A. PROJECT TITLE

Comfort with Uncertainty In Medical Students and Family Medicine Residents: an RRNET Study.

B. PRINCIPAL INVESTIGATOR

Richard Young, MD for the Residency Research Network of Texas (RRNeT)
Director of Research
JPS Hospital Family Medicine Residency Program
1500 S. Main
Fort Worth, TX 76104
817-702-1412
ryoung01@jpshealth.org

Co-Investigators

Sarah Holder, DO
Baylor Garland FMRP

Sandra Burge, PhD
UTHSC San Antonio

Robert Wood, PhD
UTHSC San Antonio

Jennifer Daniels, BA
UTHSC San Antonio

C. HUMAN SUBJECTS

If activities involving human subjects are not planned at any time during the proposed study period, check the space marked “NO.” If activities involving human subjects, whether or not exempt from regulations, are planned at any time during the proposed study period, check the space marked “YES.” If the activities are designated to be exempt from regulation, insert the exemption number(s) corresponding to one or more of the six exemption categories listed on the description of human subjects regulations in PHS document #398.

___NO ___X__YES □ (if “YES”) Exemption #’s ________________________

or

IRB approval date: ____pending____
Assurance of compliance#   FWA # 00005928

D. OUTLINE OF SCHEDULE FOR IMPLEMENTATION OF PROJECT

<table>
<thead>
<tr>
<th>RESEARCH EVENTS</th>
<th>TIMELINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply for IRB Approval</td>
<td>April 1, 2017</td>
</tr>
<tr>
<td>Event</td>
<td>Date Range</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Receive IRB Approval</td>
<td>May 1, 2017</td>
</tr>
<tr>
<td>Meet with 9 Faculty (Student Supervisors)</td>
<td>May 1, 2017</td>
</tr>
<tr>
<td>Data Collection</td>
<td>July 1, 2017 – June 30, 2019</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>July 1, 2018 – Dec 31, 2019</td>
</tr>
<tr>
<td>Write-Up</td>
<td>Jan 1, 2019 – June 30, 2020</td>
</tr>
<tr>
<td>Dissemination of Results</td>
<td>April 1, 2018 – Dec 30, 2020</td>
</tr>
</tbody>
</table>

**E. TOTAL COST OF PROJECT/AMOUNT OF GRANT REQUESTED**

$7500

**F. DETAILED BUDGET**

<table>
<thead>
<tr>
<th>Category</th>
<th>Family Medicine Residency Programs</th>
<th>TAFP Foundation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PERSONNEL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 faculty supervisors from 10 residency programs</td>
<td>$90,000</td>
<td></td>
</tr>
<tr>
<td>Training by Dr. Burge and staff</td>
<td>$2,000</td>
<td></td>
</tr>
<tr>
<td>Statistical assistance by Dr. Wood</td>
<td>$4,000</td>
<td></td>
</tr>
<tr>
<td><strong>CONSULTANTS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TRAVEL</strong></td>
<td></td>
<td>$3237</td>
</tr>
<tr>
<td>We request travel expenses for RRNeT faculty investigators from 9 Texas cities to come together in San Antonio for a training meeting to prepare for the project.</td>
<td></td>
<td>$4263</td>
</tr>
<tr>
<td>We request faculty salary support for Drs. Young and Holder.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>EQUIPMENT &amp; SUPPLIES</strong></td>
<td>None requested</td>
<td></td>
</tr>
<tr>
<td><strong>OTHER EXPENSES</strong></td>
<td>None requested</td>
<td></td>
</tr>
</tbody>
</table>

| **TOTAL AMOUNT REQUESTED** | $88,500 in-kind | $7500 requested |

**BUDGET JUSTIFICATION**

This study will be conducted in ten sites of the Residency Research Network of Texas (RRNeT).
**Personnel**

The following work will be supported by UTHSCSA and 10 family medicine residency programs:

- 10 faculty from 10 different residency programs will survey both medical students and their own residents. Medical students will be surveyed at the start of their family medicine rotations; residents yearly (about 15 hours per year per faculty). The faculty will also attend the organizational meeting in San Antonio, including 15 hours of travel time + meeting time + local IRB preparation and submission. 15 hours for meeting + 15 hours X 3 years x 10 = $90,000.
- Dr. Burge and her staff in the UTHSCSA Resource Center for Practice-Based Research Networks will prepare the IRB application templates and organize the training meeting for faculty. (about 20 hours of preparation + classroom time = $2000)
- Statistical assistance will be provided by Robert Wood, DrPH in the Department of Family & Community Medicine (about 50 hours = $4000)

**Travel Expenditures**

We request funds for two purposes.

