related documents are to be maintained in the subject's research file.

5.3. Health Insurance Portability & Accountability Act (HIPAA) Authorization

The HIPAA authorization form may be a separate document from the IC, and be reviewed and signed by the study participant in addition to reviewing and signing the consent form. The format of the HIPAA authorization is established by the site's local IRB. Investigators should review information provided in Protecting Personal Health Information in Research: Understanding the HIPAA Privacy Rule, NIH Publication 03-5388 at http://privacyruleandresearch.nih.gov.

5.4. Subject Identification Numbers

All persons entered in the LURN Protocol 2 database will be assigned a unique subject identification number.

6. PROTOCOL & APPENDICES

Please refer to **Appendix A** for the LURN Protocol 2 and associated appendices.

6.1. Study Design

See figure 1 for the study initiation flow diagram. Participants will be screened for initial inclusion/exclusion criteria by the site's research staff. Once consented to the study and entered into the RecallLink database, the research staff will schedule the Patient Screening event in the database. This will trigger an email to be sent to the address provided by the participant with the internet link to the online questionnaire Patient Screening.

The participant will have seven days to complete this questionnaire from the time the link is sent; eligibility requires 100% completion for the Patient Screening questionnaire. Once the Patient Screening questionnaire has been marked completed by the patient, and the eligibility algorithm determines the patient is eligible, the subject will be automatically randomized into one of three groups: 50% of the study subjects into Group 1, 25% into Group 2A and 25% into Group 2B. The research staff then has 7 days to schedule the training event in the database. The training event will consist of two (2) recall questionnaires that will be completed on sequential days between 6pm and 2am local time. This will be a combination of the 24-hour and 7-day Recall questionnaires

depending on which group the patient is randomized to. Training will commence on the date indicated by the research staff and the event must be scheduled within 1 week of the completion of the Patient Screening questionnaire. Once the Training Event is scheduled by the coordinator, emails will be sent automatically on each day of the training with the links to the questionnaires. When the two training days are completed, the research staff has 7 days to schedule the Baseline Assessment event in the database, which will trigger an email to the subject with the link to the Baseline Assessment questionnaire. The subject will have 1 week to complete the Baseline Assessment. Once the Baseline Assessment has been completed by the patient all the scheduled assessments for the subject's assigned group will be listed on the subject's iTask page (Figure 2) and emails will be sent out each time an assessment is required. No further scheduling is required from the research staff.

Figure 1: Study Initiation Flow Diagram

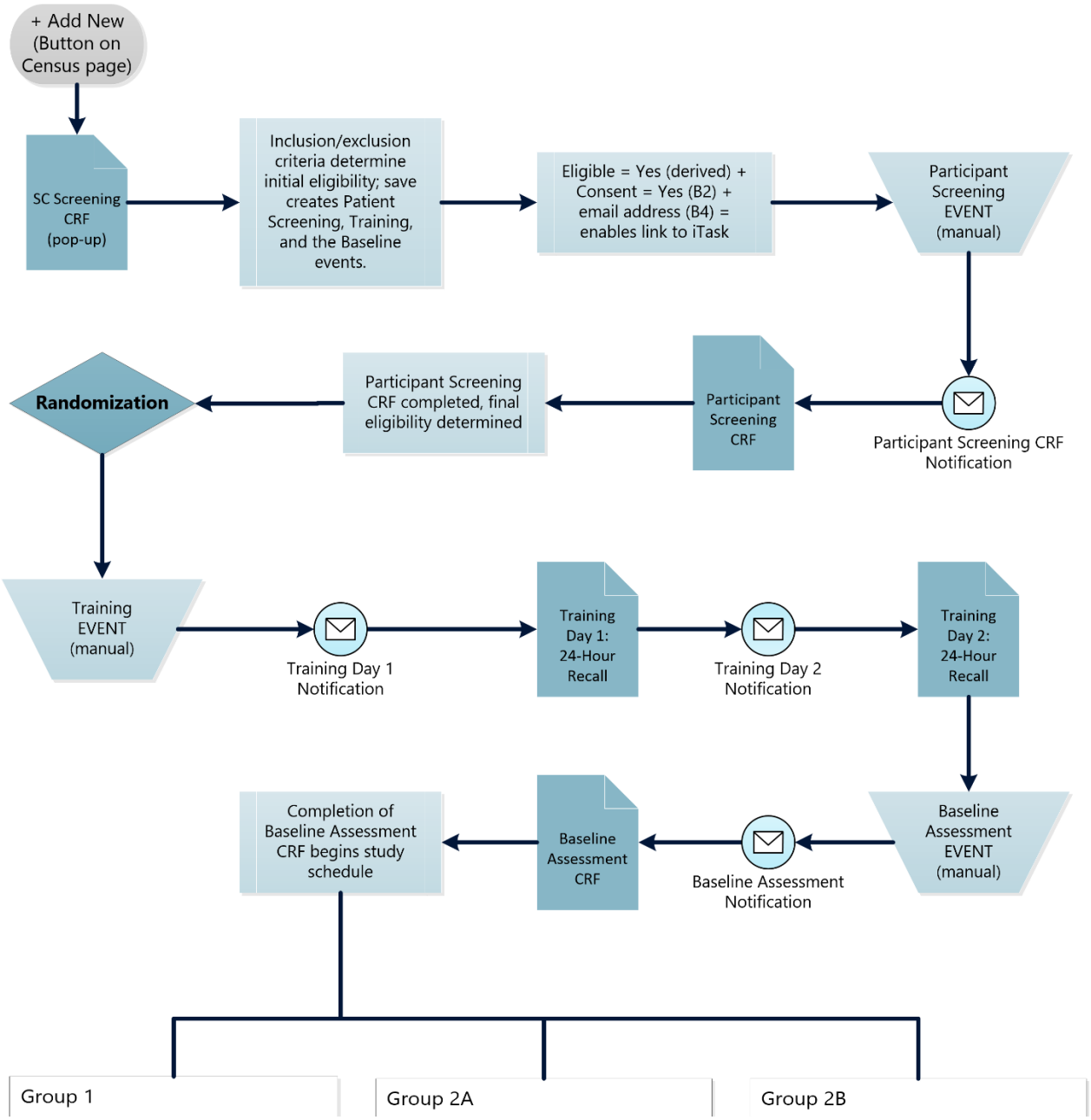


Figure 2: Sample iTask page for subject in Group 1

Patient Surveys

Cohort	VisitDate	Task	Current Status		Available Date	Due Date	Completion Date	Overdue
Unassigned	02/17/2017	Screening Visit	Scheduled			03/17/2017 12:00 AM		
Unassigned	02/17/2017	Patient Screening CRF			02/17/2017 6:00 AM	02/24/2017 12:00 AM	02/17/2017	
Group 1	02/20/2017	Training Visit	Scheduled			03/20/2017 12:00 AM		
Group 1	02/20/2017	Training: 7-Day Recall			02/20/2017 6:00 PM	02/21/2017 2:00 AM	02/20/2017	
Group 1	02/20/2017	Training: 24-Hour Recall			02/21/2017 6:00 PM	02/22/2017 2:00 AM		
Group 1	02/22/2017	Baseline Visit	Scheduled			03/22/2017 12:00 AM		
Group 1	02/22/2017	Baseline Assessment			02/22/2017 6:00 AM	02/25/2017 12:00 AM	02/22/2017	
Group 1	02/22/2017	24-Hour Recall			02/23/2017 6:00 PM	02/24/2017 2:00 AM		
Group 1	02/22/2017	24-Hour Recall			02/24/2017 6:00 PM	02/25/2017 2:00 AM		
Group 1	02/22/2017	24-Hour Recall			02/25/2017 6:00 PM	02/26/2017 2:00 AM		
Group 1	02/22/2017	24-Hour Recall			02/26/2017 6:00 PM	02/27/2017 2:00 AM		
Group 1	02/22/2017	24-Hour Recall			02/27/2017 6:00 PM	02/28/2017 2:00 AM		
Group 1	02/22/2017	24-Hour Recall			02/28/2017 6:00 PM	03/01/2017 2:00 AM		
Group 1	02/22/2017	24-Hour Recall			03/01/2017 6:00 PM	03/02/2017 2:00 AM		
Group 1	02/22/2017	7-Day Recall			03/01/2017 6:00 PM	03/03/2017 2:00 AM		
Group 1	02/22/2017	24-Hour Recall			03/02/2017 6:00 PM	03/03/2017 2:00 AM		
Group 1	02/22/2017	24-Hour Recall			03/03/2017 6:00 PM	03/04/2017 2:00 AM		
Group 1	02/22/2017	24-Hour Recall			03/04/2017 6:00 PM	03/05/2017 2:00 AM		
Group 1	02/22/2017	24-Hour Recall			03/05/2017 6:00 PM	03/06/2017 2:00 AM		
Group 1	02/22/2017	24-Hour Recall			03/06/2017 6:00 PM	03/07/2017 2:00 AM		
Group 1	02/22/2017	24-Hour Recall			03/07/2017 6:00 PM	03/08/2017 2:00 AM		
Group 1	02/22/2017	24-Hour Recall			03/08/2017 6:00 PM	03/09/2017 2:00 AM		

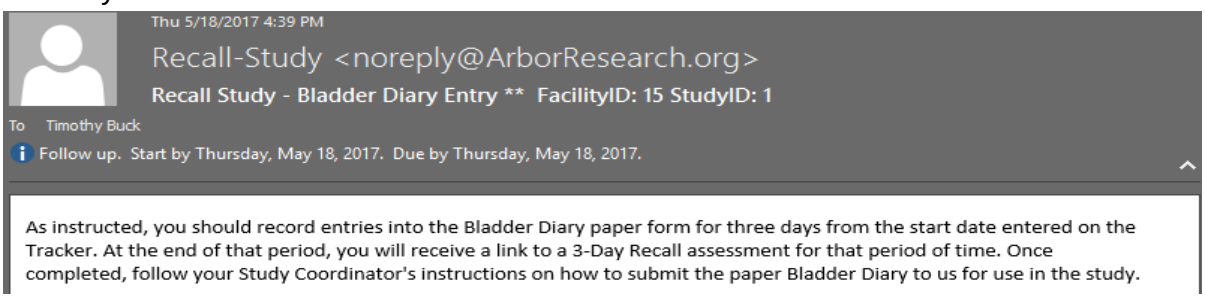
The “Completion Date” column will allow a coordinator to see when each assessment was completed by the subject.

The RecallLink Home page contains tools to help the research staff keep track of enrolled subjects and their compliance with questionnaire completion.

Figure 3: RecallLink Home Page Example

Assignment into Group 1 will require daily (24-hour) recall assessments every day for 30 days, weekly recall at the end of each 7-day period, and monthly recall at the end of the 30-day period.

Assignment to either Group 2A or 2B will require the completion of daily, weekly and monthly recall assessments as well as a 3-day bladder diary. This is an abbreviated version of the diary for the LURN Observational study. The subject will complete their recordings at home during the scheduled time on a paper diary and will send it back to the research staff for manual entry into the database. Email reminders will be sent to the subject to remind them to start recording on the diary.



An example diagram of the three (3) group's schedules is presented in Figure 4 below.

Figure 4. Schedule of assessments in the main study

	-2T	-1T	0	Week 1							Week 2							Week 3							Week 4							29	30
Group 1	W	D	0	D	D	D	D	D	D	D W	D	D	D	D	D	D	D W	D	D	D	D	D	D	D W	D	D	D	D	D	D	D W	D	D M
Group 2A	D	W	0	B	B	B 3				W	D	D	D	D	D	D	D W							W							W		M
Group 2B	D	D	0	D	D	D	D	D	D	D W	B	B	B 3				W							W							W		M

T=Training period* 0=Baseline (includes 7-day CASUS) D=24-hour recall
B=3-day daily bladder diary 3=3-day recall W=7-day recall M=30-day recall & final assessment
* Up to one week can elapse between the completion of the training period and start of the baseline assessment

7. ELIGIBILITY CRITERIA

7.1.1. Eligibility Criteria

Inclusion criteria:

1. age 18 or older,
2. Able to give informed consent,
3. Able to speak, read, and understand English,
4. Able to reliably complete self-reported questionnaires online at specified times (i.e., may exclude those who do not keep a regular schedule of sleeping during night hours), and
5. Experienced at least moderate severity and bother from at least 1 of the 7 targeted symptoms in the past 2 weeks and in the past 3 months (Table 1) (Moderate to severe symptom and bother rating correspond to the last 3 answer choices on the Participant Screening CRF for each question)

Table 1: Initial Symptoms of LUTD	
Symptom Cluster	**Symptom**
Storage	Daytime frequency
	Nocturia
	Urgency
	Incontinence/Leakage (various types)
	Poor or absent sensation of bladder filling
	Pain/Discomfort/Pressure
Voiding	Slow/weak stream

	Splitting or spraying
	Intermittent stream/Double voiding
	Hesitancy
	Straining
	Dribbling at the end of flow
	Dysuria
	Paruresis (i.e. shy bladder, shy bladder syndrome)
Post-micturition	Feeling of incomplete emptying
	Post-micturition dribble (delayed)
	Pain/discomfort/pressure after urination
Other or Poorly Characterized	Confidence in warning signs of need to urinate soon
	Self-rating of overall bladder control
	Urgency with fear of leaking
	Abnormal bladder sensations
	Bother of symptoms

Note: highlighted symptoms are those on which the study will focus.

Exclusion criteria:

1. Dementia or other cognitive impairment that would interfere with study participation,
2. Known pregnancy or delivery within past 6 months (women only)
3. Planned change in medications to treat LUTS in the middle of the study time frame,
4. Receiving active treatment for any malignancy (including maintenance medications),
5. Received surgery with general or spinal/epidural anesthesia in the past 3 months or planned surgery during the study time frame
6. Lower urinary tract instrumentation (e.g. self-catheterization or cystoscopy) in past 3 months or planned during the study time frame and
7. Prostate biopsy in the past 3 months or planned during the study time frame

7.1.2. Recruitment Plan

Participants will be recruited from the participating LURN sites. Recruitment for the recall study will target return patients who are not in the Observational Cohort or who are finishing their participation in the Observational Cohort (3- or 12-month visits) or from the community-at-large. People who previously participated in another SRM study (i.e., qualitative interviews or cognitive interviews) will be allowed to participate in this study too.

We will contact potential participants using phone calls and physician letters as well as in-person during clinic visits through the study coordinators in each participating clinic. We will recruit via flyers in the clinics and advertisements on participating sites' clinical trials websites.

Interested subjects will call or email the site study coordinator for additional information about the study, or will discuss the study with the coordinator at the end of a visit to the clinic. The coordinator will provide an explanation of the study, screen potential participants, and enroll subjects after they consent to be in the study (see Section 4.4). Patients who are determined to be ineligible for the study will be told that they do not meet the criteria.

7.2. Strategies for Approaching Participants

It is critical that site personnel put careful thought into how to maximize subject accrual and retention. Integration of research studies into existing clinical flow will enhance acceptance and cooperation with colleagues, as well as minimizing wasted time and frustration for the subject.

Prior to implementation, study staff should meet together to discuss implementation strategies, thinking about the following questions:

- How do you find out when patients will be seen in clinic? How will you know if the clinic appointment has been rescheduled?
- How will you know who is being considered for the study?
- What kind of communication do you need to establish with your clinical team? Will the study coordinator need to attend meetings of this group?
- When is the last time the patient was in your facility? What is the estimated interval?
- If there is a short time period (or none), then you will need to develop a plan to approach the subject prior to final acceptance. When is the optimal time?
- How long do you think you will need to explain the study and obtain informed consent from the potential subject? Where will you do that? In clinic or in the research area or on the phone?

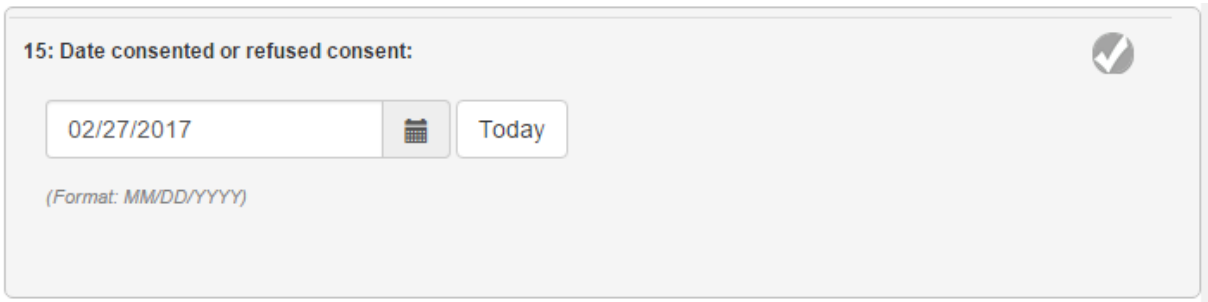
8. DATA MANAGEMENT

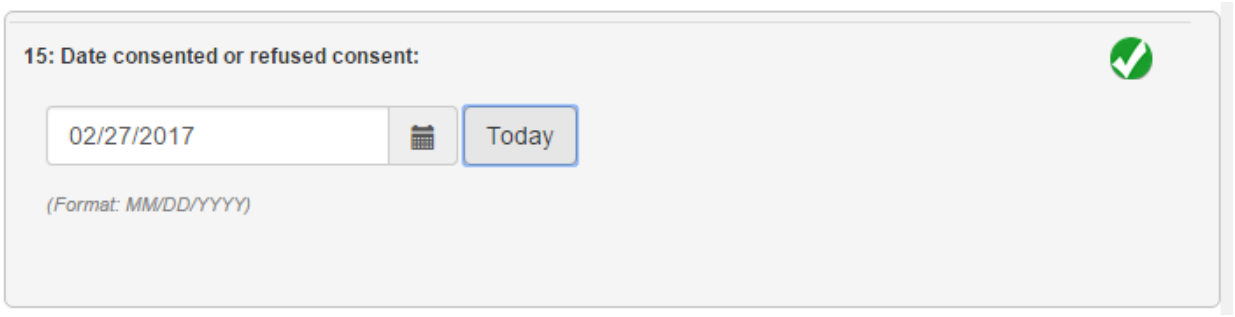
The DCC has a comprehensive security plan for LURN Protocol 2 study data. The robust security plan was prepared with extensive consultation, and has been approved by Health Resources and Services Administration (HRSA). The security plan is based on the Privacy Act, the Computer Security Act, and OMB Circular A-130.

8.1. Gathering Data

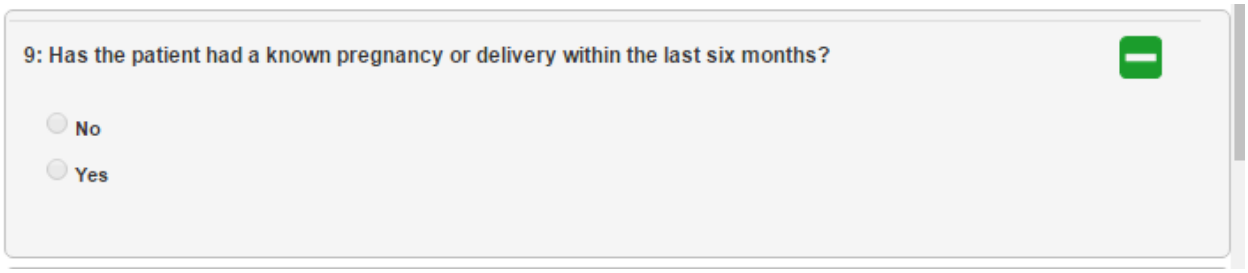
8.1.1. Recall Link

- Adding new subjects is similar to the process in LURNLink. From the Census page click on “Add New Subject”. This will bring up the Patient Detail form. It is only one (1) page long and as each question is completed, the information is saved in the system. For text boxes, the information will save after moving to the next question or by clicking on the check mark on the right hand side.





- If a question is not applicable, there will be a dash in place of a check mark and the question will not be answerable.

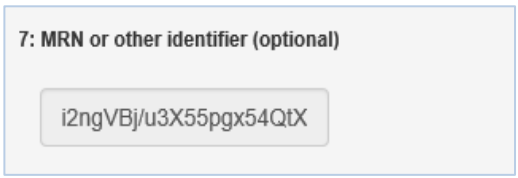


- Once the Patient Detail page is complete with the basic information and the Exclusion/Consent information and is saved, the subject will be entered into the

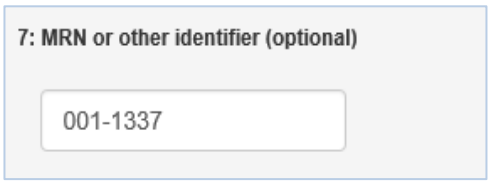
system, the iTask link will appear on the Census page and the coordinator will be able to schedule the Patient Screening Event.

- There is an optional question to the SC Screening CRF for recording a patient's MRN or other internal identifier. This field is encrypted and requires the Patient Name Key (PNK) to become readable.

Before PNK entry:



After PNK entry:



- Data on race/ethnicity will be collected by asking the subject to directly input the information in their online questionnaire.
- If you have questions about the meaning of a question or data element, you should contact the DCC monitors for the definition. The goal is to keep interpretation of data elements consistent so that data collected can be properly analyzed and interpreted.
- If a subject has questions about the meaning of a question or data element, they should contact the Coordinator within the window of the questionnaire's availability for clarification and then access the questionnaire again through the link to complete the questionnaire. Coordinators should not enter patient recall data after the window for the assessment closes, as this would violate the recall period.
- If you have questions about what a notation means on a chart, then you should contact your site PI for a definition and interpretation.
- All essential study documents must be retained by the investigator in a participant's binder and generally include the following:
    - Source documents;
    - Signed consent forms / Script worksheets;
    - Questionnaires completed by the participant;
    - Data Correction Forms (if applicable);
    - Notes to file.

8.2. Emails to participants

- It is anticipated that participants will have an email address in addition to internet access during the course of the study in order to complete study requirements. If a participant does not have an email address, coordinators can send the links for the study questionnaires to the participant's cell phone number as a text message. The

coordinator will collect the carrier and cell phone number information from the participant and use this to enter an email in the Contact Information section of the Patient Detail page. The following list is the information to enter into Recall-Link (question 18) for the various carriers in the US:

- Alltel: phonenumber@message.alltel.com
- AT&T: phonenumber@txt.att.net
- T-Mobile: phonenumber@tmomail.net
- Virgin Mobile: phonenumber@vmobl.com
- Sprint: phonenumber@messaging.sprintpcs.com
- Verizon: phonenumber@vtext.com
- Nextel: phonenumber@messaging.nextel.com
- US Cellular: phonenumber@mms.uscc.net

- Hyperlinks to the study questionnaires are sent out automatically by the Recall-Link system via email. There are three (3) events which must be scheduled by the coordinator before the links will be sent out
  - Participant Screening
  - Training
  - Baseline
- Once these events have been scheduled on the participant's iTask page, emails will be sent out according to the date that the event is scheduled. If the event is scheduled for same day, then the email will go out immediately. Events scheduled for certain days will have the link being sent at 6AM local time on the day the event was scheduled. Participants have 1 week to complete the Participant Screening and Baseline questionnaires. The hyperlinks will remain active for this entire time and reminder emails will be sent to the participant on a daily basis until the questionnaire is marked "completed". The email containing the hyperlink to the Day 1 Training questionnaire will go out to the participants at 6PM local time on the day that the event is scheduled and will remain active from 6PM until 2AM the next day. The email for Day 2 Training will automatically follow and the link will again remain active from 6PM until 2AM. Since these training questionnaires are only available for a limited time, no reminder email will be sent.

- Once the Baseline questionnaire has been marked "completed" by the participant the Recall-Link system will populate the schedule of questionnaires on the participant's iTask page according to the study group to which they were randomized. Emails with hyperlinks to the questionnaires will be sent out automatically according to this schedule. No further scheduling of events is required by the coordinator.

8.3. Notification Trigger & Link Availability

- The following table is intended to clarify when an email should be received after a triggering event occurs. All times are local time for the patient time zone indicated on Patient Screening CRF, except the Patient Screening event, which is local time for the facility.

In the **Email Sent** column, "Batch" indicates that the email notification goes out as part of a scheduled batch mailing with other emails across facilities. "Immediate" indicates that the notification is not held or part of a scheduled email batch and goes out immediately.

Event	Trigger	Scheduled	Email Sent	Link Available Start	Link Available End
Patient Screening	Manually scheduling the event through the iTask.	Today	Immediate	Immediately* (6am on day event is scheduled)	2am on 8th day from date scheduled
		Future date	Batch: 6am on day scheduled	6am on day event is scheduled	2am on 8th day from date scheduled
Training	Manually scheduling the event through the iTask.	Today OR Future Date	Batch 1st training CRF: 6pm on day scheduled 2nd training CRF: 6pm on the next day	1st: 6pm on day 1 2nd: 6pm on day 2	1st: 2am on day 2 2nd: 2am on day 3
Baseline	Manually scheduling the event through the iTask.	Today	Immediate	Immediately* (6am on day event is scheduled)	2am on 8th day from date scheduled
		Future Date	Batch: 6am on day scheduled	6am on day event is scheduled	2am on 8th day from date scheduled
Bladder Diary Tracker	Group 2A: Day 1 of first week of regular study schedule	N/A (Automatic)	Batch: 6am on day 1 of appropriate week (and repeated daily until BD Tracker	6am on day 1 of appropriate week	2am on 8th day

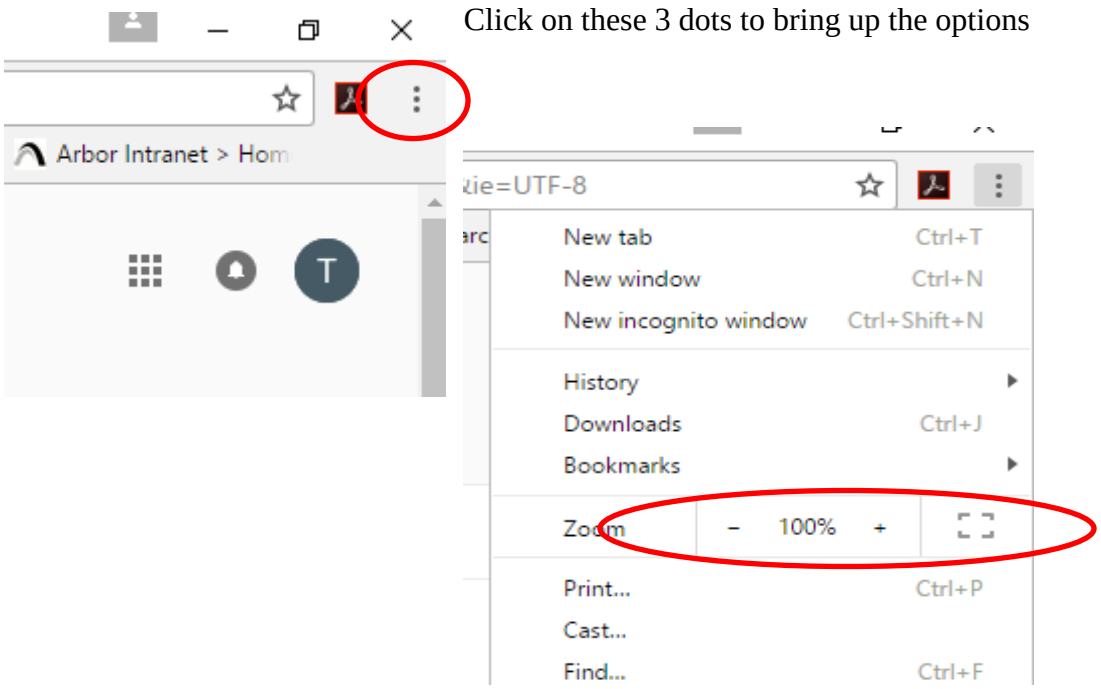
Event	Trigger	Scheduled	Email Sent	Link Available Start	Link Available End
(see table below for more detail)	Group 2B: Day 1 of second week of regular study schedule		indicates diary entry started)		
3-Day Recall *(see table below for more detail)*	Groups 2A & 2B: Day 3 of Bladder Diary entry (start date entered in Tracker + 3 days)	N/A (Automatic)	Batch: 6pm on last day of Bladder Diary entry	6pm on last day of Bladder Diary entry	2am on second day after link available
7-Day Recall	Automatic	N/A (Automatic)	Batch: 6pm on day 7, 14, 21, and 28 of regular study schedule	6pm on day sent	2am on second day after link available
30-Day/Final Recall	Automatic	N/A (Automatic)	Batch: 6pm on day 30 of regular study schedule	6pm on day sent	2am on fourth day after link available
24-Hour Recall	Automatic	N/A (Automatic)	Batch: 6pm on day scheduled to receive a 24-Hour Recall	6pm on day sent	2am on day after link available

8.4. Browser Font Size

In order to aid participants in viewing the questionnaires the coordinator can advise on how to increase font size in various browsers

8.4.1. Chrome

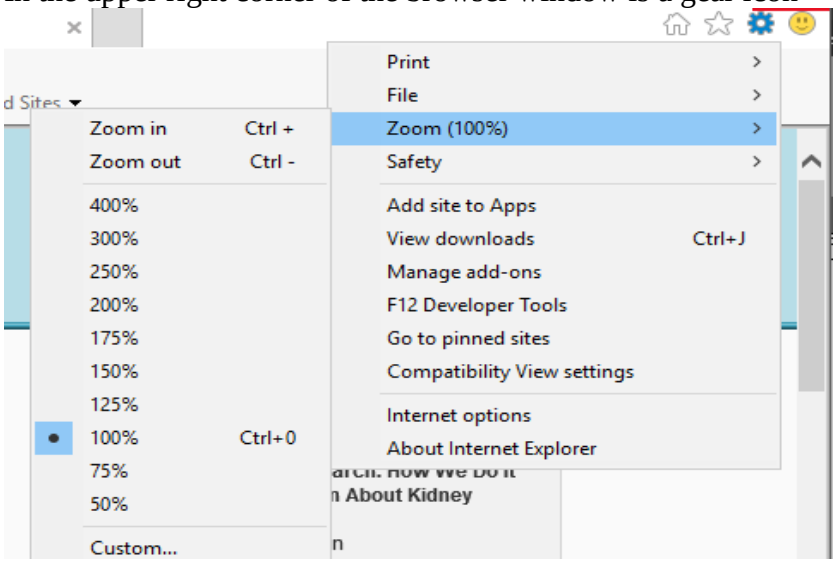
In the upper right corner of the browser window are 3 dots. This is the control to use to customize Goggle Chrome.



Font size can be increased by increasing the zoom % (clicking on + symbol)

8.4.2. Internet Explorer

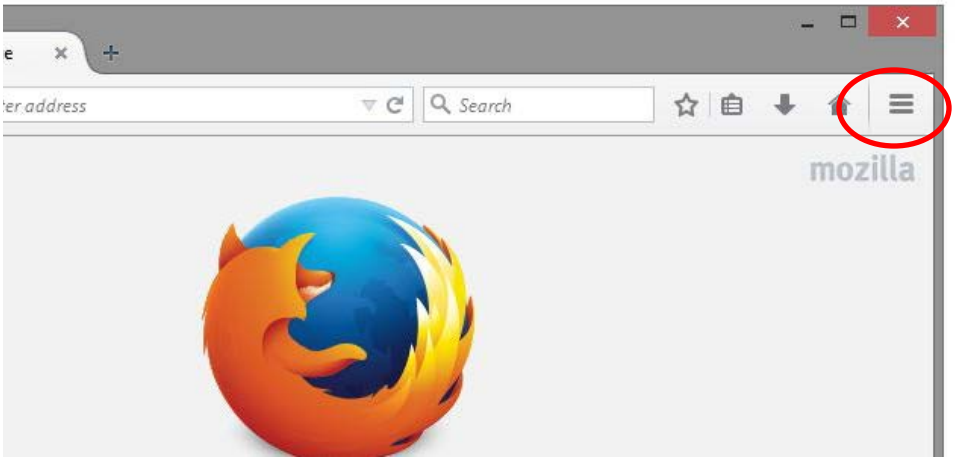
In the upper right corner of the browser window is a gear icon

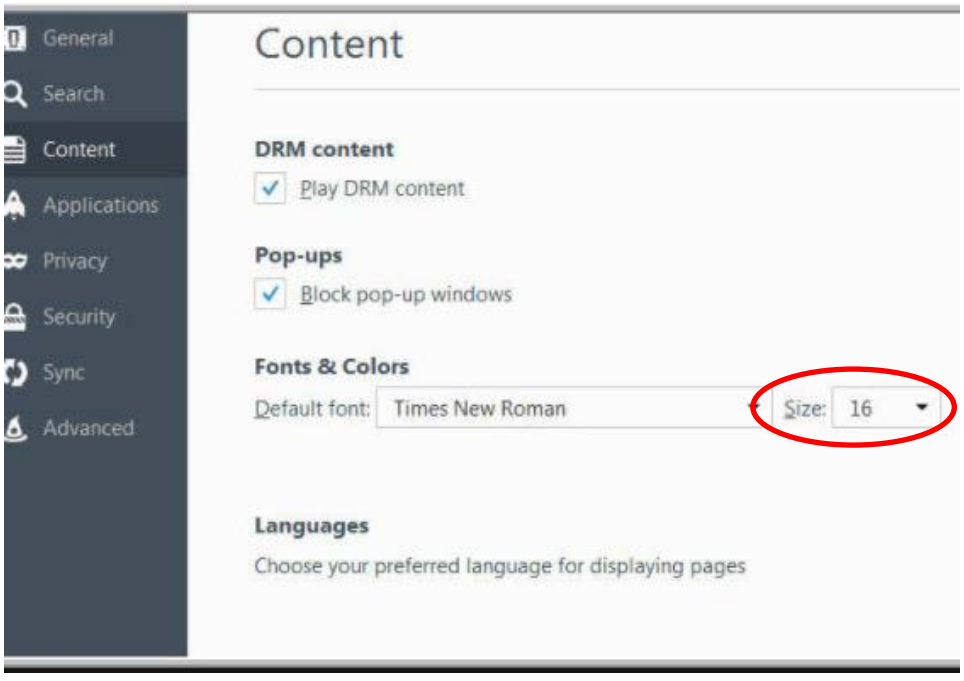


From here, you can increase font size of the browser window.

8.4.3. FireFox

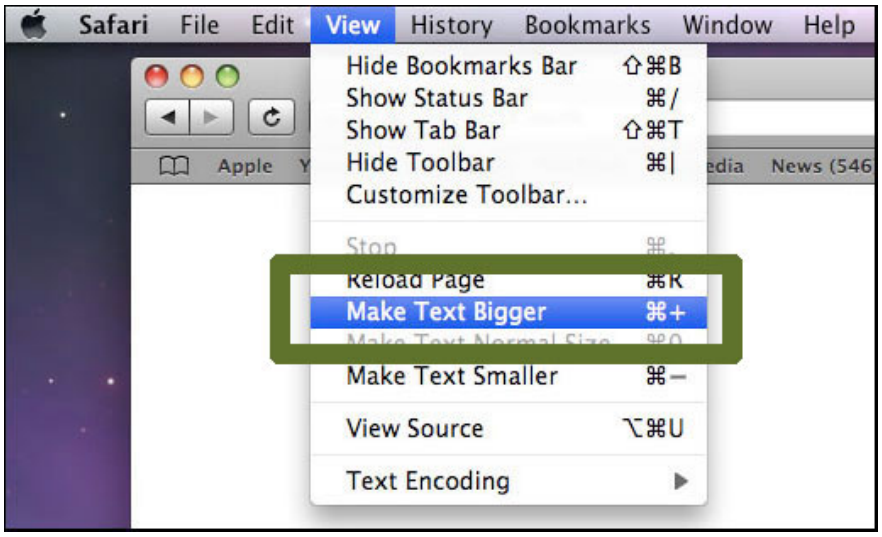
In the upper right corner of the browser window are 3 lines. Click on theses to bring up the options window. Select “content” from the menu and increase font size.





8.4.4. Safari

First, open your Safari browser. Click on *View* in your Safari menu, located at the top of the screen. When the drop-down menu appears, click on the option labeled *Zoom In* to make all content on the current Web page appear bigger.



You can also use the following keyboard shortcut to accomplish this: **Command and Plus(+)**. To increase the size again, simply repeat this step.

You can also make the content rendered within Safari appear smaller by selecting the *Zoom Out* option or keying in the following shortcut: **Command and Minus(-)**.

8.5. Data Timeliness

- The DCC will generate data for weekly enrollments reports, which will be made available for discussion on weekly calls with study investigators and coordinators.
- The Patient Screening questionnaire must be completed by the patient within 1 week of the link being sent to the patient
- Training questionnaires must be completed within the 6pm to 2am window for each questionnaire
- Baseline Assessment questionnaire must be completed by the patient within 1 week of the link being sent to the subject
- 24-hour, 3-day and 7-day assessments must be completed within the 6pm to 2am window
- Final Assessment questionnaire (30-day recall) must be completed within 3 days of the link being sent to the subject
- Should the DCC generate queries to the sites, a specific timeframe for resolution of the queries will be identified in the email with the attachment of the query spreadsheet.

9. PROTOCOL COMPLIANCE

9.1. Compliance

Compliance in relation to studies is defined as adherence to all the study-related requirements, GCP requirements, and the applicable regulatory requirements. Please refer to the most recent version of the protocol to review eligibility criteria for each subject.
Research studies are expensive endeavors and every effort should be made to maximize adherence to the protocol and minimize noncompliance.

Patient Screening

The Patient Screening event should be scheduled within 7 days of the initial study coordinator screening. The participant will have 7 days to complete the Patient Screening CRF that is accessible via the link in the email sent to them.

Baseline Assessment

Participants have 7 days to complete the Baseline Assessment from the time the coordinator schedules the event on the iTask page. If participants miss the baseline assessment, study staff will contact the participant once per business day for up to 7 days until the participant is reached (if the participant is not reached within 7 business days, no further contact attempts will be made and the participant will be dropped). Participants who are more than 3 days late in filling out the baseline assessment may be dropped from the study at the study staff's discretion, depending on the participant's reason for missing the deadline.

24-hour Recall Assessment
All participants should complete their end-of-day, 24-hour recall assessment before bed; during training they will be instructed to complete it as close to bedtime as possible. The daily assessment will be available from 6 pm local time until 2 am the following morning.

While the following cut-offs **will not be specified to participants** (to encourage complete data), for study purposes, we intend to follow these guidelines: participants must complete at least 5 of 7 daily assessments per week to be considered compliant. A week is defined as the 7-day period with 7 daily assessments ending in a weekly assessment, regardless of the day of the week that that 7-day period starts on, e.g., it could run from Wednesday to Tuesday. Participants can miss up to 2 end-of-day assessments in a single week without penalty. After 2 am, those who have not completed the previous day's assessment will be counted as missing for that day. If someone misses a daily assessment a 2nd consecutive time, the study coordinator will call him/her to discuss the reason for the missing assessments.

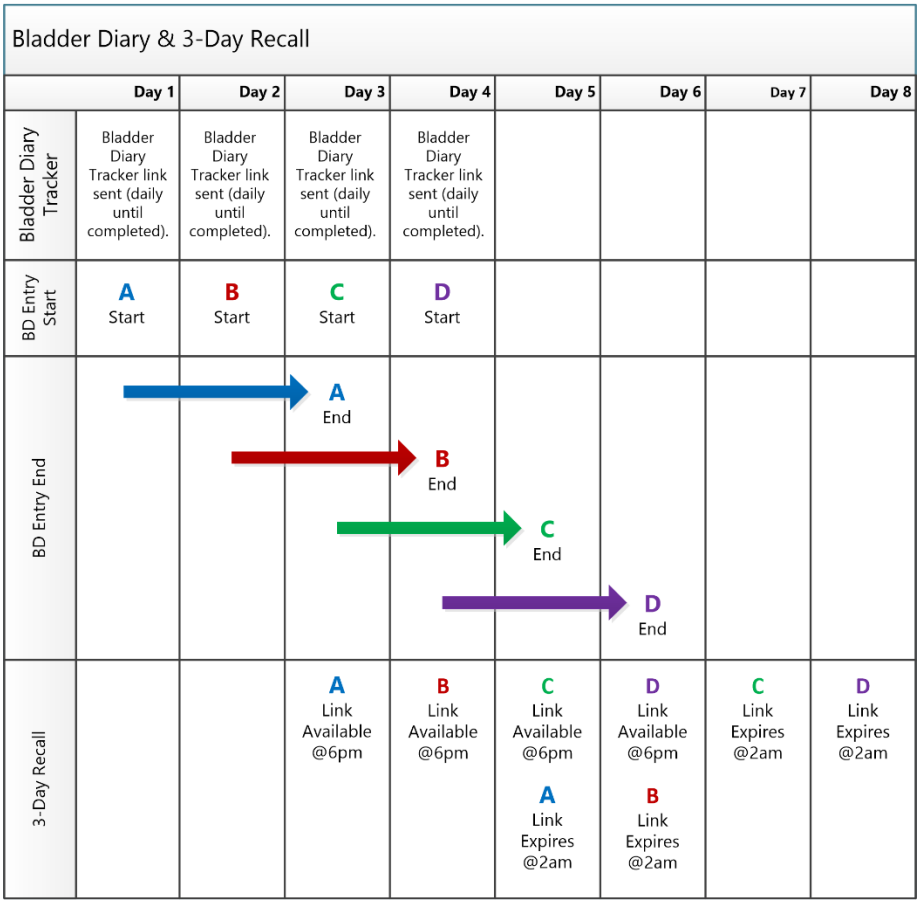
Once a participant misses 3 assessments in a week, study staff will contact them to let them know that they have missed too many assessments to continue being part of the study.

3- and 7-day Recall Assessment

If a participant misses a 3- or 7-day assessment, they must complete it the next day and will be sent a reminder email to do so. Participants must complete the 3- and 7-day assessments to be considered compliant.

Bladder Diary

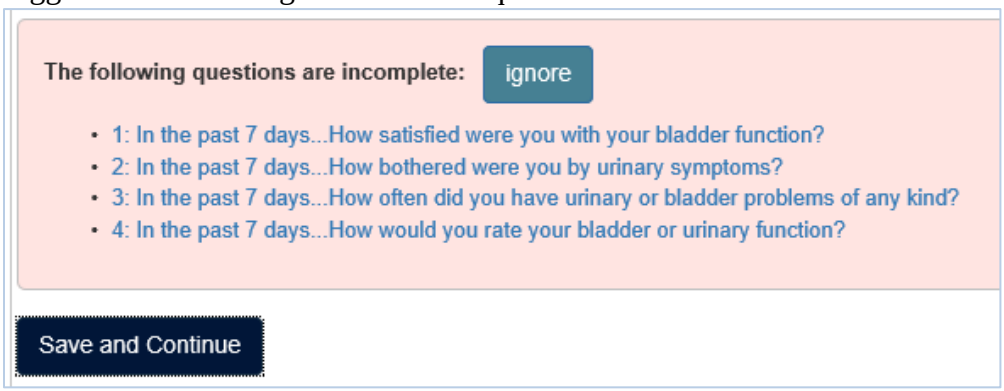
Participants assigned to Group 2 must return a bladder diary by the end of the study month to be considered compliant. They can start the bladder diary on days 1-4 during the target week (week 1 for Group 2A and week 2 for Group 2B). If an error is made with the start date on the Bladder Diary Tracker, the participant should contact the coordinator and let them know what about the error. The coordinator can adjust the start date on the Tracker through the participant's iTask page and then should contact the DCC to have the timing of the 3-Day adjusted so that it goes out to the participant in the correct time frame.



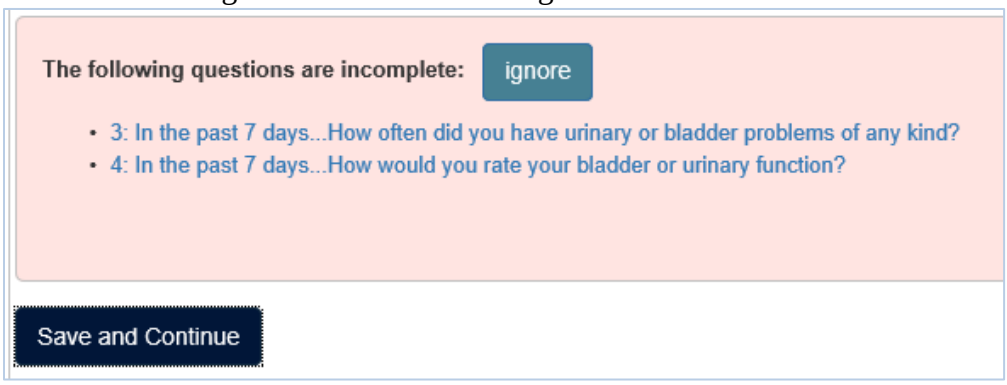
30-day Recall & Final Assessment
The 30-day recall & final assessment will stay open for 3 days to allow the participant as much time as possible to complete. Additionally, study staff will make every effort to contact the study participant and encourage them to complete the final assessment as soon as possible, to prevent missing data.