- **RRNet Investigator meeting.** We request travel funding for one face-to-face meeting of RRNeT faculty investigators. This meeting will take one full day and will occur 3 to 6 weeks prior to implementation of the project. The agenda will include training of all RRNeT faculty to implement the project consistently, including supervision of student and resident data collection, to provide CME regarding research methods and statistical analysis, and to plan for data analysis and dissemination of findings.
  - We request airfare for seven RRNet investigators to travel to San Antonio from Dallas, Fort Worth, Garland, Harlingen, Edinburg, McAllen, and Lubbock. Southwest Airlines airfare is approximately $200 roundtrip per person for all but the Lubbock flight, which is $300. ($200 roundtrip x 6 investigators = $1200 + $300 roundtrip for the Lubbock investigator = $1500).
  - We request mileage reimbursement for the Corpus Christi investigator (300 miles round trip = $0.56 x 350 = $196) and the Austin investigator (100 miles round trip = $.56 x 180 = $101.
  - For this one-day meeting, we request one overnight stay in a hotel for each traveler (8 investigators x $180 for hotel = $1440).

  TOTAL requested for Investigator meeting = $1500 + $297 + $1440 = $3237.

- **Investigator support.** We request salary support for two of the physicians on the research team, Drs. Young and Holder. They will be the principal personnel responsible for following up on data collection, data fidelity, data analysis, and write up of the findings for both research meetings such as NAPCRG and publications.
• Drs. Young and Holder will spend approximately 5% of their time over two years collecting, analyzing, and writing ($180,000 X 2 people X 2 years X 5% = $36,000).

TOTAL requested for salary support = remaining amount allowable on grant = $4364.

G. Abstract.

*Study Purpose:* The overall purpose of this study is to assess comfort with uncertainty in both medical students and family medicine residents and determine its association with career choices. Previous research has shown that comfort with uncertainty is a core trait of family physicians, which is associated with many positive outcomes including less burnout and a larger scope of practice. Some studies have attempted to measure a snapshot of comfort with uncertainty in medical students and family medicine residents, and some have addressed how comfort with uncertainty may be teachable and changes over time. The continued dearth of medical students who choose to become family physicians in the US is well known and many factors have been identified as predictors of that choice, but little research has determined if there is a correlation between comfort with uncertainty and medical student career choice. There is also a dearth of literature exploring if, when, and how comfort with uncertainty progresses over a family medicine resident’s education.

Our study aims are:

• To measure the comfort with uncertainty of a general population of U.S. medical students and determine if there is a correlation between that comfort and career choice for family medicine and primary care, adjusted for the many other known influences of that choice.
• To measure the comfort with uncertainty in family medicine residents and to measure its change over time.

*Study Design:* This study will consist of two parts: 1) This will be a cross-sectional study of medical students’ comfort with uncertainty correlated with their final career choice, 2) This will be a prospective cohort study of the comfort with uncertainty among family medicine residents over their 3-year training period.

*Subjects and Setting:* 1) This is a study of 3rd-year medical students who are rotating on their regular 4- or 6-week family medicine clerkships. They will be surveyed at the beginning of their clerkship. The instrument will contain both standard scales measuring comfort with uncertainty and other features already known to correlate with the choice of family medicine or primary care as a career. After surveying all students rotating through our programs for one year, we will contact them late in their 4th year to determine in which specialty they matched. 2) This is a study of family medicine residents. They will be surveyed early in the academic year. The instrument will contain standard scales measuring comfort with uncertainty, basic demographics and career aspirations. Residents will be surveyed each year for 3 years. This will allow both a cross-sectional examination of comfort with uncertainty as it varies across residency training years and an examination of how this comfort may change in individual physicians over time.
**Outcome Measures:** 1) Specialty choice, either primary care or other specialty. 2) Residents' career aspirations: anticipated breadth of practice, location, practice type, fellowship participation, and other practice features.