9.2. Completeness Thresholds

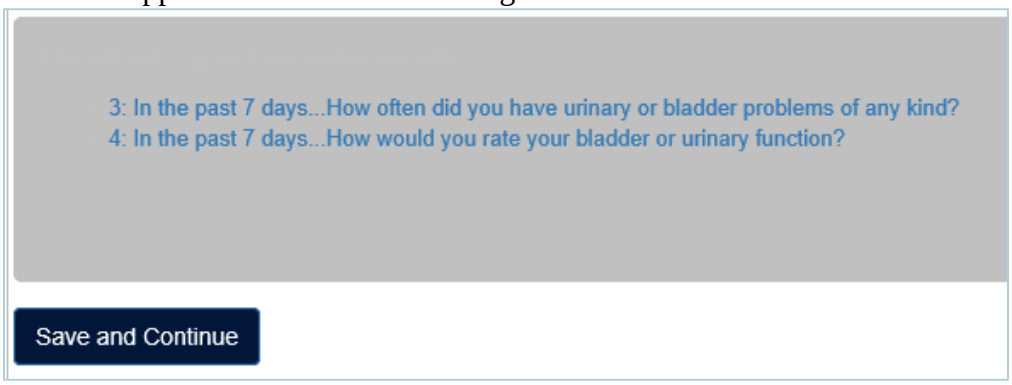
- Most CRFs in Recall require 100% of the questions to be answered to be considered "complete." Anything less than 100% will generate a warning. Exceptions:
    - The Patient Screening CRF requires 100% completion to calculate eligibility.
    - Sections A and B in the Baseline Assessment are considered "complete" at 75% and above.
    - Sections A, C, and D in the 30-Day/Final Recall are considered "complete" at 75% and above.
- There is an on-page warning, which indicates that questions have not been answered on that page.
- If any questions have been missed on a page, clicking the "Save and Continue" button triggers a new warning that lists what questions have been missed:



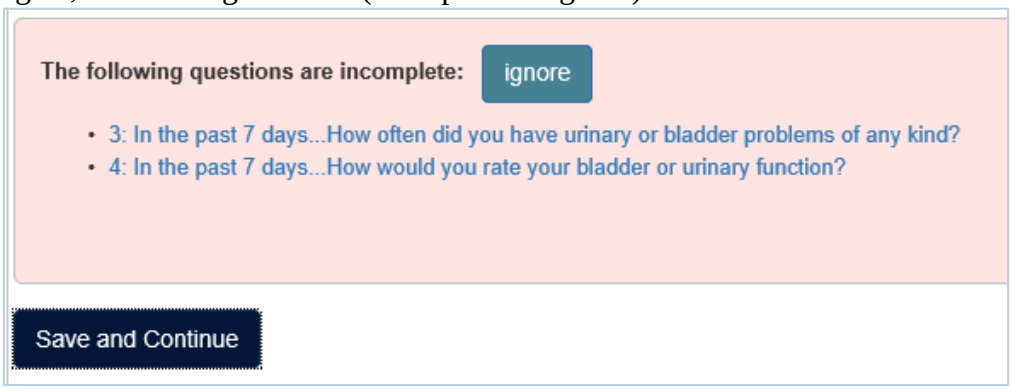
- Clicking on the linked question will automatically jump to that question. Scrolling back down and clicking "Save and Continue" again will refresh the list:



- "Save and Continue" will continue to refresh the list and stay on that page until all questions are answered.
- Clicking "Ignore" will allow you to continue on to the next page, intentionally opting out of answering a specific question. The warning section turns gray and the message and button disappear to indicate the warning has been deactivated:



- Even after the "Ignore" button has been clicked, the links to unanswered questions are still usable; the "Ignore" button simply restores the "Save and Continue" function and bypasses the hold. However, if you return to that section and click "Save and Continue" again, the warning function (and option to Ignore) is reactivated:



- *Please Note: This change does not apply to the SC Screening CRF.*

9.3. Protocol Deviations

A protocol deviation is defined as a variation from the protocol-directed conduct of a clinical trial. Any noncompliance with the study protocol, GCP, or protocol-specific MOO requirement is considered a protocol deviation. All protocol deviations should be reported to the DCC at LURN-Monitors@arborresearch.org.

Protocol deviations are submitted to the site's IRB as per their IRB regulatory guidelines.

9.3.1. Major Protocol Deviations

A major protocol deviation includes a deviation that impacts one of the following:

- The inclusion and/or exclusion criteria;
- The ability of the sponsor to evaluate the endpoints of the study;
- Informed consent;
- IRB status (e.g., failure to keep IRB approval up to date).

9.3.2. Minor Protocol Deviations

A non-major protocol deviation (minor deviation) includes a deviation that includes noncompliance with the study protocol, GCP, or protocol-specific MOO requirement that does not meet the definition for a major deviation.

Below is a list of some of the Protocol Deviations (Major and Minor) the DCC will be tracking:

- Subject enrolled, but does not meet eligibility criteria;
- Non-adherence to study design;
- Failure to obtain informed consent prior to initiation of study-related procedures;
- Falsifying research or medical records;
- Performing tests beyond professional scope;
- Working under an expired professional license/certificate;
- Breach of confidentiality;
- Improper or inadequate informed consent procedure;
- Other, specify.

Further information on protocol deviations can be found in the principals of International Conference on Harmonization Guidelines (ICH) 4.5, “Compliance with Protocol.”

Protocol deviation reports are to be submitted to your IRB per their reporting procedures. The response to the deviation reports are to be filed in the site’s regulatory binder under major correspondence.

9.3.3. Data and Safety Monitoring Activities

The roles and responsibilities of the entities monitoring participant safety and study quality are described in this section. All research studies supported by NIDDK must have a data and safety-monitoring plan. The type of safety monitoring is determined by the size and/or nature of the study and is specified in the Notice of Grant Award.

- As indicated in RFA-DK-11-026 (http://grants.nih.gov/grants/guide/rfa-files/RFA-DK-11-026.html), an independent EEP has been established by the NIDDK. The EEP will provide scientific oversight and advice for the duration of the Network. The Panel reports to the NIDDK. NIDDK may

also seek advice about the design of studies proposed by LURN investigators and their conduct from other stakeholders if necessary.

The major responsibilities of the EEP are to:

- Review all study protocols prior to implementation for their likelihood to achieve the overall goals established by the NIDDK;
- Evaluate study progress;
- Review ancillary study proposals (if applicable) prior to implementation;
- Monitor the safety of study participants.

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9.3.4. Study Termination and Completion

Study closeout activities are performed to confirm that the site investigator's obligations have been met and post-study obligations are understood. Examples of closeout activities include, but are not limited to the following:

- Verification that study procedures have been competed, data have been collected;
- Comparison of the investigator's correspondence and study files against the DCC's records for completeness;
- Assurance that all data queries have been completed;
- Assurance that correspondence and study files are accessible for external audits;
- Reminder to investigators of their ongoing responsibility to maintain study records and to report any relevant study information to the NIDDK;
- Assurance that the investigator will notify the IRB of the study's completion and store a copy of the notification;
- Preparation of a report summarizing the study's conduct;
- Participant notification of the study completion.

Subjects may be prematurely terminated from the study because of withdrawal of consent, failure to return (lost to follow-up), etc. Every attempt will be made to follow subjects who prematurely terminate from the study. Remember to provide documentation of the withdrawal or missed event and file in the subject's research file/binder.

9.4. SAE Reporting

There will be no need for SAE reporting in this observational study.

Participants in the study will be told as part of the informed consent process, they may drop out of the study if they experience any discomfort.

9.5. Confidentiality Procedures

It is the responsibility of the study leadership to outline and enforce participant and study data confidentiality policies. Study staff should be instructed in their responsibilities regarding data safeguards and cautioned against the release of data to any unauthorized individuals unless such as a release is approved by study leadership and NIDDK and is not in violation of applicable Federal and state laws.

The following is a list of study participant confidentiality safeguards:

- **Data flow procedures:** Data identifying participants should not be transmitted from study sites to the DCC. Identifiers include, but are not limited to: participant name, name code, hospital chart, record number, Social Security Number, address or other contact information.
- **Electronic files:** Data identifying participants that are stored electronically should be maintained in an encrypted form or in a separate file.
- **Forms:** Forms or pages containing personal identifying information should be separated from other pages of the data forms.
- **Data listings:** Unique identifiers should not be included in any publishing data listing.
- **Data distribution:** Data Listings that contain participant name, name code or other identifiers should be stored and disposed of in an appropriate manner.
- **Data disposal:** Computer listings that contain participant-identifying information should be disposed of in an appropriate manner.
- **Access:** Participant records should not be accessible to persons outside of the study without the express written consent of the participant.
- **Storage:** Study forms and related documents retained both during and after the study completion, should be stored in a secure location. If computers are used to store and/or analyze clinical data, the DCC or the investigator must address the following elements of computer security so that the data remains confidential:
    - Compliance with Standards Regarding Data Security (HIPAA and 21 CRF Part 11).
    - All servers, web servers, firewalls, etc. are configured and maintained according to industry best practice guidelines for back-up security, continuity of operations, and protection of Protected Health Information (PHI).
    - There is a comprehensive security plan (at the sites and the DCC) in place for storage of electronic files, audiotapes, etc. containing all survey responses from the sites to the DCC.
    - The file sharing system will manage users, content folder permission, storage allocations and more in a centralized console at the DCC.
    - Access permissions will be identified per group users, files and folders will be password protected, and the file sharing system will generate reports on file and user activity to get a complete audit trail.

- If study paper files are being stored, the minimal requirement is for files to be stored in lockable cabinets or in a lockable room. When not in use of when unattended, the cabinets or room in which the files are located should be locked to assure confidentiality and security of information contained therein.
- Duplicate data types should be stored in a fireproof safe or in an off-site storage facility.
- Study related data should be stored in conditions that minimize the risk of damage or loss of information.

9.6. Retention and Study Documentation

The length of time all study files are to be maintained according to NIH policy requires that studies conducted under a grant retain participant forms for 3 years, while studies conducted under contract must retain participant forms for 7 years. Individual IRBs, institutions, states, and countries may have different requirements for record retention. Investigators should adhere to the most rigorous requirements and should retain forms and other study documents for the longest applicable period.

Following final analyses, the DCC will send study related data to the NIDDK Data Repository, a research resource by the NIH. The Repository will store and distribute data from people with LUTD. After the LURN study ends, the participants in the study will not be able to withdraw their data because the Repository will not be able to identify that participant's data. The participant data and all study related data will stay in the Repository indefinitely.

Researchers who plan to use data from the study will be required to request and receive all of the necessary approvals or waivers from the NIDDK and study investigators before gaining access to the data. Data will only be released to scientists who are qualified and prepared to conduct a research study.

9.7. MOO Maintenance

The MOO is maintained and will be updated throughout the study by the Lead Clinical Monitor at the DCC as major changes in procedure occur during the course of the study. The updated version of the MOO will contain a new version number and change in date visible in the footer of each page of the document to facilitate any changes and/or additions. The MOO should be available in loose-leaf form to all site staff participating in the conduct of the study. The MOO will serve as a history of the project documenting the time and nature of any changes in procedures and policies. The updated MOO will be distributed by the Lead Clinical Monitor at the DCC to the sites.

10. **Appendix A: Protocol 2**

Symptoms of Lower Urinary Tract Dysfunction Research Network (LURN)

Protocol 2: Recall Study

Version 1.0

Steering Committee Approval Date

January 27, 2016

Table of Contents

Introduction and Overview

This protocol is part of an overall effort to create a state-of-the-art resource for measuring patient-reported health for patients with lower urinary tract dysfunction (LUTD). The primary purpose of this resource, known as the LURN PRO Battery, is to comprehensively characterize the self-reported experiences of patients with LUTD for the purpose of enhancing efforts to characterize and explain important subtypes of patients with LUTD (phenotypes). Secondary purposes of the LURN PRO Battery, for which additional development work will be required, include developing better patient-reported endpoints for clinical trials, monitoring symptoms in the course of clinical care, and screening patients into important subgroups for purposes of tailored interventions.

Incorporating methods we have used successfully in prior measure validation work,[1] we propose to conduct a diary study in which patients record their symptoms at various time points – at the end of each day, or across multiple days. We also ask them to complete self-report measures with different recall periods (i.e., 3-day, 7-day, and 30-day recall), and we determine how well each of these correspond to daily experiences recorded in more frequent assessments (i.e., end-of-day and 3-day patient bladder diaries). These data will help LURN investigators to determine the most appropriate reporting period for specific symptoms. This study can also help to identify causes of differences that exist between shorter and longer recall periods.

Background, Study Rationale

Dysfunctions of the lower urinary tract affect both men and women and have adverse effects on health-related quality-of-life and daily functioning, including work productivity.[2] There are many causes and risk factors for lower urinary tract symptoms (LUTS), such as bladder detrusor malfunction, impaired pelvic floor support, sleep disorders, obesity, and genetic predisposition. Moreover, patients with LUTD can suffer from significant comorbidities, which complicate research and treatment decisions. To improve our understanding of the complex interrelationships among these variables, high quality tools are needed to fully characterize LUTD patients and to comprehensively measure treatment outcomes.[3] Self-report measurement is an important tool to characterize patients and to effectively guide treatment. Moreover, self-report can clarify relationships between phenotype and biological substrates.

There is an opportunity to improve the measurement of self-reported health for patients with LUTD. Items in a self-report measure usually make reference to a time period, e.g., "In the past 7 days…" Commonly used measures for LUTD have used a variety of time periods, from 7 days (LUTS Tool[4,5]) to 4 weeks (AUA-SI[6] and ICIQ-LUTS[7,8]); other measures ask patients to report on their experiences without reference to a time period.[9]

We want to measure patients' LUTS accurately without burdening them. Diaries (a voiding diary or bladder diary) have very short (or no) recall period; they are used primarily in clinical settings to assess voiding frequency, urgency, incontinence episodes, volume, etc. Because of the need for multiple assessments over the duration of a longitudinal study, short recall periods may place undue burden on patients and increase study costs. On the other hand, recall intervals that are long may over- or underestimate the health state when symptoms have diurnal or day-to-day fluctuation, which leads to bias. It is important to empirically determine how well patients are able to recall their experiences over

a specific time period when deciding on the recall period to use for a patient-reported measure. For patient-reported measures of LUTS, however, it is not known how accurately people can remember experiences over different recall periods. The reliability and validity of a measure depends on how accurately respondents can report on their experience in the given time period, as was highlighted by the US Food and Drug Administration (FDA) in their recent guidance on PRO measures for labeling claims.[10]

There is no gold standard for choice of recall period in a self-report measure. Figure 1[11] outlines the main considerations, which include the intended use of the instrument (in this case we are particularly interested in meeting the needs of the LURN phenotyping groups), the characteristics of the condition (we have both chronic and acute symptoms represented), and the patient's ability to correctly recall their experience (unknown). While some previous work has been published,[12-15] it has not addressed the accuracy of recall for 7-day or monthly measures using the same reporting period, nor do we understand the accuracy of recall for all of the different LUTS symptoms.

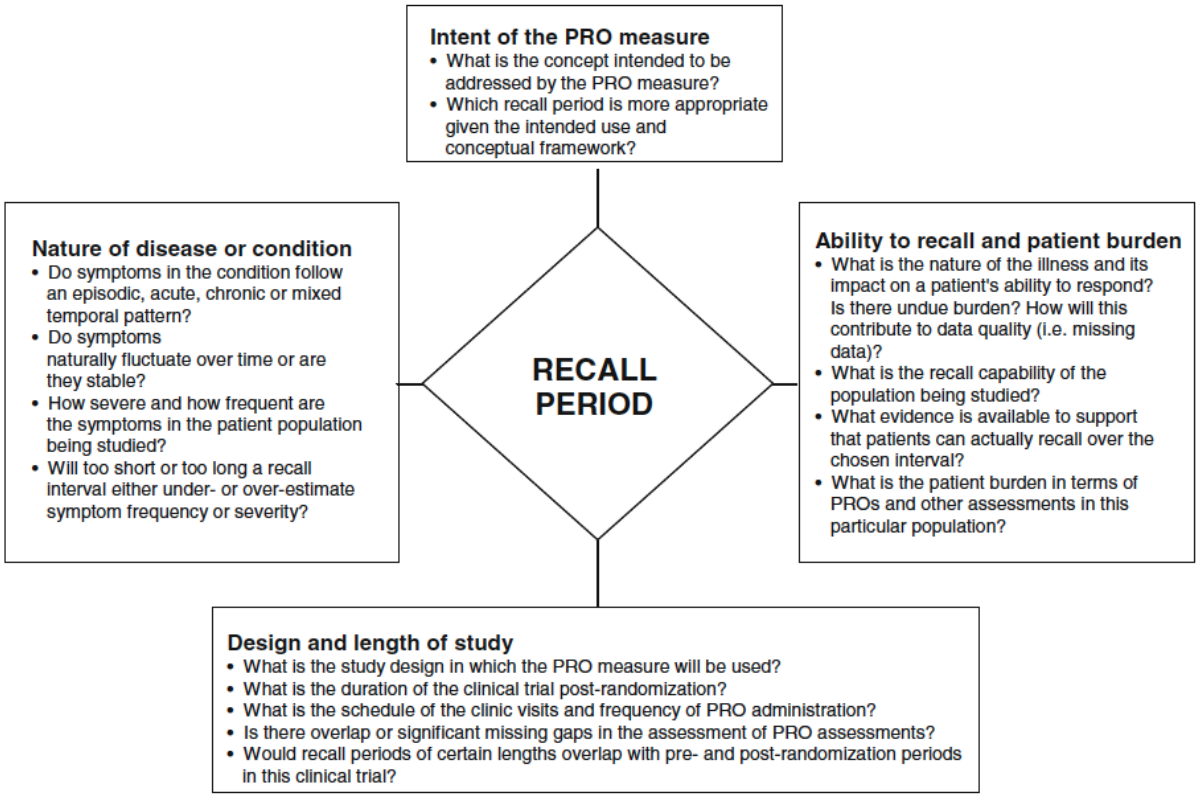

Figure 4. Considerations for selecting length of recall period. From Norquist, Girman, Fehnel et al. "Choice of recall period for patient-reported outcome (PRO) measures: criteria for consideration. *Quality of Life Research*. 2012: 21: 1013-1020.

Study Objectives

Specific Aim 1: To assess the correspondence between 1) average daily recall over 7 days and weekly recall of self-reported LUTS and 2) average daily recall over 30 days and monthly recall of self-reported LUTS.

Hypothesis 1.1: There will be an association between average daily recall and weekly recall of self-reported LUTS.

Hypothesis 1.2: There will be an association between average daily recall and monthly recall of self-reported LUTS.

Subaim 1A: To understand the heuristics that people may use to construct their weekly and monthly reports of LUTS (e.g., reporting peaks/valleys or most recent experience).

Subaim 1B: To describe the variation in symptoms over 30 days based on daily and weekly reports for each symptom.

Subaim 1C: To model trends in symptoms over the daily measurement periods, e.g., a decrease in symptoms may indicate increasing awareness of symptoms that lead to actions (drinking less, using the toilet more) that may reduce the symptom.

Subaim 1D: To assess the effect on weekly survey responses of having a prior week of daily surveys versus a prior week with no daily surveys.

Specific Aim 2: To assess the associations between better recall of LUTS and patient characteristics, including bother, depression, anxiety, and mood.

Hypothesis 2.1: Greater bother will be associated with lower correspondence between different recall periods, i.e., symptoms are related to over-reporting.

Specific Aim 3: To examine the association between overlapping parameters in a clinical (event-triggered) 3-day bladder diary and self-reported 3-day and weekly recall.

Hypothesis 3.1: There will be an association between overlapping parameters (i.e., frequency, leaking, urgency) in the bladder diary and 3-day and weekly recall.

Methods

Study Design

Participants will complete a baseline assessment; daily, weekly and monthly recall assessments of selected self-report LUTS measures, described in Appendix A; and a closing assessment. Half of the subjects (Group 1) will be randomly assigned to provide daily (24-hour) recall every day for 30 days, weekly recall at the end of each 7-day period, and monthly recall at the end of the 30-day period. The other half (Group 2) will be randomly assigned to Group 2A or Group 2B, and will complete a 3-day bladder diary in addition to daily, weekly and monthly recall assessments. Group 2A will provide the 3-day bladder diary in week 1 followed by 3-day recall and a weekly recall at the end of that week, and daily recall in week 2. Group 2B will provide one week of daily recall (week 1) followed by a 3-day bladder diary and 3-day recall at the start of week 2. Group 2 will also complete weekly recall assessments for weeks 1-4 and a monthly recall at the end of the 30-day period. An example diagram is presented in Figure 2 below.

Figure 2. Schedule of assessments in the main study

	-2T	-1T	0	Week 1	Week 2	Week 3	Week 4	29	30

Group 1	W	D	0	D	D	D	D	D	D	D W	D	D	D	D	D	D	D W	D	D	D	D	D	D	D W	D	D	D	D	D	D	D W	D	D M
Group 2A	D	W	0	B	B	B 3				W	D	D	D	D	D	D	D W							W							W		M
Group 2B	D	D	0	D	D	D	D	D	D	D W	B	B	B 3				W							W							W		M

T=Training period* 0=Baseline (includes 7-day CASUS) D=24-hour recall
B=3-day daily bladder diary 3=3-day recall W=7-day recall M=30-day recall & final assessment
* Up to one week can elapse between the completion of the training period and start of the baseline assessment

Symptom Selection

While there are many symptoms of LUTD (Table 1), we assume that recall of different symptoms within each symptom cluster is likely very similar, for example, under the category of voiding, recall of weak stream is probably very similar to recall of splitting. Thus, it is not scientifically necessary to include all LUTS in the recall study. Moreover, including all LUTS in this recall study would be cost prohibitive (see 4.7 for sample size considerations). As such, we selected a subset of LUTS to study (highlighted rows in Table 1). We wanted to include at least one symptom in the Storage, Voiding, and Post-micturition clusters, and we wanted to include the most common symptoms in the Storage cluster, including frequency, urgency, and incontinence. To select symptoms from the Voiding and Post-micturition clusters, we looked at two previous large studies (Hall 2008, Coyne 2008) as well as data from our LURN qualitative interview study (Protocol 1) to estimate overlap in symptoms. For additional details, see Section 4.7 and Appendix B.

Table 1: Symptoms of LUTD

Symptom Cluster	Symptom
Storage	Daytime frequency
	Nocturia
	Urgency
	Incontinence/Leakage (various types)
	Poor or absent sensation of bladder filling
	Pain/Discomfort/Pressure
Voiding	Slow/weak stream
	Splitting or spraying
	Intermittent stream/Double voiding
	Hesitancy
	Straining
	Dribbling at the end of flow
	Dysuria
	Paruresis (i.e. shy bladder, shy bladder syndrome)
Post-micturition	Feeling of incomplete emptying
	Post-micturition dribble (delayed)
	Pain/discomfort/pressure after urination

Other or Poorly Characterized	Confidence in warning signs of need to urinate soon
	Self-rating of overall bladder control
	Urgency with fear of leaking
	Abnormal bladder sensations
	Bother of symptoms

Note: highlighted symptoms are those on which the study will focus.

Recruitment

Participants will be recruited from the participating LURN sites. To avoid competition with the ongoing LURN Prospective Observational Cohort study, recruitment for the recall study will target new or return patients who are not in the Observational Cohort or who have completed their 3-month participation in the Observational Cohort. People who previously participated in another SRM study (i.e., qualitative interviews or cognitive interviews) will be allowed to participate in this study, too.

We will contact potential participants using physician letters as well as in-person during clinic visits through the study coordinators in each participating clinic. We will recruit via flyers in the clinics and advertisements on participating sites' clinical trials websites.

Interested subjects will call or email the site study coordinator for additional information about the study, or will discuss the study with the coordinator at the end of a visit to the clinic. The coordinator will provide an explanation of the study, screen potential participants, and enroll subjects after they consent to be in the study (see Section 4.4). Patients who are determined to be ineligible for the study will be told that they do not meet the criteria.

Screening Participants

Enrollment for the recall study will be 400-500 patients with complete data to have at least 125 for each sex and targeted symptom (see Table 1) combination (see Section 4.7). Enrollment will be stopped when complete data for 125 cases within each category is obtained, and as categories are filled, enrollment will be targeted to the less common symptoms. Based on analysis of our qualitative interview sample (Appendix B), we anticipate that the majority of men and women meeting eligibility criteria will have multiple symptoms and will thus contribute data to more than one symptom category.

We will aim to enroll participants with a spectrum of severity for the involved symptoms, a range of ages, and a diversity of racial/ethnic backgrounds. In particular, we will enroll people who persistently and recently have at least one moderately severe and bothersome symptom, ascertained via the Screening Tool. The screening tool is a modified version of the LUTS Tool (Appendix C).

Eligible participants will be categorized to meet recruitment targets for storage, voiding, and post-micturition symptoms, as applicable. We will monitor the distributions of symptom severity by sex, age, and racial/ethnic background categories. If these distributions or categories do not reflect sufficient diversity, then targeted recruiting will be adopted. The total number of patients in each symptom group, as well as the number of patients with single or multiple symptoms, will be checked regularly.

Inclusion criteria:

6. age 18 or older,
7. willing and able to give informed consent,
8. able to speak, read, and understand English,
9. able to reliably complete self-reported questionnaires online at specified times (i.e., may exclude those who do not keep a regular schedule of sleeping during night hours), and
10. experienced at least moderate severity *and* bother from at least 1 of the 7 targeted symptoms in the past 2 weeks *and* in the past 3 months (Table 1)

Exclusion criteria:

8. dementia or other cognitive impairment that would interfere with study participation,
9. known pregnancy or delivery within past 6 months (women only)
10. planned change in medications to treat LUTS in the middle of the study time frame,
11. receiving active treatment for any malignancy (including maintenance medications),
12. received surgery with general or spinal/epidural anesthesia in the past 3 months or planned surgery during the study time frame
13. lower urinary tract instrumentation (e.g. self-catheterization or cystoscopy) in past 3 months or planned during the study time frame and
14. prostate biopsy in the past 3 months or planned during the study time frame

Procedures

Consent, Screening and Enrollment

Participants who qualify and agree to participate will be led through the informed consent process in person or by telephone (see Section 5). Paper-based consents will be used as needed. After consent, participants will have one week to complete the Screening Tool. After successful completion of the screening, eligible participants will have one week to start the training encounter.

Training Encounter

During this training encounter, study staff will go through the procedures for the recall assessments (chiefly, to fill out before bedtime) and will review the content of questions to make sure they will be well understood. During the training encounter, participants in Groups 2A and 2B will also receive instructions for completing the LURN bladder diary.

Participants will be instructed to start the training encounter on the next closest Monday, Tuesday, or Wednesday (in order that the training can be completed during the Monday-Friday work week. As part of the training Group 1 participants will complete the 7-day recall assessment on day 1 and the 24-hour assessment on day 2, Group 2a participants will complete the 24-hour recall assessment on day 1 and the 7-day recall assessment on day 2, and Group 2b participants will complete the 24-hour assessment on days 1 and 2. After the training assessments have been completed and checked, the coordinator will have up to one week to contact participants to ask if there were any questions or problems with the assessments and instruct them to complete the scheduled baseline survey (Appendix D) that evening (Day 0 of the study calendar) and then continue completing the assessments before bed according to

the study calendar for the study duration. Study staff will inform participants in Group 2A that they should also begin their bladder diaries on the next morning. Study staff should remind participants that they will be receiving a reminder e-mail every day they have an assessment due.

Randomization

Separately within females and males, half of participants will be randomized to study Group 1, 25% to Group 2A, and 25% to Group 2B (2:1:1). The DCC will provide a schedule for randomization.

Reminders

Each day, a courtesy reminder will be sent to all participants who need to complete an assessment; this e-mail will contain the unique link to that day's survey.

Participants in Group 2A should be contacted on week 1 day 1 and participants in Group 2B should be contacted on week 2 day 1 to make sure they have started their bladder diary. If they haven't, they should be instructed to start the next day and the start date of the 3-day recall assessment will be adjusted accordingly. Participants will be contacted every day until they confirm start of the Bladder Diary or until they reach day 4 of the week.

Compliance

Although every effort will be made to get the participant to take all assessments via internet, study staff may choose to offer phone administration of these assessments at their discretion.

Baseline Assessment

If participants miss the baseline assessment, study staff will contact the participant once per business day for up to 7 days until the participant is reached (if the participant is not reached within 7 days, no further contact attempts will be made and the participant will be dropped). Participants who are more than 3 days late in filling out the baseline assessment may be dropped from the study at the study staff's discretion, depending on the participant's reason for the miss.

24-hour Recall Assessment

All participants should complete their end-of-day, 24-hour recall assessment before bed; during training they will be instructed to complete it as close to bedtime as possible. The daily assessment will be available from 6 pm local time until 2 am the following morning.

While the following cut-offs will not be specified to participants (to encourage complete data), for study purposes, we intend to follow these guidelines: participants must complete at least 5 of 7 daily assessments per week to be considered compliant. A week is defined as the 7-day period with 7 daily assessments ending in a weekly assessment, regardless of the day of the week that that 7-day period starts on, e.g., it could run from Wednesday to Tuesday. Participants can miss up to 2 end-of-day assessments in a single week without penalty. After 2 am, those who have not completed the previous day's assessment will be counted as missing for that day. If someone misses a daily assessment a 2nd consecutive time, the study coordinator will call him/her to discuss the reason for the misses.

Once a participant misses 3 assessments in a week, study staff will contact them to let them know that they have missed too many assessments to continue being part of the study.

3- and 7-day Recall Assessment

If a participant misses a 3- or 7-day assessment, they must complete it the next day and will be sent a reminder email to do so. Participants must complete the 3- and 7-day assessments to be considered compliant.

Bladder Diary

Participants assigned to Group 2 must return a bladder diary by the end of the study month and complete the 3-day assessment by the day after it is due to be considered compliant. They can start the bladder diary on days 1-4 during the target week (week 1 for Group 2A and week 2 for Group 2B).

30-day Recall & Final Assessment

The 30-day recall & final assessment will stay open for 3 days to allow the participant as much time as possible to complete. Additionally, study staff will make every effort to contact the study participant and encourage them to complete the final assessment as soon as possible, to prevent missing data.

Participant Compensation

Participants who complete the main study will be compensated $220 for Group 1 and $150 for Groups 2A and 2B. Availability of prorated payments will be up to each site, as determined by their IRB policies, as well as method of payment (gift cards, checks, etc.).

Data Collection

Measures

At baseline, we will collect sociodemographic information and details about health (e.g. height, weight, chronic illnesses, health status, functional limitations, see Appendix D). This baseline assessment will include the full set of CASUS items using a 7-day recall period.

Subsequent assessments will include daily, weekly (Groups 1 and 2) and 3-day (Group 2 only) modified versions of the CASUS items (see Appendices E and F) and a simplified LURN event-triggered 3-day bladder diary (Group 2 only; see Appendix G).

The 30-day recall and final assessment (Groups 1 and 2, Appendices F and H) will include the modified CASUS items using a 30-day recall period, questions about treatments and treatment changes, behavior changes (fluid intake and voiding habits), and bother, as well as measures of depression (PROMIS), anxiety (PROMIS), and mood (the Positive and Negative Affect Schedule, PANAS).

Statistical Considerations

Sample Size and Power Calculations

In a previous recall study with similar participant burden, we experienced 7% dropout over the study month. For this study, we estimate 10% dropout over the month.

Sample size calculation for Aim 1 is based on precision of estimation (measured as length of the 95% confidence interval) for both the bias (mean difference) and the correlation coefficient between average daily and weekly (or the average daily and monthly) reports in each subject. The more frequent report in

each case (daily) will be considered to represent actual symptoms more closely than longer-term recall, so any difference between the two measures will be interpreted as bias in the less frequent report. Bias and correlation will be estimated for each survey item, and may also be estimated for subscales created as summaries of several items.

Confidence intervals (CI) for both the bias and the correlation coefficient should be narrow enough to rule out substantially undesirable values, such as bias of more than half a level of a 5-point ordinal scale (assuming the true bias is ≤0.25 point) and correlations of less than 0.40 (assuming the true correlation is at least 0.50). Thus, we calculate the sample size needed to achieve a confidence interval half-width of 0.25 or less for the bias. We calculate a lower confidence bound on the correlation coefficient that is above 0.50 if the true correlation is 0.60 or greater. For both bias and correlation, we assume a confidence coefficient of 0.95; for bias, we specify a probability of 0.90 that the confidence interval half-width is at most the value specified. We assume a common variance (σ) for daily, weekly and monthly summary values, so the average of 7 daily recall values would have variance $\sigma^2/7$, and the average of 30 daily recall values would have variance $\sigma^2/30$. We assume a value of $\sigma^2=1$ for Likert scales with range of 5. Thus, variances for (1) the weekly average of the daily values, (2) the monthly average of the daily values, and (3) the weekly or monthly value for the two recall times are $\sigma^2/7$, $\sigma^2/30$, and σ^2, respectively. The variance (var) of the difference between the average daily and weekly measures is var (difference_1) = var(weekly) + var(ave. daily) – 2*rho*SD(weekly)*SD(ave. daily), where rho is the correlation between the average daily and weekly values, conservatively assumed to be 0.5, and SD=standard deviation. Assuming var(weekly)=1 and var(ave. daily)=1/7, then var(difference_1)= 1+(1/7)-2*0.5*1*√ (1/7) = 0.765, or SD(difference_1)= √0.765 =0.875. Similarly, var(difference_2) for the difference between average daily and monthly values is 1+(1/30)-2*0.5*1*√ (1/30) = 0.851, and SD(difference_2)= 0.922. Because these SD values for the two differences (SD_1=0.875 and SD_2=0.922) are very similar, we use the larger value in the table below with similar results in either case.

Because analyses will be performed in subpopulations, including males and females and symptom subgroups, the table below gives the confidence interval (CI) properties for a range of sample size values. Reasonably small CI half-widths (for bias) and lower confidence bounds (for correlation) are shown in boldface in Table 2.

Table 2. Confidence interval properties by sample size

	N=200	N=150	N=100	N=50	N=25
For bias:					
Half-width of CI	**± 0.14**	**± 0.16**	**± 0.20**	± 0.31	± 0.44
For correlation:					
Full width of CI, true ρ=0.6*	0.18	0.21	0.25	0.37	0.54
Full width of CI, true ρ=0.8*	0.10	0.12	0.15	0.21	0.32
Lower confidence bound**	**0.52**	**0.51**	**0.48**	0.43	0.33

CI=confidence interval; *CI is asymmetrical
****Conservatively assuming a true correlation of 0.60**

We conclude that a sample size between 100 and 150 will be optimal for the analysis of a particular symptom for either men or women. Subgroups smaller than 50 will yield imprecise estimates of bias and correlation[16]. Analysis of men and women separately for each of 7 symptoms would require at most a sample size of 1400 if 100 per subgroup were assumed. However, we expect substantial savings from patients with multiple symptoms. Two symptoms that occur frequently together in both men and women can reduce the effective number of symptoms to ~6, and require a sample size of 1200 instead of 1400. The symptom overlap observed in the LURN Qualitative Interviews from responses to the LUTS Tool (N = 76) was used to estimate the degree of overlap we expect to see in the Recall Study. Patients in this sample were recruited from two clinical populations (general and sensory), as well as the community (Appendix B). These three groups exhibited similar levels of overlap, thus all 76 were used for this investigation, even though the Recall Study will only be recruiting from clinical populations. For any two of the seven symptoms of interest, the overlap ranged between 50% and 82%, indicating considerable overlap. Furthermore, 83% of the patients reported at least five of the seven symptoms.

To estimate the level of overlap for the proposed study, we performed a simulation by drawing at random and with replacement from the sample of 76 (Appendix B). Initial exploration informed us that a sample of 200 patients would provide at least 125 patients in each symptom category (excluding females with "weak stream", which had approximately 100 patients). These results were confirmed with ten iterations of the simulation, with very little variability occurring in the number of patients in each symptom category. This high level of overlap resulted in substantial savings in terms of sample size; thus, a target of 200 patients of each sex will fully power this study. However, during the study, the sample size for each symptom will be monitored at regular three-month intervals to ensure adequate sample size for each symptom. Although the estimated total sample size is 400 patients, we plan to recruit based on this monitoring until we have at least 125 patients of both sexes with each symptom. With targeted recruitment for the less common symptoms, as needed, we are confident that an upper limit of the sample size would be 500 patients. These sample sizes assume patients with complete data (allowing for missing up to 2 questionnaires during any given week); replacement patients would need to be recruited for any dropouts during the sampling month

Statistical Analysis Plan

We will describe baseline clinical and sociodemographic characteristics and responses to the daily, 3-day, weekly and monthly recall items using frequencies and percentages. These analyses will be performed separately for each symptom and by sex. We will stratify patients by age or adjust for patient age during analyses.

Specific Aim 1: To assess the correspondence between 1) average daily recall over 7 days and average weekly recall and 2) average daily recall over 30 days and monthly recall of self-reported LUTS.

We will assess correspondence between daily reports and both weekly and monthly recall in terms of (i) bias (i.e., over- or underestimation) in weekly and monthly recall; and (ii) consistency of individual differences (i.e., correlation) between daily reports and weekly/monthly recall. The presence of bias is indicated by a mean daily report that is systematically higher or lower across participants than the recalled score. Bias affects the interpretation of the absolute level of the responses (e.g., on a 1-to-5 scale) across different measurement methods or how sensitive the score can be (e.g., if the weekly/monthly recall demonstrates a ceiling effect while the mean daily report does not). Low correlation between aggregated daily responses and weekly/monthly recall, regardless of whether there is bias, may suggest, for example, that participants who reported severe symptoms in daily scores would not necessarily report severe symptoms in weekly/monthly recall.

We will use paired t-tests to assess the statistical significance of bias. We will assess the consistency of individual differences using Pearson correlation coefficients (or point biserial coefficients for weekly/monthly recall with dichotomous responses).

Subaim 1A: To understand the heuristics that people may use to construct their weekly and monthly reports of LUTS (e.g., reporting peaks/valleys or most recent experience).

We will assess whether the weekly or monthly measures more closely reflect the most recent experience, or the worst (or best) experience, or the average experience. We will investigate this effect by comparing the correlation of weekly reports with the individual daily reports, and comparing the correlation of monthly report with individual daily reports. If the correlation between the longer-term recall and the most recent previous day or week is the highest among the 7 daily (for weekly) or 30 daily (for monthly) correlations, and if the correlations damp over time, then we will conclude that recall is short-term. The implications would be that we would need to use a shorter-term recall period. We will also compute correlations using the worst (or best) of the weekly values, and the worst (or best) of the monthly values and compare with the daily and weekly average values.

We will also assess the effect of recency on bias by calculating paired t-tests between the weekly and each of the daily reports, and between the monthly and each of the weekly reports, and looking for increasing bias with increased time between reports. The worst (or best) of the daily or weekly values will be similarly compared.

Subaim 1B: To describe the variation in each symptom over 30 days based on daily and weekly reports.

Daily variation in each symptom will be measured by the SD and range in daily symptom scores, either over a week or over a month. Plots of variation over time will be used to assess whether variation is episodic, random, or has some other pattern. In addition, variation in symptoms over time will be assessed after adjusting for any trends over the 30-day period identified in Subaim 1C.

Subaim 1C: To model trends in symptoms over the daily measurement periods, e.g., a decrease in symptoms may indicate increasing awareness of symptoms that lead to actions (drinking less, using the toilet more) that may reduce the symptom.

We will assess the effect of research participation resulting in modified behavior leading to improved symptoms: We will test whether LUTS symptoms improve (or decline) over the daily reports each week, and also over the daily reports each month. These tests will be performed for each of the symptoms, and there may be subsets of patients (e.g., with particular symptoms, such as nocturia) for whom symptoms do improve. To test these effects, we will use a linear mixed model with random patient trajectories (slopes) over time. As an exploratory measure, we will compare boxplots of the individuals' slopes for those using adaptive behaviors vs not using, for each LUTS item. An effect would be indicated if those using adaptive behaviors tended to have slopes showing greater improvement. Such an effect would be formally tested by including use of the adaptive behavior in the mixed model, e.g., as 'any behavior' or a specific type.

Subaim 1D: To assess the effect on weekly survey responses of having a prior week of daily surveys versus a prior week with no daily surveys.

We will assess whether weekly reports following daily reporting are systematically different, either in mean or variance, from weekly reports without prior daily reporting. Each patient in Groups 2A and 2B will have weekly reports both with and without prior daily reports in the same week. These weekly reports in the same patient will be compared by paired t-test to detect systematic differences. For example, it is possible that without daily reports, the weekly report tends to exaggerate the symptoms.

We will also compare the weekly reports following daily reporting with the completely naive weekly report on Training Day -2 for Group 1. Further, we will test for any monotone trend in weekly reports as a function of the number of prior days with a daily report. In addition to the completely naive weekly report, this analysis will include data with a single daily report prior to a weekly report (from Group 2A) and two daily reports prior to a weekly report (from Group 2B) based on data collected during the Training Days (-1) and (-2) and Baseline (Day 0) .

We will also compare monthly reports following daily reports (Group 1) versus monthly reports not following daily reports at least in the previous 1-2 weeks (Groups 2A and 2B). This comparison will have less power since the comparison is between subjects instead of within subjects. Even still, we would expect to see an effect consistent with that seen in the weekly analysis.

Specific Aim 2: To assess the associations between better recall of LUTS and patient characteristics, including bother, depression, anxiety, and mood.

To test whether disagreement between daily reports and weekly/monthly recall is a function of patient characteristics, we will use a general linear model or a multiple logistic regression model to model weekly/monthly recall as a function of the daily summary (e.g., mean daily rating), the patient characteristic, and the interaction between the daily summary and the patient characteristic. In the model for each LUTS symptom, we will test the effect of bother for the same symptom, collected at the final (30-day) assessment. Although it is possible that bother from other symptoms may affect reporting of a given symptom, testing bother for all possible symptoms would be unwieldy. We may test symptom bother for selected other symptoms, or test a composite measure of bother over all symptoms.

A significant intercept in these models would imply bias in the weekly/monthly recall, and significant main effects of variables such as bother or depression may explain some or all of the bias. Interactions between patient characteristics and daily summaries will indicate non-constant bias across the severity of daily summaries; for example, an interaction between average daily urgency and bother might reflect exaggeration of urgency in weekly reports when bother is high, and under-reporting when bother is low. We will assess model fit using R-squared, and assess the cumulative proportion of explained variance due to each covariate. These results can be compared to the evaluation of concordance (correlation) calculated in Aim 1.

If joint significance tests of the patient characteristic main effects and the daily summary–pt-characteristic interaction effects yields $P < 0.05$, we will examine the daily summary–pt-characteristic interaction effects. If they are not statistically significant at $P < 0.05$, we will estimate the model again using only the main effects. If none of the main effects or interaction effects are statistically significant (despite a significant joint test of the terms), we will not interpret the model. For weekly/monthly responses for which we used general linear models, we will conduct sensitivity analyses using ordinal logistic regression.

Specific Aim 3: To examine the association between overlapping parameters in a typical clinical (event-triggered) 3-day bladder diary and self-reported 3-day and weekly recall.

For measures that are similar between bladder diaries and survey data, we will use correlation coefficients and linear regression, possibly adjusting for covariates, to assess these relationships. For comparing categorical responses in the LUTS questionnaire to continuous responses on the bladder diary (e.g., counts of urination events), kappa statistics will also be used. To the extent that the questions are identical or transformable to the same scale, we will perform the analyses described in Aim 1. We will also assess variability in the daily bladder diary responses.

For the bladder sensation responses, we will correlate the counts of experiences of urgency on the bladder diary with the LUTS scale response(s) of “never to always”. This will provide a calibration of the LUTS questionnaire responses to actual counts of sensations of urgency.

For the leak questions, which are counts from the bladder diary but answered in a “never to always” format in the LUTS questionnaire, in addition to estimating correlation coefficients, we will also investigate the mapping of response options between the two scales. This will provide a calibration of

the LUTS questionnaire responses to actual counts of total leaks per day. The pad responses will be used to validate the leak data; inconsistencies between leak and pad data may be used to revise leak data to be consistent with pad reports. For example, patients who report no leakage but report pad changes will be counted as having the same number of leaks as pad changes. Additional conventions to incorporate pad information will be considered at the time of data analysis.

Missing Data

Every effort will be made to obtain complete data for all variables. Preliminary analyses, performed prior to the end of data collection and cleaning, will be performed using complete cases (that is, we will drop a participant from the analysis if one or more of the participant's data points of interest are missing). Once all data have been collected, we will examine patterns of missing data and also evaluate whether the data can be assumed to be missing at random. If appropriate, we will perform multiple imputations using IVEware to address missing data before completing final analyses.

Interpretation of Results

Our goal is to recommend a single recall period (if possible) for the LURN battery that has evidence for validity (with regard to recall) and is longer than 1-day (which would be burdensome in practice). There is no empirical basis for the ideal thresholds to use when interpreting our results with regard to correlation and bias on each of the comparisons specified in the Specific Aims. Instead, we will use a process that considers both ideal correlations/bias and practicality. We expect, based on other studies[17-19], to consider correlations higher than 0.70 as "good" higher than 0.50 as "good enough" when weighing other considerations. Likewise, we expect to consider bias less than 0.25 a level of a Likert scale as "good" and less than 0.50 a level of a Likert scale as "good enough" when weighing other considerations. If there are troubling correlations for certain items or symptoms and/or troubling bias that would suggest different recall periods for different LUTS items, then we will weigh that against the practicality of having multiple recall periods within the same battery. Any evidence of differences in recall periods by LUTS items will be useful to publish for the benefit of future researchers designing questionnaires. Although designers of a comprehensive LUTS tool would probably prefer a common recall period, studies with targeted LUTS items might benefit from a recall period tailored to the items of interest.

Human Subjects

Protection of Human Subjects

Institutional Review Board

This study and analysis will be performed under Institutional Review Board (IRB) oversight. Prior to the initiation of the study, an IRB approval for study of human subjects will be obtained separately from the IRB of each of the participating LURN clinical study centers and the data coordinating center (DCC).

Revisions to the study protocol and changes in the study design will also be submitted to the individual IRBs for approval prior to implementation.

Subjects will be enrolled in the LURN Recall Study protocol with full and written informed consent, which will include collection of protected health information (PHI).

Each participating center will be responsible for obtaining such human subjects research authorization and will create an informed consent document detailing the procedures described above in the language required by their respective organizations. All key personnel at the participating centers will have successfully completed IRB-required training and certification for human subjects research. Additionally, participants will satisfy HIPAA researchers' privacy requirements.