**Predictors:** 1) Physicians’ Reactions to Uncertainty Scale, Need for Cognitive Closure scale, Tolerance for Ambiguity scale, and features known to predict medical student career choice such as rural upbringing, parental education, student loan debt, and other factors. 2) Physicians’ Reactions to Uncertainty Scale, Need for Cognitive Closure scale, Tolerance for Ambiguity scale, and demographic information.

**H. APPLICATION ORGANIZATION/AFFILIATION**

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John Peter Smith Hospital FMRP  
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Fort Worth, TX 76104  
817-702-1412  
Ryoung01@jpshealth.org

**I. NAME, TITLE AND SIGNATURE**

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telliot@jpshealth.org

**J. STUDY DESCRIPTION (Should Not Exceed Ten Total Pages)**

**J-1. Statement of Purpose**

Comfort with uncertainty has been recognized as a core attribute of family physicians and U.K general practitioners.\(^1,2\) Commentators have recently called for an increasing tolerance of uncertainty across all U.S. physicians,\(^3\) recognizing its association with improved health care quality and costs.\(^4,5\) Less is known about how and when family physicians develop this comfort.

Studies of physicians in practice have found an association between increasing comfort with uncertainty and increased job satisfaction,\(^6\) decreased risk of burnout,\(^7\) decreased total average patient care charges,\(^8\) and a broader scope of practice.\(^9\) This comfort is often called upon in the daily practice of primary care. Analysis of audio recordings of patient visits to general internists in the U.S. found that 71% included verbal expressions of uncertainty to patients.\(^10\)
Previous research has found mixed results of the association between comfort with uncertainty and medical student career choice. Nevalainen, et al found that medical students in Finland who reported poor comfort with uncertainty were more likely to express a belief that a general practitioner’s career was too challenging. In a study of 26 U.S. medical students, Han, et al found that tolerance for a particular subset of uncertainty, ambiguity, actually decreased from the first to fourth years of medical school.

Comfort with uncertainty may be a teachable and modifiable attitude. U.S. family medicine clerkship directors reported that they both teach and demonstrate comfort with uncertainty when dealing with competing clinical guidelines. A study of U.S. medical students found that comfort with uncertainty may be teachable, especially toward the end of a continuity clinic rotation. Some have called for purposefully teaching comfort with uncertainty in generalist residency training.

Qualitative research has found that family medicine residents both recognized uncertainty as part of their identity, but also developed tactics to minimize uncertainty. Quantitative research has showed a trend towards increasing comfort with uncertainty over time in family medicine residents, though the sample size was small and the results non-significant. Not developing a comfort with uncertainty may be bad for patients. A U.K. study of internal medicine residents found that resident discomfort with uncertainty was associated with delays in care and examples of patient harm.

J-2. Statement of Hypotheses (one paragraph)

The purposes of this study are to 1) examine predictors of specialty choice, including comfort with uncertainty, in medical students, and 2) describe the change over time of comfort with uncertainty among family medicine residents.

We hypothesize that 1) higher levels of comfort with uncertainty among medical students will independently predict a career choice in family medicine and primary care when controlling other known influences on specialty choice, 2) family medicine residents’ comfort with uncertainty will increase over time in training.

J-3. Description of Related Work by Others or Yourself

Inefficiencies and Savings in the Health Care System, 2010

In 2010, after reviewing the literature that showed more primary care physicians in an area contribute to better population health at lower cost, RRNET set out to determine why. We conducted a qualitative interview study of 38 family physicians to ask, “What is it that you do that creates quality health care at a lower cost?” Two major themes emerged: (1) characteristic attitudes and skills that routinely considered cost to the individual and to the system; and (2) the family physician’s thorough knowledge of the whole patient. One attribute that physicians reported was comfort with uncertainty and ambiguity.
We concluded that family physicians’ efficient and effective approach to providing health care was anchored in individualizing the management of multiple new symptoms and chronic conditions. This required comfort with uncertainty, ambiguity and complexity.