Patient Confidentiality

Special procedures for ensuring patient confidentiality will be implemented. Data transmission and the distributed data systems will have multiple layers of security as discussed in Section 7, Study Management. Each study subject will be assigned an identification number. Only this number will be used to identify subjects in any individual tabulation. The PHI that is collected will represent the minimum necessary to successfully execute the study. Most PHI entered into the database at the site level will only be visible to study personnel accessed through a triple password regimen. The PHI is encrypted at the site level. Site personnel will have the decryption key, and it will not be available to the DCC. The only PHI that will not be encrypted at the site level will be email addresses, which the DCC will need to administer the online survey. The DCC will keep email addresses separate from all other patient-reported data; they will not be present in the analytic data set.

It is expected that only group data will be published. If individual subject data are to be published, no identifying information will be included. The study files will be maintained in a secure location. Access to computerized data will be restricted to study personnel. Password authorization will be enforced. Previous use of this security system and a secured server indicates that this technique is very successful in assuring the protection of confidential information. Authorized representatives of the Sponsor, the National Institute of Diabetes, Digestive and Kidney Diseases (NIDDK), National Institutes of Health (NIH), participating LURN clinical study centers, DCC monitoring staff, as well as the IRBs at each site, will have access to medical records and records from participants in this study. Such access is necessary to ensure the accuracy of the findings.

Risks to the Patient and Adequacy of Protection Against Risk

Patients enrolled in the Recall Study will experience more than the normal amount of testing that is customary for patients with LUTD. Individuals may experience psychological discomfort in answering repeated, longitudinal assessment questions related to LUTS, demographic and clinical characteristics, and health-related quality of life. With respect to potential discomfort developing during clinical assessment, we note that study personnel will be trained by the investigators to be sensitive to participant discomfort and concerns. There is a potential risk of breach of confidentiality that is inherent in all research protocols, and steps to minimize this risk are described above. Steps to minimize risk and address any psychological discomfort are addressed below.

Recruitment and Informed Consent. At each LURN site, individuals eligible for Recall Study (based on criteria described in Section 4.3) will be approached by a LURN investigator or study coordinator for release of their protected health information and contact information so that study staff may approach them to describe the study and obtain informed consent. All consent forms will be HIPAA-compliant. A copy of the signed consent forms will be kept by the study participant, and one will be kept in the research records at the site where the participant was enrolled.

Psychological discomfort during study procedures (i.e., during completion of study questionnaires). With regard to participants' psychological discomfort and overall well-being, we noted above that the study personnel will be specifically trained to be sensitive to subjects' discomfort and concerns. If a participant finds the research procedures to be upsetting, he/she will have the option to withdraw from the study at any time.

Unauthorized Data Release

The data sets will be stored on a secure server with restricted access (requires a unique username and password) at the DCC and every precaution will be taken to keep the information private. However, there is always the possibility of unauthorized release of data about subjects. Such disclosure would be extremely unlikely to involve a threat to life, health, or safety. It is conceivable that such disclosure could have psychological, social, or legal effects on the patient. Using the standard security procedures (described above under patient confidentiality) can effectively minimize the risk of unauthorized disclosure of data. All study personnel who have access to patient data will be educated regarding the need to protect confidentiality and the procedures to be followed to ensure such protection. All staff will also be required to sign a standard medical record confidentiality agreement. The computer system on which data are maintained uses standard password protection procedures to limit access to authorized users. After the study is completed, the database will be stored at the NIDDK Data Repository. The database in the Repository will be de-identified to obviate further privacy and security considerations.

Adverse Event Monitoring and Reporting

An adverse event (AE) is any untoward medical occurrence or unfavorable and unintended sign in a research subject that occurs during or as a result of a research procedure.

For this study, each center will review the list of study procedures and identify the specific procedures that are not standard-of-care at their institution and these will be considered research procedures. Complications that are a result of research procedures will be reported and tracked as adverse events.

Benefits to the Patient

There are no direct benefits to the patients for participation in the study.

Inclusion of Women

Approximately 50% of the study participants will be women. Recruitment will be monitored to ensure adequate representation of women.

Inclusion of Minorities

Racial and ethnic minorities will be recruited into the study. We anticipate that the representation of racial and ethnic minorities will correspond to the fraction of minorities in the population presenting to the participating clinics as patients. Recruitment will be monitored to ensure that the representation of minority groups parallels the racial/ethnic composition of patients seen at LURN Clinical Sites.

Inclusion of Children

Children under the age of 18 will not be enrolled into this study as the LURN physicians do not see pediatric patients.

Data Safety and Monitoring Plan

Accepted principles of data and safety monitoring will be observed throughout the conduct of the LURN study. The NIH has appointed an independent External Expert Panel (EEP) that will provide study oversight. The EEP will review the study protocol prior to enrollment and will also review all subsequent protocol revisions. The EEP will also evaluate the occurrence of adverse events related to study participation.

LURN principal investigators will be responsible for monitoring the enrollment of subjects, submission of data to the DCC, and monitoring and reporting of adverse events related to study participation. The DCC will be responsible for monitoring for effective conduct of the protocol and accurate and timely data submission.

IRBs will be provided feedback on a regular basis.

Training of study coordinators and study monitoring activities will be conducted by the DCC to ensure patient confidentiality and privacy and to maximize the reliability, accuracy, and timeliness of study data.

The LURN clinical sites, the DCC, and relevant research center staff will conduct regular meetings to review recruitment/enrollment progress, data collection activities, and participant retention. The DCC will produce regular reports regarding enrollment, data quality, and timeliness and share the reports with NIDDK, the Steering Committee, and the participating clinical center. Data will be routinely exported from the data collection systems, examined for accuracy and completeness, and backed up to secure storage devices. Upon completion of data collection, final processing and cleaning of data will be conducted. A technical report detailing specific project methodology, response rates, and other details will be produced.

Study Organization

Clinical Centers

The LURN clinical study centers participating in the Recall Study will have primary responsibility for developing the study protocol, maintaining high rates of follow-up and data collection, obtaining data of high quality, and interpreting, presenting, and publishing findings from the study.

Northwestern University
Chicago, IL

Principal Investigators: David Cella, PhD and Brian T. Helfand, MD, PhD

University of Iowa
Iowa City, IA
Principal Investigators: Karl J. Kreder, MD, MBA and Catherine S. Bradley, MD, MSCE

Duke University
Durham, NC
Principal Investigators: Kevin P. Weinfurt, PhD (Steering Committee Co-chair) and Cindy L. Amundsen, MD

University of Washington
Seattle, WA
Principal Investigator: Claire C. Yang, MD (Steering Committee Co-chair)

University of Michigan
Ann Arbor, MI
Principal Investigator: J. Quentin Clemens, MD, FACS, MSCI

Washington University in St. Louis
St. Louis, MO
Principal Investigators: Gerald L. Andriole, Jr., MD and H. Henry Lai, MD

Data Coordinating Center

The DCC contributes biostatistical expertise and shares in scientific leadership of the research group. The DCC has developed a communication infrastructure that includes meetings, teleconferences, email and bulletins, interactive Web-based encounters, and written correspondence. The DCC assists in protocol development and preparation of scientific publications. The DCC has the major responsibility of creating a database and data collection systems for the participating LURN clinical study centers, ongoing evaluation of data quality, performance monitoring of the LURN clinical study centers, and statistical analyses of the data. The DCC will also create a comprehensive Manual of Operations (MOO) that will govern the conduct of the study. The manual will detail the protocols, protocol clarifications and amendments, summary of the regulatory requirements for the study, instructions for enrollment, data collection, data management, visit schedules, and detailed instructions on the use of the electronic data submission. The DCC is responsible for clinical monitoring of the study.

Arbor Research Collaborative for Health
Ann Arbor, MI
Principal Investigator: Robert M. Merion, MD

Steering Committee

The primary governing body of the study is the Steering Committee, consisting of each of the Principal Investigators of the LURN clinical study centers, the Principal Investigator of the DCC, and the NIDDK

Project Scientist. The Steering Committee develops policies for the study pertaining to access to patient data, performance standards, and publications and presentations. It develops the study protocol and meets to discuss the progress of the study and to consider problems arising during its conduct. The Steering Committee may establish subcommittees to further develop specific components of the study protocol. Small working groups may be established to prepare manuscripts and presentations.

Study Management

Data Collection, Data Collection Forms, Data Entry

The DCC will utilize a web-based electronic data capture application as the data management nucleus for the LURN Recall Study, combined with a survey administration application for daily, 3-day, weekly, and monthly symptom reporting and for other self-reported measures (bother, depression, anxiety, and mood).

The 3-day bladder diaries will be completed by the participants and entered into the database by the study coordinator.

Data Management

All study data will be reported directly by participants into the survey administration application. These data will be encrypted and transferred to the DCC and stored on a secure server at Arbor Research. Access to the server and data entry system is limited and requires a unique username and password combination. The servers are backed up daily and physically stored in a locked facility.

All analysis of the data sets will utilize de-identified (coded) data sets.

Quality Control and Database Management

The first steps in ensuring protocol compliance are good protocol design and careful orientation of study personnel. Following final agreement on the protocol, and prior to study initiation at any of the LURN clinical study centers, the DCC will organize a Training and Certification session for LURN Study Coordinators/data entry personnel.

The electronic data entry system will have built-in data checks as part of study quality assurance. Protocol compliance will be assessed by monitoring the submission of data at required intervals. Data inconsistencies and discrepancy reports will be reviewed by the Clinical Monitors so that necessary queries can be generated and sent to the LURN clinical study centers for verification and resolution.

Periodic requests may be generated for the submission of random source documents to assess the quality of data acquisition and data entry at each site. In addition, the Clinical Monitor or Project Manager will visit each site at least once a year to review source documents, monitor regulatory compliance, and assess protocol adherence.

In addition to source document verification, the Clinical Monitor and Project Manager will produce reports from the database to look for inconsistencies in submitted data, particularly for repeated measures data elements, even if data do not fall outside of built-in validation routines.

Studies of intra-subject and inter-subject data variability by LURN clinical study center as well as intra-center and inter-center data variability will be used to further ascertain random or systematic data quality issues.

Data Security/Data Transfer

For the Recall Study, personnel at each study center will collect and enter data into the web-based data entry system. The following data security contingencies are in place:

- Compliance with Industry Standards Regarding Data Security (HIPAA and 21 CFR Part 11)
- Audit trails are maintained for all activity and all changes to any data element
- All servers, web servers, firewalls, etc. are configured and maintained according to industry best practice guidelines for backup, security, continuity of operations, and protection of PHI
- All data are available only to authorized users from each site after secure login with encryption, with all site activity audited at the user level
- All transmissions between the Internet and the database are encrypted using a 128-bit encryption algorithm
- There is a comprehensive security plan in place

Detailed instructions on the use of the database platform, data element definitions, and a code list will be provided in a MOO. Each study site will be provided a copy of the MOO and the entire manual will be available on the study website, and in the Help area of the database user interface.

Resource Sharing Plan

During the study, data will be shared with internal and external investigators according to the guidelines agreed upon by the Steering Committee.

Upon study completion, study data will be transferred to the NIDDK Data Repository. Minutes of meetings of the Steering Committee, Project Executive Committee, subcommittees, and the External Expert Panel will be kept on file at the DCC.

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11. Appendix B: Questionnaire Mapping

Domain	Item Code	30-, 7-, and 3-day Recall	24-hour Recall		3-day Bladder Diary		Validation	
			Item	Derived Summary	Item	Derived Summary	Analysis for Bias	Analysis for Correlation
Daytime Frequency	A1	In the past 30/7/3 days… During waking hours, how many times did you typically urinate? **3 or fewer times a day** **4-7 times a day** **8-10 times a day** **11 or more times a day**	During waking hours today, how many times did you urinate? **3 or fewer times** **4-7 times** **8-10 times** **11 or more times**	Mean of 7 or 30 responses, using 1=3 or fewer times, 2=4-7 times, 3=8-10 times, 4=11 or more times	Count of daytime urination events coded into 4-category frequency	Average over 3 days	Difference between 24-hr recall mean and X-day mean count	Pearson or Spearman
	A2	In the past 30/7/3 days… During a typical day, how much time typically passed between urinations? **More than 6 hours** **3-6 hours** **1-2 hours** **Less than 1 hour**	During the day today, how much time typically passed between urinations? **More than 6 hours** **3-6 hours** **1-2 hours** **Less than 1 hour**	Mean of 7 or 30 responses, using 1=less than 1 hour, 2=1-2 hour, 3=3-6 hours, 4=more than 6 hours	Computed daytime urination interval coded into 4-category frequency	Average over 3 days	Difference between 24-hr recall mean and X-day mean	Pearson or Spearman

Domain	Item Code	30-, 7-, and 3-day Recall	24-hour Recall		3-day Bladder Diary		Validation	
			Item	Derived Summary	Item	Derived Summary	Analysis for Bias	Analysis for Correlation
Nighttime Symptoms	B1	In the past 30/7/3 days… During a typical night, how many times did you wake up and urinate? **None** **1 time** **2-3 times** **More than 3 times**	Last night, how many times did you wake up and urinate? **None** **1 time** **2-3 times** **More than 3 times**	Mean of 7 or 30 responses, using 1=less than 1 hour, 2=1-2 hour, 3=3-6 hours, 4=more than 6 hours	Computed daytime urination interval coded into 4-category frequency	Average over 3 days	Difference between 24-hr recall mean and X-day mean	Pearson or Spearman
	B2	In the past 30/7/3 days… How often did you wake up at least once during the night because you had to urinate? **Never** **A few nights** **About half the nights** **Most nights** **Every night**	Last night, did you wake up because you had to urinate? **No** **Yes (at least once)**	Proportion "yes (at least once"	Count of nighttime urination events coded into 5-category frequency	Average over 3 days	Difference between proportion who answered "every night," "most nights," "about half the nights," or "a few nights" in X-day recall vs. proportion who answered "yes" in at least one 24-hr report	Point biserial
	B5	<If N-1 not none> In the past 30/7/3 days… When you woke up and urinated, how often did you leak urine on your way to the bathroom? **Never** **A few times** **About half the time** **Most of the time** **Every time**	<If N-1 not none> When you woke up and urinated last night, did you leak urine on your way to the bathroom? **No** **Yes (at least once)**	Proportion "yes (at least once"	Bladder sensation scale response dichotomized as (0-3) vs (4)	Average over 3 days, with response dichotomized as 0 (0-3) vs 1 (4)	Difference between proportion who answered "always," "often," "sometimes," or "rarely" in X-day recall vs. proportion who answered "yes" in at least one 24-hr report	Point biserial

Domain	Item Code	30-, 7-, and 3-day Recall	24-hour Recall		3-day Bladder Diary		Validation	
			Item	Derived Summary	Item	Derived Summary	Analysis for Bias	Analysis for Correlation
Urgency	D1	In the past 30/7/3 days… How often did you feel a sudden need to urinate? **Never** **A few times** **About half the time** **Most times** **Every time**	In the past 24 hours… How often did you feel a sudden need to urinate? **Never** **A few times** **About half the time** **Most times** **Every time**	Mean of 7 or 30 responses, using 0=Never, 1= **A few times**, 2= **About half the time**, 3= **Most times**, 4=**Every time**	Bladder sensation scale response options 2-4 during waking hours	Map response options (#s from diary to qualitative response from LURN), take mean of 3 days	Difference between 24-hr recall mean and X-day mean Bias may not be estimable for diary since mapping will be done to remove bias	Pearson or Spearman
	D2	In the past 30/7/3 days… Once you noticed the need to urinate, how difficult was it to wait more than a few minutes? **Not difficult** **A little difficult** **Somewhat difficult** **Very difficult** **Unable to wait**	In the past 24 hours… Once you noticed the need to urinate, how difficult was it to wait more than a few minutes? **Not difficult** **A little difficult** **Somewhat difficult** **Very difficult** **Unable to wait**	Mean of 7 or 30 responses, using 0=Not difficult, 1=A little difficult, 2=Somewhat difficult, 3=Very difficult, 4=Unable to wait	Bladder sensation scale response options 3-4 during waking hours	Map response options (#s from diary to qualitative response from LURN)	Difference between 24-hr recall mean and X-day mean Bias may not be estimable for diary since mapping will be done to remove bias	Pearson or Spearman
Incontinence screener	G1	In the past 30/7/3 days… Have you leaked urine or wet a pad? **No** **Yes**	In the past 24 hours… Did you leak urine or wet a pad? **No** **Yes**	Proportion “yes”	Count of leaks	Average over 3 days	Difference between proportion who answered “yes” in X-day recall vs. proportion who answered “yes” in at least one 24-hr report	phi

Domain	Item Code	30-, 7-, and 3-day Recall	24-hour Recall		3-day Bladder Diary		Validation	
			Item	Derived Summary	Item	Derived Summary	Analysis for Bias	Analysis for Correlation
Non-specific incontinence	G2	In the past 30/7/3 days… How often did you completely lose control of your bladder? **Never** **A few times** **About half the time** **Most times** **Every time**	In the past 24 hours… Did you completely lose control of your bladder? **No** **Yes**	Proportion "yes"	--	--	Difference between proportion who answered "every time," "most times," "about half the time," or "a few times" in X-day recall vs. proportion who answered "yes" in at least one 24-hr report	phi
Stress incontinence	G4	In the past 30/7/3 days… How often did you leak urine or wet a pad while laughing, sneezing, or coughing? **Never** **A few times** **About half the time** **Most times** **Every time**	In the past 24 hours… Did you leak urine or wet a pad while laughing, sneezing, or coughing? **No** **Yes**	Mean of 7 or 30 responses, using 0=no or 1=yes	Count of leaks, stress	Map response options (#s from diary to qualitative response from LURN) [or maybe use mean of 0=none, 1=any for each day]	Difference between proportion who answered "always," "often," "sometimes," or "rarely" in X-day recall vs. proportion who answered "yes" in at least one 24-hr report	point biserial

Domain	Item Code	30-, 7-, and 3-day Recall	24-hour Recall		3-day Bladder Diary		Validation	
			Item	Derived Summary	Item	Derived Summary	Analysis for Bias	Analysis for Correlation
	G5	In the past 30/7/3 days… How often did you leak urine or wet a pad when doing physical activities, such as exercising or lifting a heavy object? **Never** **A few times** **About half the time** **Most times** **Every time**	In the past 24 hours… Did you leak urine or wet a pad when doing physical activities, such as exercising or lifting a heavy object? **No** **Yes**	Mean of 7 or 30 responses, using 0=no or 1=yes	Count of leaks, stress	Map response options (#s from diary to qualitative response from LURN) [or use mean of 0=none, 1=any for each day]	Difference between proportion who answered "always," "often," "sometimes," or "rarely" in X-day recall vs. proportion who answered "yes" in at least one 24-hr report	point biserial
	G6	In the past 30/7/3 days… How often did standing up from a chair cause you to leak urine or wet a pad? **Never** **A few times** **About half the time** **Most times** **Every time**	In the past 24 hours… Did standing up after sitting cause you to leak urine or wet a pad? **No** **Yes**	Mean of 7 or 30 responses, using 0=no or 1=yes	Count of leaks, stress	Map response options (#s from diary to qualitative response from LURN) [or use mean of 0=none, 1=any for each day]	Difference between proportion who answered "always," "often," "sometimes," or "rarely" in X-day recall vs. proportion who answered "yes" in at least one 24-hr report	point biserial

Domain	Item Code	30-, 7-, and 3-day Recall	24-hour Recall		3-day Bladder Diary		Validation	
			Item	Derived Summary	Item	Derived Summary	Analysis for Bias	Analysis for Correlation
	G7	In the past 30/7/3 days… How often did walking at your usual speed cause you to leak urine or wet a pad? **Never** **A few times** **About half the time** **Most times** **Every time**	In the past 24 hours… Did walking at your usual speed cause you to leak urine or wet a pad? **No** **Yes**	Mean of 7 or 30 responses, using 0=no or 1=yes	Count of leaks, stress	Map response options (#s from diary to qualitative response from LURN) [or use mean of 0=none, 1=any for each day]	Difference between proportion who answered "always," "often," "sometimes," or "rarely" in X-day recall vs. proportion who answered "yes" in at least one 24-hr report	point biserial
Urgency incontinence	G3	In the past 30/7/3 days… How often did you leak urine or wet a pad after feeling a sudden need to urinate? **Never** **A few times** **About half the time** **Most times** **Every time**	In the past 24 hours… Did you leak urine or wet a pad after feeling a sudden need to urinate? **No** **Yes**	Mean of 7 or 30 responses, using 0=no or 1=yes	Count of leaks, urge	Map response options (#s from diary to qualitative response from LURN) [or use mean of 0=none, 1=any for each day]	Difference between proportion who answered "always," "often," "sometimes," or "rarely" in X-day recall vs. proportion who answered "yes" in at least one 24-hr report	point biserial

Domain	Item Code	30-, 7-, and 3-day Recall	24-hour Recall		3-day Bladder Diary		Validation	
			Item	Derived Summary	Item	Derived Summary	Analysis for Bias	Analysis for Correlation
Other/ unknown incontinence	G10	In the past 30/7/3 days… How often did you leak urine or wet a pad without any reason you could identify? **Never** **A few times** **About half the time** **Most times** **Every time**	In the past 24 hours… Did you leak urine or wet a pad without any reason you could identify? **No** **Yes**	Mean of 7 or 30 responses, using 0=no or 1=yes	Count of leaks, unknown	Map response options (#s from diary to qualitative response from LURN) [or use mean of 0=none, 1=any for each day]	Difference between proportion who answered "every time," "most times," "about half the time," or "a few times" in X-day recall vs. proportion who answered "yes" in at least one 24-hr report	point biserial
	G11	In the past 30/7/3 days… How often did you leak urine or wet a pad without feeling it? **Never** **A few times** **About half the time** **Most times** **Every time**	In the past 24 hours… Did you leak urine or wet a pad without feeling it? **No** **Yes**	Mean of 7 or 30 responses, using 0=no or 1=yes	Count of leaks, urge	Map response options (#s from diary to qualitative response from LURN) [or use mean of 0=none, 1=any for each day]	Difference between proportion who answered "always," "often," "sometimes," or "rarely" in X-day recall vs. proportion who answered "yes" in at least one 24-hr report	point biserial
Slow/weak stream	F3	In the past 30/7/3 days… How often was your urine flow slow or weak? **Never** **A few times** **About half the time** **Most times** **Every time**	In the past 24 hours… How often was your urine flow slow or weak? **Never** **A few times** **About half the time** **Most times** **Every time**	Mean of 7 or 30 responses, using 0=Never, 1= A few times, 2= About half the time, 3= Most times, 4=Every time	--	--	Difference between 24-hr recall mean and X-day mean	Pearson or Spearman

Domain	Item Code	30-, 7-, and 3-day Recall	24-hour Recall		3-day Bladder Diary		Validation	
			Item	Derived Summary	Item	Derived Summary	Analysis for Bias	Analysis for Correlation
Post micturition incomplete emptying	H2	In the past 30/7/3 days… How often did you feel that your bladder was not completely empty after urinating? **Never** **A few times** **About half the time** **Most times** **Every time**	In the past 24 hours… How often did you feel that your bladder was not completely empty after urinating? **Never** **A few times** **About half the time** **Most times** **Every time**	Mean of 7 or 30 responses, using 0=Never, 1= A few times, 2= About half the time, 3= Most times, 4=Every time	--	--	Difference between 24-hr recall mean and X-day mean	Pearson or Spearman
Post micturition dribble	H3	In the past 30/7/3 days… How often did you dribble urine just after zipping your pants or pulling up your underwear? **Never** **A few times** **About half the time** **Most times** **Every time**	In the past 24 hours… How often did you dribble urine just after zipping your pants or pulling up your underwear? **Never** **A few times** **About half the time** **Most times** **Every time**	Mean of 7 or 30 responses, using 0=Never, 1= A few times, 2= About half the time, 3= Most times, 4=Every time	--	--	Difference between 24-hr recall mean and X-day mean	Pearson or Spearman

Bladder sensation:

0 - If you had no sensation of needing to pass urine, but passed urine for "social reasons", for example, just before going out, or unsure where the next toilet is.

1 - If you had a normal desire to pass urine and no urgency.

"*Urgency" is feeling a sudden need to urinate.*

2 - If you had urgency, but it had passed before you went to the toilet, and you did not leak urine.

3 - If you had urgency but managed to get to the toilet, still with urgency, but did not leak urine.

4 - If you had urgency and could not get to the toilet in time so you leaked urine.

12. Appendix C: Symptoms

.Total number of symptoms for participants in LURN Qualitative Interview Study based on responses to the LUTS Tool

Type of Participant		Total # of Symptoms								Total
		0	1	2	3	4	5	6	7	
Clinic	N	0	0	0	3	3	7	5	8	26
Community	N	0	0	0	1	5	10	7	7	30
Sensory	N	0	0	0	1	0	3	5	11	20
Total	N	0	0	0	5	8	20	17	26	76
	% of Sample	0.0%	0.0%	0.0%	6.6%	10.5%	26.3%	22.4%	34.2%	100.0%

Symptom overlap in LURN Qualitative Interview Study based on responses to the LUTS Tool

% of patients who have overlapping symptoms (all patient types)

Symptom (# of positive responses)*	Daytime Frequency (59)	Nocturia (67)	Urgency (65)	Incontinence (64)	Weak Stream (47)	Incomplete Emptying (58)	Post-micturition Dribble (44)
Daytime Frequency	100.0	69.7	65.8	67.1	50.0	57.9	72.4
Nocturia		100.0	75.0	73.7	59.2	69.7	81.6
Urgency			100.0	77.6	54.0	67.1	81.6
Incontinence				100.0	50.0	61.8	80.3
Weak Stream					100.0	54.0	59.2
Incomplete Emptying						100.0	72.4
Post-micturition Dribble							100.0

***N = 76 for all comparisons except for post-micturition comparisons, where N = 50**

13. Appendix D: Screening Tool

A. Participant Information

A1 Are you able to reliably complete self-reported questionnaires online during specified times, typically 6pm to 2am local time, for the duration of the study?

- ○ --
- ○ No
- ○ Yes

A2 What time zone will you be in for the duration of the study?

- ○ --
- ○ Atlantic (UTC-4:00; Halifax, Puerto Rico)
- ○ Eastern (UTC-5:00; New York, Detroit)
- ○ Central (UTC-6:00; Chicago, Dallas)
- ○ Mountain (UTC-7:00; Denver, Phoenix)
- ○ Pacific (UTC-8:00; Los Angeles, Seattle)
- ○ Alaska (UTC-9:00; Anchorage, Juneau)
- ○ Hawaii-Aleutian (UTC-10:00; Honolulu, Adak Island)

URINARY SYMPTOMS OVER TWO WEEKS

For each symptom below, please tell us how often you have experienced it in the past **two weeks**, For any symptom that you *have* experienced, then tell us how much it bothers you.

A3

During a typical day in the **past 2 weeks**, how many times did you urinate during waking hours?	How much does this bother you?
○ --	○ --
○ 1-6 times a day	○ Not at all
○ 7-8 times a day	○ A little bit
○ 9-10 times a day	○ Somewhat
○ 11-12 times a day	○ Quite a bit
○ 13 or more times a day	○ A great deal

- Field UrWakeHrsBother of this question will be suppressed when field UrWakeHrs of question A3 has value "1-6 times a day"
- Field UrWakeHrsBother of question A3 will be suppressed if field UrWakeHrs of this question has a value of "1-6 times a day"

A4

During a typical night in the **past 2 weeks**, how many times did you wake up because you needed to urinate?

- --
- None
- 1 time a night
- 2 times a night
- 3 times a night
- 4 or more times a night

If "1 time a night" or more, how much does this bother you?

- --
- Not at all
- A little bit
- Somewhat
- Quite a bit
- A great deal

- Field UrNightFreqBother of this question will be suppressed when field UrNightFreq of question A4 has value "None"
- Field UrNightFreqBother of question A4 will be suppressed if field UrNightFreq of this question has a value of "None"

A5

During the **past 2 weeks**, how often have you had a trickle or dribble at the end of your urine flow?

- --
- Never
- Rarely
- Sometimes
- Often
- Almost always

If "rarely" or more, how much does this bother you?

- --
- Not at all
- A little bit
- Somewhat
- Quite a bit
- A great deal

- Field UrTrickleBother of this question will be suppressed when field UrTrickle of question A5 has value "Never"
- Field UrTrickleBother of question A5 will be suppressed if field UrTrickle of this question has a value of "Never"

A6

During the **past 2 weeks**, how often have you had a sudden need to rush to urinate?

- --
- Never
- Rarely
- Sometimes
- Often
- Almost always

If "rarely" or more, how much does this bother you?

- --
- Not at all
- A little bit
- Somewhat
- Quite a bit
- A great deal

- Field UrSuddenBother of this question will be suppressed when field UrSudden of question A6 has value "Never"
- Field UrSuddenBother of question A6 will be suppressed if field UrSudden of this question has a value of "Never"

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A7

During the **past 2 weeks**, how often have you had a weak urine stream?

- ○ --
- ○ Never
- ○ Rarely
- ○ Sometimes
- ○ Often
- ○ Almost always

If "rarely" or more, how much does this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- Field UrWeakStreamBother of this question will be suppressed when field UrWeakStream of question A7 has value "Never"
- Field UrWeakStreamBother of question A7 will be suppressed if field UrWeakStream of this question has a value of "Never"

A8

During the **past 2 weeks**, how often did you leak urine?

- ○ --
- ○ Never
- ○ Rarely
- ○ Sometimes
- ○ Often
- ○ Almost always

If "rarely" or more, how much does this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- Field UrLeakBother of this question will be suppressed when field UrLeak of question A8 has value "Never"
- Field UrLeakBother of question A8 will be suppressed if field UrLeak of this question has a value of "Never"

A9

During the **past 2 weeks**, how often have you had the feeling your bladder was not empty after urinating?

- ○ --
- ○ Never
- ○ Rarely
- ○ Sometimes
- ○ Often
- ○ Almost always

If "rarely" or more, how much does this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- Field UrBldNotEmptyBother of this question will be suppressed when field UrBldNotEmpty of question A9 has value "Never"

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URINARY SYMPTOMS OVER THREE MONTHS

For each symptom below, please tell us how often you have experienced it in the past **three months**, For any symptom that you *have* experienced, then tell us how much it bothers you.

A10

During a typical day in the **past 3 months**, how many times did you urinate during waking hours?

- ○ --
- ○ 1-6 times a day
- ○ 7-8 times a day
- ○ 9-10 times a day
- ○ 11-12 times a day
- ○ 13 or more times a day

How much does this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- Field UrWakeHrsBother3M of this question will be suppressed when field UrWakeHrs3M of question A10 has value "1-6 times a day"
- Field UrWakeHrsBother3M of question A10 will be suppressed if field UrWakeHrs3M of this question has a value of "1-6 times a day"

A11

During a typical night in the **past 3 months**, how many times did you wake up because you needed to urinate?

- ○ --
- ○ None
- ○ 1 time a night
- ○ 2 times a night
- ○ 3 times a night
- ○ 4 or more times a night

If "1 time a night" or more, how much does this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- Field UrNightFreqBother3M of this question will be suppressed when field UrNightFreq3M of question A11 has value "None"
- Field UrNightFreqBother3M of question A11 will be suppressed if field UrNightFreq3M of this question has a value of "None"

A12

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During the **past 3 months**, how often have you had a trickle or dribble at the end of your urine flow?

- ○ --
- ○ Never
- ○ Rarely
- ○ Sometimes
- ○ Often
- ○ Almost always

If "rarely" or more, how much does this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- Field UrTrickleBother3M of this question will be suppressed when field UrTrickle3M of question A12 has value "Never"
- Field UrTrickleBother3M of question A12 will be suppressed if field UrTrickle3M of this question has a value of "Never"

A13

During the **past 3 months**, how often have you had a sudden need to rush to urinate?

- ○ --
- ○ Never
- ○ Rarely
- ○ Sometimes
- ○ Often
- ○ Almost always

If "rarely" or more, how much does this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- Field UrSuddenBother3M of this question will be suppressed when field UrSudden3M of question A13 has value "Never"
- Field UrSuddenBother3M of question A13 will be suppressed if field UrSudden3M of this question has a value of "Never"

A14

During the **past 3 months**, how often have you had a weak urine stream?

- ○ --
- ○ Never
- ○ Rarely
- ○ Sometimes
- ○ Often
- ○ Almost always

If "rarely" or more, how much does this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- Field UrWeakStreamBother3M of this question will be suppressed when field UrWeakStream3M of question A14 has value "Never"
- Field UrWeakStreamBother3M of question A14 will be suppressed if field UrWeakStream3M of this question has a value of "Never"

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A15	During the **past 3 months**, how often did you leak urine? ○ -- ○ Never ○ Rarely ○ Sometimes ○ Often ○ Almost always	If "rarely" or more, how much does this bother you? ○ -- ○ Not at all ○ A little bit ○ Somewhat ○ Quite a bit ○ A great deal

- Field UrLeakBother3M of this question will be suppressed when field UrLeak3M of question A15 has value "Never"
- Field UrLeakBother3M of question A15 will be suppressed if field UrLeak3M of this question has a value of "Never"

A16	During the **past 3 months**, how often have you had the feeling your bladder was not empty after urinating? ○ -- ○ Never ○ Rarely ○ Sometimes ○ Often ○ Almost always	If "rarely" or more, how much does this bother you? ○ -- ○ Not at all ○ A little bit ○ Somewhat ○ Quite a bit ○ A great deal

- Field UrBldNotEmptyBother3M of this question will be suppressed when field UrBldNotEmpty3M of question A16 has value "Never"
- Field UrBldNotEmptyBother3M of question A16 will be suppressed if field UrBldNotEmpty3M of this question has a value of "Never"

A17	Questionnaire Complete ○ -- ○ Yes

B. Questionnaire Complete

B1	Questionnaire Complete ○ -- ○ Yes
B2	Complete Date

789

Month	Day	Year

790

14. Appendix E: Baseline Assessment

A. Demographics

A1

Sex:
- ○ --
- ○ Male
- ○ Female

- Section CASUS, Sensation Female will be suppressed if this question has a value of "Male"
- Section CASUS, Sensation Male will be suppressed if this question has a value of "Female"

A2

Race (select all that apply):
- ☐ American Indian or Alaska Native
- ☐ Asian/Asian American
- ☐ Black or African American
- ☐ Native Hawaiian or other Pacific Islander
- ☐ White
- ☐ Other
- ☐ Unknown

A3

Ethnicity:
- ○ --
- ○ Hispanic or Latino
- ○ Not Hispanic or Latino
- ○ Unknown

A4

Marital Status:
- ○ --
- ○ Married/civil union
- ○ Living with a partner
- ○ Separated or divorced
- ○ Widowed
- ○ Single, never married
- ○ Unknown

A5

Education:
- ○ --
- ○ Less than HS diploma/GED
- ○ HS diploma/GED
- ○ Some college or tech school, no degree
- ○ Associate's degree
- ○ Bachelor's degree

	○ Graduate degree ○ Unknown
A6	Employment: ○ -- ○ Employed part-time ○ Employed full-time ○ Unemployed (looking for work) ○ Not employed (not looking for work, includes stay-at-home, retired) ○ Unknown
A7	Height: [ ] ○ -- ○ in. ○ cm ○ Not Done
A8	Weight: [ ] ○ -- ○ lbs. ○ kg ○ Not Done

B. Self-Reported Health

B1	Do you have difficulty walking? ○ -- ○ You have no problems in walking about ○ You have some problems in walking about ○ You are confined to bed
B2	Do you have difficulty with self-care? ○ -- ○ You have no problems with self-care ○ You have some problems with washing or dressing yourself ○ You are unable to wash or dress yourself
B3	In general, would you say your health is: ○ -- ○ Excellent ○ Very good ○ Good ○ Fair ○ Poor

B4

In general, would you say your quality of life is:

- ○ --
- ○ Excellent
- ○ Very good
- ○ Good
- ○ Fair
- ○ Poor

B5

Are you currently, or have you been, on any treatments for your urinary tract symptoms? Select all that apply.

(Non-traditional/non-medicinal treatments can refer to herbal supplements, exercise regimens, talk therapy, etc.)

- ☐ Medicine
- ☐ Surgery
- ☐ Non-traditional/ non-medicinal treatments
- ☐ Other (specify) _____
- ☐ None
- ☐ Unknown

Have you ever been told by a doctor or a health professional that you have...

B6

High blood pressure (hypertension)

- ○ --
- ○ No
- ○ Yes
- ○ Not Sure

B7

Hardening of the arteries (coronary heart disease)

- ○ --
- ○ No
- ○ Yes
- ○ Not Sure

B8

Heart disease or heart problems

- ○ --
- ○ No
- ○ Yes
- ○ Not Sure

B9

Stroke or transient ischemic attack (TIA)

- ○ --

	○ No ○ Yes ○ Not Sure
B10	Liver disease, hepatitis, or cirrhosis ○ -- ○ No ○ Yes ○ Not Sure
B11	Kidney disease ○ -- ○ No ○ Yes ○ Not Sure
B12	Arthritis ○ -- ○ No ○ Yes ○ Not Sure
B13a	Diabetes, or high blood sugar, or sugar in your urine ○ -- ○ No ○ Yes ○ Not Sure
B13b	If yes, how many years have you had diabetes? [ ] years
B14	Cancer other than non-melanoma skin cancer ○ -- ○ No ○ Yes ○ Not Sure
B15	Depression ○ -- ○ No ○ Yes ○ Not Sure
B16	Anxiety

○ --
○ No
○ Yes
○ Not Sure

B17

Alcohol or drug problem
○ --
○ No
○ Yes
○ Not Sure

B18

A sleep disorder
○ --
○ No
○ Yes
○ Not Sure

B19

A spinal cord injury
○ --
○ No
○ Yes
○ Not Sure

C. CASUS, Frequency Everyone

- This section suppressed if database function al.fn_GetProtocolVersion returns 1

In the past 7 days:

C1

During waking hours, how many times did you typically urinate?
○ --
○ 3 or fewer times a day
○ 4-7 times a day
○ 8-10 times a day
○ 11 or more times a day

C2

During a typical day, how much time typically passed between urinations?
○ --
○ More than 6 hours
○ 5-6 hours
○ 3-4 hours
○ 1-2 hours

	○ Less than 1 hour
C3	During a typical day, how often did you urinate twice or more within a few minutes? ○ -- ○ Never ○ A few times ○ About half the time ○ Most of the time ○ Every time
C4	During a typical night, how many times did you wake up and urinate? ○ -- ○ None ○ 1 time ○ 2-3 times ○ More than 3 times
C5	How often did you wake up at least once during the night because you had to urinate? ○ -- ○ Never ○ A few nights ○ About half the nights ○ Most nights ○ Every night
C6	How would you describe your typical urge to urinate when you woke up during the night? ○ -- ○ No urge ○ Mild urge ○ Moderate urge ○ Strong urge
C7	How often did you leak urine during the night, including wetting a pad or the bed? ○ -- ○ Never ○ A few nights ○ About half the nights ○ Most nights ○ Every night
C8	When you woke up and urinated, how often did you leak urine on your way to the bathroom? ○ -- ○ Never ○ A few times

- ○ About half the time
- ○ Most of the time
- ○ Every time

D. CASUS, Sensation Female

- This section suppressed if question A1 has a value of "Male"
- This section suppressed if database function al.fn_GetGender returns 1
- This section suppressed if database function al.fn_GetProtocolVersion returns 1

In the **past 7 days**, where did you feel sensations when you felt you needed to urinate?

D1 Lower abdomen:
- ○ --
- ○ No
- ○ Yes

D2 Bladder area:
- ○ --
- ○ No
- ○ Yes

D3 Labia/vagina area:
- ○ --
- ○ No
- ○ Yes

D4 Urethra:
- ○ --
- ○ No
- ○ Yes

D5 Lower back:
- ○ --
- ○ No
- ○ Yes

D6 Other:
- ○ --
- ○ No
- ○ Yes

- Question D7 will be suppressed if this question has a value of "No"

D7 If Yes to Other, where do you feel sensations:

- This question suppressed if question D6 has a value of "No"

E. CASUS, Sensation Male

- This section suppressed if question A1 has a value of "Female"
- This section suppressed if database function al.fn_GetGender returns 2
- This section suppressed if database function al.fn_GetProtocolVersion returns 1

In the **past 7 days**, where did you feel sensations when you felt you needed to urinate?

E1 Lower abdomen:
- ○ --
- ○ No
- ○ Yes

E2 Bladder area:
- ○ --
- ○ No
- ○ Yes

E3 Tip of the penis:
- ○ --
- ○ No
- ○ Yes

E4 Shaft of the penis:
- ○ --
- ○ No
- ○ Yes

E5 Scrotum/testicles:
- ○ --
- ○ No
- ○ Yes

E6

Urethra:
- ○ --
- ○ No
- ○ Yes

E7

Lower back:
- ○ --
- ○ No
- ○ Yes

E8

Other:
- ○ --
- ○ No
- ○ Yes

- Question E9 will be suppressed if this question has a value of "No"

E9

If Yes to Other, where do you feel sensations:

- This question suppressed if question E8 has a value of "No"

F. CASUS, Sensation Everyone

- This section suppressed if database function al.fn_GetProtocolVersion returns 1

In the **past 7 days**, what kinds of sensations did you have when you felt you needed to urinate?

F1

None:
- ○ --
- ○ No
- ○ Yes

F2

Bloating:
- ○ --
- ○ No
- ○ Yes

F3	Tingling: ○ -- ○ No ○ Yes
F4	Burning: ○ -- ○ No ○ Yes
F5	Pressure: ○ -- ○ No ○ Yes
F6	Discomfort: ○ -- ○ No ○ Yes
F7	Pain: ○ -- ○ No ○ Yes
F8	Aching: ○ -- ○ No ○ Yes
F9	Urgency: ○ -- ○ No ○ Yes
F10	Stinging: ○ -- ○ No ○ Yes
F11	Fullness: ○ -- ○ No ○ Yes

F12

Other:
- ○ --
- ○ No
- ○ Yes

- Question F13 will be suppressed if this question has a value of "No"

F13

If Yes to Other, what kinds of sensations do you feel:

- This question suppressed if question F12 has a value of "No"

F14

I have sensations, but I can't put them into words:
- ○ --
- ○ No
- ○ Yes

Think about the times between when you finished urinating and when you next need to urinate.

F15

During these times, are you aware of any feelings or sensations?
- ○ --
- ○ No
- ○ Yes

- Question F16 will be suppressed if this question has a value of "No"
- Question F17 will be suppressed if this question has a value of "No"
- Question F18 will be suppressed if this question has a value of "No"
- Question F19 will be suppressed if this question has a value of "No"
- Question F20 will be suppressed if this question has a value of "No"
- Question F21 will be suppressed if this question has a value of "No"
- Question F22 will be suppressed if this question has a value of "No"
- Question F23 will be suppressed if this question has a value of "No"
- Question F24 will be suppressed if this question has a value of "No"
- Question F25 will be suppressed if this question has a value of "No"
- Question F26 will be suppressed if this question has a value of "No"
- Question F27 will be suppressed if this question has a value of "No"
- Question F28 will be suppressed if this question has a value of "No"

If Yes, what kinds of feelings or sensations did you have?

F16 Bloating:
- ○ --
- ○ No
- ○ Yes

- This question suppressed if question F15 has a value of "No"

F17 Tingling:
- ○ --
- ○ No
- ○ Yes

- This question suppressed if question F15 has a value of "No"

F18 Burning:
- ○ --
- ○ No
- ○ Yes

- This question suppressed if question F15 has a value of "No"

F19 Pressure:
- ○ --
- ○ No
- ○ Yes

- This question suppressed if question F15 has a value of "No"

F20 Discomfort:
- ○ --
- ○ No
- ○ Yes

- This question suppressed if question F15 has a value of "No"

F21 Pain:
- ○ --

○ No
○ Yes

- This question suppressed if question F15 has a value of "No"

F22

Aching:
○ --
○ No
○ Yes

- This question suppressed if question F15 has a value of "No"

F23

Urgency:
○ --
○ No
○ Yes

- This question suppressed if question F15 has a value of "No"

F24

Stinging:
○ --
○ No
○ Yes

- This question suppressed if question F15 has a value of "No"

F25

Fullness:
○ --
○ No
○ Yes

- This question suppressed if question F15 has a value of "No"

F26

Other:
○ --
○ No
○ Yes

- This question suppressed if question F15 has a value of "No"
- Question F27 will be suppressed if this question has a value of "No"

F27 If Yes to Other, what kinds of sensations do you feel:

- This question suppressed if question F15 has a value of "No"
- This question suppressed if question F26 has a value of "No"

F28 I have sensations, but I can't put them into words:

- ○ --
- ○ No
- ○ Yes

- This question suppressed if question F15 has a value of "No"

In the **past 7 days**:

F29 How often did you have pain or discomfort in your bladder while it was filling?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- Question F30 will be suppressed if this question has a value of "Never"

F30 How much pain or discomfort did you have in your bladder while it was filling?

- ○ --
- ○ No pain or discomfort
- ○ Mild
- ○ Moderate
- ○ Severe

- This question suppressed if question F29 has a value of "Never"

F31

How often did you have pain or discomfort in your bladder when it was full?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- Question F32 will be suppressed if this question has a value of "Never"

F32

How much pain or discomfort did you have in your bladder when it was full?

- ○ --
- ○ No pain or discomfort
- ○ Mild
- ○ Moderate
- ○ Severe

- This question suppressed if question F31 has a value of "Never"

F33

How often did you have pain or discomfort while urinating?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- Question F34 will be suppressed if this question has a value of "Never"

F34

How much pain or discomfort did you have while urinating?

- ○ --
- ○ No pain or discomfort
- ○ Mild
- ○ Moderate
- ○ Severe

- This question suppressed if question F33 has a value of "Never"

F35

How often did you have pain or discomfort right after you had finished urinating?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- Question F36 will be suppressed if this question has a value of "Never"

F36

How much pain or discomfort did you have right after you had finished urinating?

- ○ --
- ○ No pain or discomfort
- ○ Mild
- ○ Moderate
- ○ Severe

- This question suppressed if question F35 has a value of "Never"

In the **past 7 days**:

F37

How often did you feel a sudden need to urinate?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

F38

Once you noticed the need to urinate, how difficult was it to wait more than a few minutes?

- ○ --
- ○ Not difficult
- ○ A little difficult
- ○ Somewhat difficult
- ○ Very difficult
- ○ Unable to wait

F39

How often did you have a sudden need to rush to urinate for fear of leaking urine?

- ○ --
- ○ Never
- ○ A few times

- ○ About half the time
- ○ Most of the time
- ○ Every time

F40 Did you have a constant need to urinate that did not go away?

- ○ --
- ○ No
- ○ Yes

G. CASUS, Effort Everyone

- This section suppressed if database function al.fn_GetProtocolVersion returns 1

EFFORT WITH URINATION

In the **past 7 days**:

G1 How often did you have a delay before you started to urinate?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- Question G2 will be suppressed if this question has a value of "Never"

G2 When trying to urinate, how much of a delay was there before the urine came out?

- ○ --
- ○ None
- ○ A few seconds to less than a minute
- ○ Around a minute
- ○ More than a minute

- This question suppressed if question G1 has a value of "Never"

G3 How often did you have to push when urinating?

- ○ --
- ○ Never
- ○ A few times

○ About half the time
○ Most of the time
○ Every time

- Question G4 will be suppressed if this question has a value of "Never"
- Question G5 will be suppressed if this question has a value of "Never"
- Question G6 will be suppressed if this question has a value of "Never"

G4

How hard did you have to push to begin urinating?
○ --
○ Not at all hard
○ A little bit hard
○ Quite a bit hard
○ Very hard

- This question suppressed if question G3 has a value of "Never"

G5

How hard did you have to push during urination?
○ --
○ Not at all hard
○ A little bit hard
○ Quite a bit hard
○ Very hard

- This question suppressed if question G3 has a value of "Never"

G6

How often did you push extra hard while you were urinating?
○ --
○ Never
○ A few times
○ About half the time
○ Most of the time
○ Every time

- This question suppressed if question G3 has a value of "Never"

G7

How much did you have to concentrate to empty your bladder?
○ --
○ Not at all

○ A little bit
○ Quite a bit
○ Very much

G8 How often did you have to relax to empty your bladder?
○ --
○ Never
○ A few times
○ About half the time
○ Most of the time
○ Every time

URINE FLOW

In the **past 7 days**:

- This question suppressed if function al.fn_GetGender returns 2

G9 How often did you have splitting or spraying of your urine stream?
○ --
○ Never
○ A few times
○ About half the time
○ Most of the time
○ Every time

- This question suppressed if function al.fn_GetGender returns 2

G10 How often did you have spraying or change in direction of your urine stream?
○ --
○ Never
○ A few times
○ About half the time
○ Most of the time
○ Every time

- This question suppressed if function al.fn_GetGender returns 1

G11 Once you started urinating, how often did your urine flow stop and start again?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

G12

How often was your urine flow slow or weak?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

G13

How often did you have a trickle or dribble at the end of your urine flow?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

G14

How often did you have no sensation of urine flow while you were urinating?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

INCONTINENCE

In the **past 7 days**:

G15

Have you leaked urine or wet a pad?

- ○ --
- ○ No
- ○ Yes

- Question G will be suppressed if this question has a value of "No"
- Question G16 will be suppressed if this question has a value of "No"
- Question G17 will be suppressed if this question has a value of "No"

- Question G18 will be suppressed if this question has a value of "No"
- Question G19 will be suppressed if this question has a value of "No"
- Question G20 will be suppressed if this question has a value of "No"
- Question G21 will be suppressed if this question has a value of "No"
- Question G22 will be suppressed if this question has a value of "No"
- Question G23 will be suppressed if this question has a value of "No"
- Question G24 will be suppressed if this question has a value of "No"
- Question G25 will be suppressed if this question has a value of "No"

If Yes:

- This question suppressed if question G15 has a value of "No"

G16

How often did you completely lose control of your bladder?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question G15 has a value of "No"

G17

How often did you leak urine or wet a pad after feeling a sudden need to urinate?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question G15 has a value of "No"

G18

How often did you leak urine or wet a pad while laughing, sneezing, or coughing?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question G15 has a value of "No"

G19

How often did you leak urine or wet a pad when doing physical activities, such as exercising or lifting a heavy object?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question G15 has a value of "No"

G20

How often did getting up from a chair cause you to leak urine or wet a pad?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question G15 has a value of "No"

G21

How often did walking at your usual speed cause you to leak urine or wet a pad?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question G15 has a value of "No"

G22

How often did you leak urine or wet a pad without feeling an urge to urinate or not in connection with physical activity?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time

○ Every time

- This question suppressed if question G15 has a value of "No"

G23

How often did walking down stairs or stepping off a curb cause you to leak urine or wet a pad?

○ --
○ Never
○ A few times
○ About half the time
○ Most of the time
○ Every time

- This question suppressed if question G15 has a value of "No"

G24

How often did you leak urine or wet a pad without any reason you could identify?

○ --
○ Never
○ A few times
○ About half the time
○ Most of the time
○ Every time

- This question suppressed if question G15 has a value of "No"

G25

How often did you leak urine or wet a pad without feeling it?

○ --
○ Never
○ A few times
○ About half the time
○ Most of the time
○ Every time

- This question suppressed if question G15 has a value of "No"

In the **past 7 days**:

G26

How often did you feel a need to urinate after you had just urinated?

○ --

	○ Never ○ A few times ○ About half the time ○ Most of the time ○ Every time
G27	How often did you feel that your bladder was not completely empty after urination? ○ -- ○ Never ○ A few times ○ About half the time ○ Most of the time ○ Every time
G28	How often did you dribble urine just after zipping your pants or pulling up your underwear? ○ -- ○ Never ○ A few times ○ About half the time ○ Most of the time ○ Every time

H. CASUS, Screening Questions

- This section suppressed if database function al.fn_GetProtocolVersion returns 1

In the **past 7 days**:

H1	How satisfied were you with your bladder function? ○ -- ○ Not at all satisfied ○ Somewhat satisfied ○ Very satisfied ○ Extremely satisfied
H2	How bothered were you by urinary symptoms? ○ -- ○ Not at all bothered ○ Somewhat bothered ○ Very bothered ○ Extremely bothered

H3

How often did you have urinary or bladder problems of any kind?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

H4

How would you rate your bladder or urinary function?

- ○ --
- ○ Very poor
- ○ Poor
- ○ Good
- ○ Very good

I. CASUS, History Questions

- This section suppressed if database function al.fn_GetProtocolVersion returns 1

Thinking back over your **whole adult life**:

I1

Did you ever leak urine after feeling a sudden need to urinate?

- ○ --
- ○ No
- ○ Yes

I2

Did you ever have an accident where you completely emptied your bladder?

- ○ --
- ○ No
- ○ Yes

I3

Did you ever leak urine with a laugh, sneeze, or cough?

- ○ --
- ○ No
- ○ Yes

I4

Did you ever seek medical attention because you could not empty your bladder?

- ○ --
- ○ No
- ○ Yes

I5 Have you ever tried to stop urinating mid-stream?
- ○ --
- ○ No
- ○ Yes

- Question I6 will be suppressed if this question has a value of "No"

I6 If yes, how difficult was it to stop urination mid-stream?
- ○ --
- ○ Not difficult
- ○ A little difficult
- ○ Somewhat difficult
- ○ Very difficult
- ○ Unable to do

- This question suppressed if question I5 has a value of "No"

I7 Have you ever been asked to give a mid-stream urine sample?
- ○ --
- ○ No
- ○ Yes

- Question I8 will be suppressed if this question has a value of "No"

I8 If yes, how difficult was it to stop urination mid-stream?
- ○ --
- ○ Not difficult
- ○ A little difficult
- ○ Somewhat difficult
- ○ Very difficult
- ○ Unable to do

- This question suppressed if question I7 has a value of "No"

J. Questionnaire Complete

J1 Questionnaire Complete
- ○ --

	○ Yes
J2	Complete Date ☐ ☐ ☐ Month Day Year

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15. Appendix F: 24-Hour Recall

A. 24-Hour Recall	
A1	During waking hours today, how many times did you urinate? ○ -- ○ 3 or fewer times ○ 4-7 times ○ 8-10 times ○ 11 or more times
A2	During the day today, how much time typically passed between urinations? ○ -- ○ More than 6 hours ○ 3-6 hours ○ 1-2 hours ○ Less than 1 hour
A3	Last night, how many times did you wake up and urinate? ○ -- ○ None ○ 1 time ○ 2-3 times ○ More than 3 times
A4	Last night, did you wake up because you had to urinate? ○ -- ○ No ○ Yes (at least once) • Question A5 will be suppressed if this question has a value of "No"
A5	When you woke up and urinated last night, did you leak urine on your way to the bathroom? ○ -- ○ No ○ Yes (at least once) • This question suppressed if question A4 has a value of "No"
A6	In the past 24 hours... How often did you feel a sudden need to urinate?

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- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

A7

In the past 24 hours...

Once you noticed the need to urinate, how difficult was it to wait more than a few minutes?

- ○ --
- ○ Not difficult
- ○ A little difficult
- ○ Somewhat difficult
- ○ Very difficult
- ○ Unable to wait

A8

In the past 24 hours...

Did you leak urine or wet a pad?

- ○ --
- ○ No
- ○ Yes

- Question A9 will be suppressed if this question has a value of "No"
- Question A10 will be suppressed if this question has a value of "No"
- Question A11 will be suppressed if this question has a value of "No"
- Question A12 will be suppressed if this question has a value of "No"
- Question A13 will be suppressed if this question has a value of "No"
- Question A14 will be suppressed if this question has a value of "No"
- Question A15 will be suppressed if this question has a value of "No"
- Question A16 will be suppressed if this question has a value of "No"

A9

In the past 24 hours...

Did you completely lose control of your bladder?

- ○ --
- ○ No
- ○ Yes

- This question suppressed if question A8 has a value of "No"

A10

In the past 24 hours...

Did you leak urine or wet a pad while laughing, sneezing, or coughing?

○ --
○ No
○ Yes

- This question suppressed if question A8 has a value of "No"

A11

In the past 24 hours...

Did you leak urine or wet a pad when doing physical activities, such as exercising or lifting a heavy object?

○ --
○ No
○ Yes

- This question suppressed if question A8 has a value of "No"

A12

In the past 24 hours...

Did getting up from a chair cause you to leak urine or wet a pad?

○ --
○ No
○ Yes

- This question suppressed if question A8 has a value of "No"

A13

In the past 24 hours...

Did walking at your usual speed cause you to leak urine or wet a pad?

○ --
○ No
○ Yes

- This question suppressed if question A8 has a value of "No"

A14

In the past 24 hours...

Did you leak urine or wet a pad after feeling a sudden need to urinate?

○ --
○ No
○ Yes

- This question suppressed if question A8 has a value of "No"

A15

In the past 24 hours...

Did you leak urine or wet a pad without any reason you could identify?

- ○ --
- ○ No
- ○ Yes

- This question suppressed if question A8 has a value of "No"

A16

In the past 24 hours...

Did you leak urine or wet a pad without feeling it?

- ○ --
- ○ No
- ○ Yes

- This question suppressed if question A8 has a value of "No"

A17

In the past 24 hours...

How often was your urine flow slow or weak?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

A18

In the past 24 hours...

How often did you feel that your bladder was not completely empty after urination?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

A19

In the past 24 hours...

How often did you dribble urine just after zipping your pants or pulling up your underwear?

- ○ --

	○ Never ○ A few times ○ About half the time ○ Most of the time ○ Every time
A20	Questionnaire Complete ○ -- ○ Yes

16. Appendix G: 3-, 7-Day Recall

A. 3-Day Recall

A1

In the past 3 days...

During waking hours, how many times did you typically urinate?

- ○ --
- ○ 3 or fewer times a day
- ○ 4-7 times a day
- ○ 8-10 times a day
- ○ 11 or more times a day

A2

In the past 3 days...

During a typical day, how much time typically passed between urinations?

- ○ --
- ○ More than 6 hours
- ○ 5-6 hours
- ○ 3-4 hours
- ○ 1-2 hours
- ○ Less than 1 hour

A3

In the past 3 days...

During a typical night, how many times did you wake up and urinate?

- ○ --
- ○ None
- ○ 1 time
- ○ 2-3 times
- ○ More than 3 times

A4

In the past 3 days...

How often did you wake up at least once during the night because you had to urinate?

- ○ --
- ○ Never
- ○ A few nights
- ○ About half the nights
- ○ Most nights
- ○ Every night

- Question A5 will be suppressed if this question has a value of "Never"

A5 | In the past 3 days...

When you woke up and urinated, how often did you leak urine on your way to the bathroom?
- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question A4 has a value of "Never"

A6

In the past 3 days...

How often did you feel a sudden need to urinate?
- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

A7

In the past 3 days...

Once you noticed the need to urinate, how difficult was it to wait more than a few minutes?
- ○ --
- ○ Not difficult
- ○ A little difficult
- ○ Somewhat difficult
- ○ Very difficult
- ○ Unable to wait

A8

In the past 3 days...

Have you leaked urine or wet a pad?
- ○ --
- ○ No
- ○ Yes

- Question A9 will be suppressed if this question has a value of "No"
- Question A10 will be suppressed if this question has a value of "No"
- Question A11 will be suppressed if this question has a value of "No"
- Question A12 will be suppressed if this question has a value of "No"
- Question A13 will be suppressed if this question has a value of "No"
- Question A14 will be suppressed if this question has a value of "No"
- Question A15 will be suppressed if this question has a value of "No"
- Question A16 will be suppressed if this question has a value of "No"

A9

In the past 3 days...

How often did you completely lose control of your bladder?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question A8 has a value of "No"

A10

In the past 3 days...

How often did you leak urine or wet a pad while laughing, sneezing, or coughing?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question A8 has a value of "No"

A11

In the past 3 days...

How often did you leak urine or wet a pad when doing physical activities, such as exercising or lifting a heavy object?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question A8 has a value of "No"

A12

In the past 3 days...

How often did getting up from a chair cause you to leak urine or wet a pad?

- ○ --
- ○ Never

- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question A8 has a value of "No"

A13

In the past 3 days...

How often did walking at your usual speed cause you to leak urine or wet a pad?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question A8 has a value of "No"

A14

In the past 3 days...

How often did you leak urine or wet a pad after feeling a sudden need to urinate?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question A8 has a value of "No"

A15

In the past 3 days...

How often did you leak urine or wet a pad without any reason you could identify?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question A8 has a value of "No"

A16

In the past 3 days...

How often did you leak urine or wet a pad without feeling it?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question A8 has a value of "No"

A17

In the past 3 days...

How often was your urine flow slow or weak?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

A18

In the past 3 days...

How often did you feel that your bladder was not completely empty after urination?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

A19

In the past 3 days...

How often did you dribble urine just after zipping your pants or pulling up your underwear?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

A20

Questionnaire Complete

- ○ --
- ○ Yes

A. 7-Day Recall

A1

In the past 7 days...

During waking hours, how many times did you typically urinate?

- ○ --
- ○ 3 or fewer times a day
- ○ 4-7 times a day
- ○ 8-10 times a day
- ○ 11 or more times a day

A2

In the past 7 days...

During a typical day, how much time typically passed between urinations?

- ○ --
- ○ More than 6 hours
- ○ 5-6 hours
- ○ 3-4 hours
- ○ 1-2 hours
- ○ Less than 1 hour

A3

In the past 7 days...

During a typical night, how many times did you wake up and urinate?

- ○ --
- ○ None
- ○ 1 time
- ○ 2-3 times
- ○ More than 3 times

A4

In the past 7 days...

How often did you wake up at least once during the night because you had to urinate?

- ○ --
- ○ Never
- ○ A few nights
- ○ About half the nights
- ○ Most nights
- ○ Every night

- Question A5 will be suppressed if this question has a value of "Never"

A5

In the past 7 days...

When you woke up and urinated, how often did you leak urine on your way to the bathroom?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question A4 has a value of "Never"

A6

In the past 7 days...

How often did you feel a sudden need to urinate?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

A7

In the past 7 days...

Once you noticed the need to urinate, how difficult was it to wait more than a few minutes?

- ○ --
- ○ Not difficult
- ○ A little difficult
- ○ Somewhat difficult
- ○ Very difficult
- ○ Unable to wait

A8

In the past 7 days...

Have you leaked urine or wet a pad?

- ○ --
- ○ No
- ○ Yes

- Question A9 will be suppressed if this question has a value of "No"
- Question A10 will be suppressed if this question has a value of "No"
- Question A11 will be suppressed if this question has a value of "No"
- Question A12 will be suppressed if this question has a value of "No"
- Question A13 will be suppressed if this question has a value of "No"
- Question A14 will be suppressed if this question has a value of "No"
- Question A15 will be suppressed if this question has a value of "No"
- Question A16 will be suppressed if this question has a value of "No"

A9

In the past 7 days...

How often did you completely lose control of your bladder?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question A8 has a value of "No"

A10

In the past 7 days...

How often did you leak urine or wet a pad while laughing, sneezing, or coughing?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question A8 has a value of "No"

A11

In the past 7 days...

How often did you leak urine or wet a pad when doing physical activities, such as exercising or lifting a heavy object?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question A8 has a value of "No"

A12

In the past 7 days...

How often did getting up from a chair cause you to leak urine or wet a pad?

- ○ --
- ○ Never

- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question A8 has a value of "No"

A13

In the past 7 days...

How often did walking at your usual speed cause you to leak urine or wet a pad?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question A8 has a value of "No"

A14

In the past 7 days...

How often did you leak urine or wet a pad after feeling a sudden need to urinate?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question A8 has a value of "No"

A15

In the past 7 days...

How often did you leak urine or wet a pad without any reason you could identify?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question A8 has a value of "No"

A16

In the past 7 days...

How often did you leak urine or wet a pad without feeling it?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

- This question suppressed if question A8 has a value of "No"

A17

In the past 7 days...

How often was your urine flow slow or weak?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

A18

In the past 7 days...

How often did you feel that your bladder was not completely empty after urination?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

A19

In the past 7 days...

How often did you dribble urine just after zipping your pants or pulling up your underwear?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

A20

Questionnaire Complete

- ○ --
- ○ Yes

17. Appendix H: Bladder Diary

Symptoms of Lower Urinary Tract Dysfunction Research Network (LURN) BLADDER DIARY

Diary reviewed by: _____

Please complete this bladder diary in **3 consecutive days**. In the time column, please write the time (including AM and PM) in the time column for each entry, including the words **BED** when you went to bed and **WOKE** when you woke up (you only need to record "BED" and "WOKE" once each day).

Bladder sensation: Enter the number that corresponds with how your bladder felt when you went to the toilet using these codes:

0 - If you had no sensation of needing to pass urine, but passed urine for "social reasons", for example, just before going out, or unsure where the next toilet is.

1 - If you had a normal desire to pass urine and no urgency.

"Urgency" is feeling a sudden need to urinate.

2 - If you had urgency, but it had passed before you went to the toilet, and you did not leak urine.

3 - If you had urgency but managed to get to the toilet, still with urgency, but did not leak urine.

4 - If you had urgency and could not get to the toilet in time so you leaked urine.

Table 1: Example of completed bladder diary

Time	Bladder sensation	Leak (stress, urge, or unknown/ other)	Pads
7:30am WOKE	2		✓
9:00am	0		
9:45am	3		
12:15 pm		Leak, stress	
3:30pm	0		✓
5:10pm	4	Leak, urge	
7:00pm	1		
9:00pm BED	0		✓
10:30pm	2		
4:45am	2		

Leak: Any unintended loss of urine. Please indicate whether you leaked because of urgency, stress, or an unknown/other reason. "Urgency" is feeling a sudden need to urinate for fear of leaking urine. "Stress" indicates that you leaked after physical activity or movement. If you are unsure if you leaked due to stress or urgency, please write "unknown/other".

Pads: If you change a pad, put a check in the pads column.

STUDY ID_____ DAY 1 DATE: _____/_____/_____

Time (am/pm) (please include one entry of WOKE and one entry of BED)	Bladder sensation when you went to the toilet (0, 1, 2, 3, or 4)	Leak (stress, urge, or other)	Pads (✓ if you changed a pad)

STUDY ID_____ DAY 2 DATE: _____/_____/_____

Time (am/pm) (please include one entry of WOKE and one entry of BED)	Bladder sensation when you went to the toilet (0, 1, 2, 3, or 4)	Leak (stress, urge, or other)	Pads (✓ if you changed a pad)

STUDY ID _____ DAY 3 DATE: _____/_____/_____

Time (am/pm) (please include one entry of WOKE and one entry of BED)	Bladder sensation when you went to the toilet (0, 1, 2, 3, or 4)	Leak (stress, urge, or other)	Pads (✓ if you changed a pad)

18. Appendix I: Final Assessment and 30-Day Recall

A. PANAS Questions

This scale consists of a number of words that describe different feelings and emotions. **Indicate to what extent you feel this way right now, that is, at the present moment.**

A1 Interested
- ○ --
- ○ Very slightly or not at all
- ○ A little
- ○ Moderately
- ○ Quite a bit
- ○ Extremely

A2 Distressed
- ○ --
- ○ Very slightly or not at all
- ○ A little
- ○ Moderately
- ○ Quite a bit
- ○ Extremely

A3 Excited
- ○ --
- ○ Very slightly or not at all
- ○ A little
- ○ Moderately
- ○ Quite a bit
- ○ Extremely

A4 Upset
- ○ --
- ○ Very slightly or not at all
- ○ A little
- ○ Moderately
- ○ Quite a bit
- ○ Extremely

A5 Strong
- ○ --
- ○ Very slightly or not at all
- ○ A little
- ○ Moderately
- ○ Quite a bit

	○ Extremely
A6	Guilty ○ -- ○ Very slightly or not at all ○ A little ○ Moderately ○ Quite a bit ○ Extremely
A7	Scared ○ -- ○ Very slightly or not at all ○ A little ○ Moderately ○ Quite a bit ○ Extremely
A8	Hostile ○ -- ○ Very slightly or not at all ○ A little ○ Moderately ○ Quite a bit ○ Extremely
A9	Enthusiastic ○ -- ○ Very slightly or not at all ○ A little ○ Moderately ○ Quite a bit ○ Extremely
A10	Proud ○ -- ○ Very slightly or not at all ○ A little ○ Moderately ○ Quite a bit ○ Extremely
A11	Irritable ○ --

	○ Very slightly or not at all ○ A little ○ Moderately ○ Quite a bit ○ Extremely
A12	Alert ○ -- ○ Very slightly or not at all ○ A little ○ Moderately ○ Quite a bit ○ Extremely
A13	Ashamed ○ -- ○ Very slightly or not at all ○ A little ○ Moderately ○ Quite a bit ○ Extremely
A14	Inspired ○ -- ○ Very slightly or not at all ○ A little ○ Moderately ○ Quite a bit ○ Extremely
A15	Nervous ○ -- ○ Very slightly or not at all ○ A little ○ Moderately ○ Quite a bit ○ Extremely
A16	Determined ○ -- ○ Very slightly or not at all ○ A little ○ Moderately ○ Quite a bit

	○ Extremely
A17	Attentive ○ -- ○ Very slightly or not at all ○ A little ○ Moderately ○ Quite a bit ○ Extremely
A18	Jittery ○ -- ○ Very slightly or not at all ○ A little ○ Moderately ○ Quite a bit ○ Extremely
A19	Active ○ -- ○ Very slightly or not at all ○ A little ○ Moderately ○ Quite a bit ○ Extremely
A20	Afraid ○ -- ○ Very slightly or not at all ○ A little ○ Moderately ○ Quite a bit ○ Extremely

B. 30-Day Recall

B1	In the past 30 days... During waking hours, how many times did you typically urinate? ○ -- ○ 3 or fewer times a day

- ○ 4-7 times a day
- ○ 8-10 times a day
- ○ 11 or more times a day

How much did this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

B2

In the past 30 days...

During a typical day, how much time typically passed between urinations?

- ○ --
- ○ More than 6 hours
- ○ 5-6 hours
- ○ 3-4 hours
- ○ 1-2 hours
- ○ Less than 1 hour

How much did this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

B3

In the past 30 days...

During a typical night, how many times did you wake up and urinate?

- ○ --
- ○ None
- ○ 1 time
- ○ 2-3 times
- ○ More than 3 times

How much did this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- Field QUrinateNightBother of this question will be suppressed when field QUrinateNight of question B3 has value "None"
- Field QUrinateNightBother of question B3 will be suppressed if field QUrinateNight of this question has a value of "None"

B4

In the past 30 days...

How often did you wake up at least once during the night because you had to urinate?

- ○ --
- ○ Never
- ○ A few nights
- ○ About half the nights
- ○ Most nights
- ○ Every night

How much did this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- Field QNightOnceBother of this question will be suppressed when field QNightOnce of question B4 has value "Never"
- Question B5 will be suppressed if field QNightOnce of this question has a value of "Never"
- Field QNightOnceBother of question B4 will be suppressed if field QNightOnce of this question has a value of "Never"

B5

In the past 30 days...

When you woke up and urinated, how often did you leak urine on your way to the bathroom?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

How much did this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- This question suppressed if field QNightOnce of question B4 has a value of "Never"
- Field QLeakWayBother of this question will be suppressed when field QLeakWay of question B5 has value "Never"
- Field QLeakWayBother of question B5 will be suppressed if field QLeakWay of this question has a value of "Never"

B6

In the past 30 days...

How often did you feel a sudden need to urinate?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

How much did this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- Field SSuddenOftenBother of this question will be suppressed when field SSuddenOften of question B6 has value "Never"
- Field SSuddenOftenBother of question B6 will be suppressed if field SSuddenOften of this question has a value of "Never"

B7

In the past 30 days...

Once you noticed the need to urinate, how difficult was it to wait more than a few minutes?

- ○ --
- ○ Not difficult
- ○ A little difficult
- ○ Somewhat difficult
- ○ Very difficult
- ○ Unable to wait

How much did this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- Field SHardWaitBother of this question will be suppressed when field SHardWait of question B7 has value "Not difficult"
- Field SHardWaitBother of question B7 will be suppressed if field SHardWait of this question has a value of "Not difficult"

B8

In the past 30 days...

Have you leaked urine or wet a pad?

- ○ --
- ○ No
- ○ Yes

- Question B9 will be suppressed if this question has a value of "No"
- Question B10 will be suppressed if this question has a value of "No"
- Question B11 will be suppressed if this question has a value of "No"
- Question B12 will be suppressed if this question has a value of "No"
- Question B13 will be suppressed if this question has a value of "No"
- Question B14 will be suppressed if this question has a value of "No"
- Question B15 will be suppressed if this question has a value of "No"
- Question B16 will be suppressed if this question has a value of "No"

B9

In the past 30 days...

How often did you completely lose control of your bladder?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

How much did this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- This question suppressed if question B8 has a value of "No"
- Field SLoseControlBother of this question will be suppressed when field SLoseControl of question B9 has value "Never"
- Field SLoseControlBother of question B9 will be suppressed if field SLoseControl of this question has a value of "Never"

B10

In the past 30 days...

How often did you leak urine or wet a pad while laughing, sneezing, or coughing?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

How much did this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- This question suppressed if question B8 has a value of "No"
- Field SLeakLaughBother of this question will be suppressed when field SLeakLaugh of question B10 has value "Never"
- Field SLeakLaughBother of question B10 will be suppressed if field SLeakLaugh of this question has a value of "Never"

B11

In the past 30 days...

How often did you leak urine or wet a pad when doing physical activities, such as exercising or lifting a heavy object?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

How much did this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- This question suppressed if question B8 has a value of "No"
- Field SLeakExerciseBother of this question will be suppressed when field SLeakExercise of question B11 has value "Never"
- Field SLeakExerciseBother of question B11 will be suppressed if field SLeakExercise of this question has a value of "Never"

B12

In the past 30 days...

How often did getting up from a chair cause you to leak urine or wet a pad?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

How much did this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- This question suppressed if question B8 has a value of "No"

- Field SLeakUpChairBother of this question will be suppressed when field SLeakUpChair of question B12 has value "Never"
- Field SLeakUpChairBother of question B12 will be suppressed if field SLeakUpChair of this question has a value of "Never"

B13

In the past 30 days...

How often did walking at your usual speed cause you to leak urine or wet a pad?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

How much did this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- This question suppressed if question B8 has a value of "No"
- Field SLeakWalkBother of this question will be suppressed when field SLeakWalk of question B13 has value "Never"
- Field SLeakWalkBother of question B13 will be suppressed if field SLeakWalk of this question has a value of "Never"

B14

In the past 30 days...

How often did you leak urine or wet a pad after feeling a sudden need to urinate?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

How much did this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- This question suppressed if question B8 has a value of "No"
- Field SLeakAfterSuddenBother of this question will be suppressed when field SLeakAfterSudden of question B14 has value "Never"

- Field SLeakAfterSuddenBother of question B14 will be suppressed if field SLeakAfterSudden of this question has a value of "Never"

B15

In the past 30 days...

How often did you leak urine or wet a pad without any reason you could identify?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

How much did this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- This question suppressed if question B8 has a value of "No"
- Field SLeakNoReasonBother of this question will be suppressed when field SLeakNoReason of question B15 has value "Never"
- Field SLeakNoReasonBother of question B15 will be suppressed if field SLeakNoReason of this question has a value of "Never"

B16

In the past 30 days...

How often did you leak urine or wet a pad without feeling it?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

How much did this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- This question suppressed if question B8 has a value of "No"
- Field SLeakNoFeelBother of this question will be suppressed when field SLeakNoFeel of question B16 has value "Never"
- Field SLeakNoFeelBother of question B16 will be suppressed if field SLeakNoFeel of this question has a value of "Never"

B17

In the past 30 days...

How often was your urine flow slow or weak?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

How much did this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- Field SFlowSlowBother of this question will be suppressed when field SFlowSlow of question B17 has value "Never"
- Field SFlowSlowBother of question B17 will be suppressed if field SFlowSlow of this question has a value of "Never"

B18

In the past 30 days...

How often did you feel that your bladder was not completely empty after urination?

- ○ --
- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

How much did this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- Field SNotEmptyAfterBother of this question will be suppressed when field SNotEmptyAfter of question B18 has value "Never"
- Field SNotEmptyAfterBother of question B18 will be suppressed if field SNotEmptyAfter of this question has a value of "Never"

B19

In the past 30 days...

How often did you dribble urine just after zipping your pants or pulling up your underwear?

- ○ --

- ○ Never
- ○ A few times
- ○ About half the time
- ○ Most of the time
- ○ Every time

How much did this bother you?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ A great deal

- Field SDribbleZipPantsBother of this question will be suppressed when field SDribbleZipPants of question B19 has value "Never"
- Field SDribbleZipPantsBother of question B19 will be suppressed if field SDribbleZipPants of this question has a value of "Never"

B20 How well do you think you've remembered your symptoms over the last 30 days?

- ○ --
- ○ Not at all
- ○ A little bit
- ○ Somewhat
- ○ Quite a bit
- ○ Very much

C. Self-Reported Health

C1a Since beginning the study, do you think your bladder symptoms changed at all?

- ○ --
- ○ No
- ○ Yes
- ○ Not Sure

- Question C1b will be suppressed if this question has a value of "No"

C1b If yes, explain:

- This question suppressed if question C1a has a value of "No"

C2a Since beginning the study, have you received any surgical treatments for your urinary tract symptoms?

("Surgical treatments" include any inpatient or outpatient operations or surgical procedures, including Botox treatments.)

- ○ --
- ○ No
- ○ Yes
- ○ Not Sure

- Question C2b will be suppressed if this question has a value of "No"

C2b

Do you think that it had an impact on your urinary tract symptoms?

- ○ --
- ○ No
- ○ Yes
- ○ Not Sure

- This question suppressed if question C2a has a value of "No"

C3a

Since beginning the study, have you stopped, started, or changed any medicinal treatments for your urinary tract symptoms?

("Medicinal treatments" refers to prescription or over the counter drugs. "Changed" refers to changes in frequency, duration, dosage, etc.)

Select all that apply:

- ☐ No
- ☐ Yes, started something new
- ☐ Yes, stopped an existing
- ☐ Yes, changed an existing
- ☐ Not Sure

- Question C3b will be suppressed if this question has a value of "No"

C3b

Do you think that it had an impact on your urinary tract symptoms?

- ○ --
- ○ No
- ○ Yes
- ○ Not Sure

- This question suppressed if question C3a has a value of "No"

C4a

Since beginning the study, have you started, stopped, or changed any non-traditional or non-medicinal treatments for your urinary tract symptoms? ("changed" refers to changes in frequency, duration, dosage, etc.)

Non-traditional/non-medicinal treatments could include: neutraceutical or herbal remedies; exercise regimens other than prescribed physical therapy; talk therapy or behavioral modification; intermittent catherterization; etc.

Select all that apply:

- ☐ No
- ☐ Yes, started something new
- ☐ Yes, stopped an existing
- ☐ Yes, changed an existing
- ☐ Not Sure

- Question C4b will be suppressed if this question has a value of "No"

C4b

Do you think that it had an impact on your urinary tract symptoms?

- ○ --
- ○ No
- ○ Yes
- ○ Not Sure

- This question suppressed if question C4a has a value of "No"

C5a

Since beginning the study, did you make any changes to the amount of fluids you drank?

- ○ --
- ○ No changes
- ○ You drank less
- ○ You drank more
- ○ Not Sure

- Question C5b will be suppressed if this question has a value of "No changes"

C5b

Do you think that it had an impact on your urinary tract symptoms?

- ○ --
- ○ No
- ○ Yes
- ○ Not Sure

- This question suppressed if question C5a has a value of "No changes"

C6a

Since beginning the study, did you change the kinds of beverages you drink?

- ○ --
- ○ No
- ○ Yes
- ○ Not Sure

- Question C6b will be suppressed if this question has a value of "No"

C6b

Do you think that it had an impact on your urinary tract symptoms?

- ○ --
- ○ No
- ○ Yes
- ○ Not Sure

- This question suppressed if question C6a has a value of "No"

C7a

Since beginning the study, have you been given any new medical diagnoses?

- ○ --
- ○ No
- ○ Yes
- ○ Not Sure

- Question C7b will be suppressed if this question has a value of "No"

C7b

If yes or not sure, explain:

- This question suppressed if question C7a has a value of "No"

C8

Since beginning the study, did you change how often you go to the bathroom to urinate?

- ○ --
- ○ You urinated more often.
- ○ You urinated less often.
- ○ Your frequency of urination did not change.
- ○ Not sure.

C9	Please provide any comments that you would like to share with the research team about participating in the study.

C10	Do you have difficulty walking? ○ -- ○ You have no problems in walking about ○ You have some problems in walking about ○ You are confined to bed
C11	Do you have difficulty with self-care? ○ -- ○ You have no problems with self-care ○ You have some problems with washing or dressing yourself ○ You are unable to wash or dress yourself
C12	In general, would you say your health is: ○ -- ○ Excellent ○ Very good ○ Good ○ Fair ○ Poor
C13	In general, would you say your quality of life is: ○ -- ○ Excellent ○ Very good ○ Good ○ Fair ○ Poor

D. Self-Reported Mood

IN THE PAST 7 DAYS...

D1	I felt worthless. ○ -- ○ Never ○ Rarely ○ Sometimes ○ Often ○ Always

D2	I felt helpless. ○ -- ○ Never ○ Rarely ○ Sometimes ○ Often ○ Always
D3	I felt depressed. ○ -- ○ Never ○ Rarely ○ Sometimes ○ Often ○ Always
D4	I felt hopeless. ○ -- ○ Never ○ Rarely ○ Sometimes ○ Often ○ Always
D5	I felt fearful. ○ -- ○ Never ○ Rarely ○ Sometimes ○ Often ○ Always
D6	I found it hard to focus on anything other than my anxiety. ○ -- ○ Never ○ Rarely ○ Sometimes ○ Often ○ Always
D7	My worries overwhelmed me. ○ -- ○ Never ○ Rarely

	○ Sometimes ○ Often ○ Always
D8	I felt uneasy. ○ -- ○ Never ○ Rarely ○ Sometimes ○ Often ○ Always
D9	Questionnaire Complete ○ -- ○ Yes

19. Appendix J: Consent Template

V1.1 Version Date: 12/2/2016

MODEL CONSENT FORM

(Name of Institution)

PROTOCOL TITLE: Qualitative Assessment of Lower Urinary Tract Dysfunction Study Protocol 2: Recall Study

PRINCIPAL INVESTIGATOR: *<<Name, degree>>*

SUPPORTED BY:
National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases

What is the purpose of this study?

You are being asked to take part in a research study. This form has important information about the reason for the study, what you will do, and the way we would like to use information about you if you choose to be in the study.

- The purpose of this study is to learn how people experience urinary and bladder problems. We are interested in learning about your experiences with your urinary symptoms. We want to learn more about the length of time people can accurately remember and record their urinary symptoms. This will help us design a survey to give people with urinary symptoms so they can tell their health care providers about their experience.
- You are being asked to take part in this research study because you have problems with your bladder or urination that may affect your quality-of-life.

How many people will participate?

There will be approximately 500 people taking part in this study. The study is being performed at six major university centers in the United States.

What will I do if I choose to be in this study?

- If you agree to participate in this study, you will speak with a researcher who will explain the study to you.
- You will have an opportunity to ask questions about the study prior to agreeing to participate.
- You will participate in the study for 32 days. During that time, you will be asked to:

• Give us your contact information (phone and email address)

- Answer questions about your general health and urinary symptoms
- Answer questions about your mood
- You may be asked to record your symptoms in a diary that you will return to the research site

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- Complete an online survey either daily or weekly or a combination of the two
- We may contact you during the study period to remind you to complete your surveys
- We may ask to call you after the study to ask about your experience as a study participant

What happens to Data that is collected in the study?

The data collected from you during this study is important to both this study and to future research. If you join this study:

- You will not own the data given by you to the investigators for this research.
- Both (*name of the institutions)* and the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), the sponsor of this research, may study your data.
- Your data will be sent to the NIDDK Central Data Repository (a storage facility) a research resource supported by the National Institutes of Health (NIH). The Repository collects, stores, and distributes data from people with many kinds of disorders, from unaffected family members, and from other healthy people. The purpose of this data collection is to make data available for use in research and teaching for the study of people who have bladder and urination problems like yours, after the study is completed.
- If data is in a form that we believe does not identify you, it may be shared with other academic medical centers, non-profit organizations, or other sponsors without your consent or IRB approval.
- You will not own any product or idea created by the researchers working on this study.
- You will not receive any financial benefit from the creation, use or sale of any product or idea.

What are the Possible Risks or Discomforts?

Your participation does not involve any risks other than what you would encounter in daily life.

- We will be asking you questions about urinary and bladder symptoms, so you may experience some discomfort or distress about discussing these issues.

You may withdraw from the study at any time.

What are the Possible Benefits for Me or Others?

You are not likely to have any direct benefit from participating in this research study, but your data may benefit the future health of the community at large or some particular group. Because other researchers will not have access to your identity, neither you nor the investigator will get the eventual results on the use of your data. It is possible that data resulting from the use of your data will eventually be used in a research publication.

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What Alternatives are Available?

You may choose to not participate in this research study.

Financial Information

Participation in this study will involve no cost to you.
After the study has been completed, you will receive $XXX for your participation in this research study.
(INSERT site's language for study payment and specific method (check or gift card, etc.)

What are my Rights as a Research Participant?

If you choose to be in this study, you have the right to be treated with respect, including respect for your decision to continue or stop being in the study. You are free to stop being in the study at any time.
Choosing not to be in this study or to stop being in this study will not result in any penalty to you or loss of benefits to which you are otherwise entitled. Specifically, your choice will not negatively affect your right to any present or future medical treatment, or your present or future employment.
If you want to speak with someone *who is not directly involved* in this research, or if you have questions about your rights as a research subject, contact the *<<Institutional IRB Name>>* Office. You can call them at *<<IRB Phone Number>>* or send e-mail to *<<irbemail@yourinstitution.edu*.

- Your participation in this study is voluntary and you are free to withdraw at any time.
- Choosing to not participate or to withdraw from this study will not affect your present or future medical treatment.
- You may choose not to answer particular questions if you do not want to. However, if you choose not to answer particular questions, you may be removed from the study.

What about my Confidentiality and Privacy Rights?

Participation in this research study may result in a loss of privacy, because persons other than the investigators might view your study records. Unless required by law, only the study investigators,

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the *<<Your Institution>>* Institutional Review Board, *<<insert names of other entities at your institution that may have access to records>>* have the authority to review your study records. They are required to maintain your confidentiality and privacy.

We are committed to respecting your privacy and to keep your personal information confidential. When choosing to take part in this study, you are giving us the permission to use your personal health information that includes information in your medical records and information that can identify you. For example, personal health information may include your name, address, phone number or social security number.

The following groups of people may give the researchers information about you:

- *<<Insert names of groups that may give researchers information about subject (i.e. medical records, etc.>>*

Once we have the health information listed above, we may share some of this information with the following people. Please note that any research information shared with people outside of *<<Your Institution>>* and its clinical partners (or affiliates) will not contain your name, address, telephone or social security number or any other direct personal identifier unless disclosure of the direct identifier is required by law.

- Authorized members of the *<<Your Institution>>* workforce, who may need to see your information, such as administrative staff members from the Office for Research, and members of the Institutional Review Board (a committee which is responsible for the ethical oversight of the study),

- Clinical affiliates, including but not limited to *<<Your Institution's affiliates>>*, for purposes including, but not limited to, the affiliate's provision of care to you and/or the affiliate's scheduling of appointments and/or billing activities.
- Staff at other research centers who are also working on the study,
- Study monitors and auditors who make sure that the study is being done properly,
- Government agencies and public health authorities, such as the Department of Health and Human Services (DHHS) and the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), and advisors to these agencies.
- **Those persons who get your health information may not be required by Federal privacy laws (such as the Privacy Rule) to protect it. Some of those persons may be able to share your information with others without your separate permission.**

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- The NIDDK Repository (data storage facility) will take measures to protect your privacy, although no guarantee of confidentiality can be absolute. Before your data is sent to the Repository, it will be given a code number. Your name, and all personal identifying information, such as address, social security number, and date of birth, will be removed. Therefore, the Repository will not be able to give out your name, or other information that identifies you to the scientists who receive the data. However, the Repository and scientists will have some data about you, such as age, sex, diagnosis (*fill in any other data types*), race, and outcomes of the initial study.
  Results of this study may be used for teaching, research, publications, or presentations at professional meetings. If your individual results are discussed, your identity will be protected by using a code number rather than your name or other identifying information.

Centralized Data Collection or Registries

The results of your interview will be collected and maintained in centralized databases by Arbor Research Collaborative for Health (http://www.arborresearch.org/), located in Ann Arbor, Michigan. Results will be stored by study ID code only and kept securely until the end of the study
The Data Coordinating Center at Arbor Research Collaborative for Health will provide (under strict security measures, the NIDDK Repository with the studies final reports and materials needed for submission for the NIDDK Central Data Repository.

Whom should I call if I have questions or concerns about this research study?

If you have any questions during your time on this study, call us promptly. *<<PI Name>>* is the person in charge of this research study. You can call him/her at *<<PI Phone Number>>* on Monday through Friday, 9AM-5PM. You can also call <<Study Coordinator>> at *<<Study Coordinator Phone Number>>*, Monday through Friday, 9AM-5PM with questions about this research.

Consent

I have read this form and the research study has been explained to me. I have been given the opportunity to ask questions and my questions have been answered. If I have additional questions, I have been told whom to contact. I agree to participate in the research study described above and will receive a copy of this consent form after I sign it.

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Study Elements

The following question gives you the choice of allowing us to put your data collected during the study in the NIDDK Repository. Your choice of having your data stored is voluntary, and if you choose not to have your data stored at the NIDDK Repository there will no penalty or loss of benefits to which you are entitled.

If you agree to have your data stored in the Repository, you can change your mind up until the end of the LURN study. When study researchers receive written instructions from you, they will destroy your data and all information that identifies you. After the LURN study ends, you will not be able to withdraw your data because the Repository will not know which data is yours. The data will stay in the Repository indefinitely.

Are you willing to allow us to store your study data at the NIDDK Repository?

Initial one of the following to indicate your choice:

_____ (initial) I agree to have my study data stored in the NIDDK Repository

_____ (initial) I do not agree to have my study data stored in the NIDDK Repository

_____ _____

Subject's Name (printed) and Signature Date

_____ _____

Name (printed) and Signature of Person Obtaining Consent Date

20. Appendix K: Informed Consent Worksheet

Informed Consent Worksheet

Date of Consent: _____ Name of Study: _____ IRB Study Number: _____

Patient Name: _____ Patient MRN: _____ Study ID#: _____

The following has been explained to the potential research subject, and the subject has been offered the opportunity to ask questions regarding the study:

TOPIC	**Comments**
Purpose of the study	_____
Qualifications to participate	_____
Location and participants	_____
What will happen during the study	_____
Risk and benefits	_____
Study related injury or illness	_____
Alternatives treatment	_____
Confidentiality	_____
Study costs	_____
Compensation	_____
Whom to contact with questions	_____
Voluntary participation	_____
Termination of participation	_____

Questions or comments: _____
_____

Does the participant state an understanding of the study and procedures and agree to participate?
Yes _____ No _____

_____ _____
Person administering consent Date / Time

Signed copy given to participant? Yes___ No___ Copy in patient's chart? Yes __ No ___