**Complexity of Family Medicine, 2015**

We implemented NAMCS-like study of 982 family physician-patient encounters in 12 different sites in the RRNET residency programs. We did not inquire about comfort with uncertainty explicitly, but the medical student observers recorded “diagnostic certainty,” noting that a clear diagnosis was present in only 66% of visits. Several other features of these visits indicated a need for the family physician to be comfortable with uncertainty, ambiguity, and complexity. On average, patients raised more issues with physicians than physicians had time to address: a median of 5 reasons for visit, compared to a median 3 issues addressed by the physician. Many patients had economic hardships with the potential to affect medical decision-making; 18% were known to have serious lack of resources to pay for medical care. Observers recorded 3% of visits with doctor-patient communication problems; about 5% patients had anxiety, confusion, or distress with behavioral disturbances. About 12% of patients had serious mental illness and 6% had cognitive impairment. Any of these issues could impair the physicians’ ability to gather accurate information about the patient’s condition, and thus compound feelings of uncertainty.

**J-4. Experimental Design and Methods**

**Study Population**

*The Residency Research Network of Texas (RRNeT)* is a collaboration of 11 family medicine residency programs located in Austin, Corpus Christi, Dallas, Edinburgh, Fort Worth, Garland, Harlingen, Lubbock, McAllen, and San Antonio (2 programs); ten will participate in one or both parts of this study. About 100 family physician faculty and 300 family medicine residents see more than 300,000 patient visits per year. Nearly 60% of patients are Latino; 25% of them speak Spanish only. About one-third of RRNeT patients have employer-paid health insurance, one-third have government health insurance, such as Medicare or Medicaid, and one-third are uninsured.

Most RRNeT residency sites have medical students who rotate within their departments for regular family medicine 3rd-year clerkships. These students come from at least 5 Texas medical schools. Each residency program has 6 to 22 residents per class.

**Design and Methods**

This study will consist of 2 parts:

1) Part 1 is a cross-sectional survey of medical students followed by one prospective cohort component. Students will be surveyed on the first day of their clinical rotation on what for most of them will be a required 3rd-year family medicine clerkship. This timing will minimize their exposure to family physicians before they answer survey questions. The survey instrument will include standard scales measuring comfort with uncertainty – the Physicians’ Reactions to Uncertainty Scale, the Need for Cognitive Closure scale, and the Tolerance of Ambiguity scale --
and other features already known to correlate with the choice of family medicine or primary care as a career: rural upbringing, parental education, student loan debt, interest in research, and other factors. Students will be approached each rotational block over one academic year. At the end of these students’ 4\textsuperscript{th}-year, we will obtain match data from each school’s Dean’s office to determine where each student matched for residency. For students matching in an internal medicine or pediatrics residency, we will contact them individually to ascertain whether they intend to have generalist or specialist careers.

2) Part 2 is a prospective cohort study of family medicine residents. They will be surveyed early in each academic year. This instrument will include the same uncertainty scales and questions of their career interests and basic demographics. Residents will be surveyed using the same instrument each year over 3 academic years.

**Sample Size**

We anticipate at a minimum a sample size of 300 medical students and 300 residents. We plan to recruit other family medicine residencies outside of Texas to participate as well. We will reach out to them through the Society of Teachers of Family Medicine Member Forum Digest and similar outlets. A sample size of 300 will allow us to detect small differences in group means (effect size =0.23, with alpha = .05 and beta = .20), where groups are defined by matching/not matching in primary care specialties. A sample size of 300 will also allow us to detect small correlations (r=.17, with alpha = .05 and beta = .20).

**Measurement**

Three scales measuring different aspects of uncertainty will be administered to participants. All have been used by others in previously studies published in the peer-reviewed literature. The Physician’s Reactions to Uncertainty Scale by Gerrity, et al is by far the most used.\textsuperscript{19} This instrument consists of 5 sub-scales: anxiety due to uncertainty, concern about bad outcomes, reluctance to disclose uncertainty to patients, and reluctance to disclose mistakes to physicians. It is very specific to a physician point of view, which may make it less applicable to medical students who, for example, have not independently ordered tests or written prescriptions. As some of these items may capture either pre-morbid or learned reactions to uncertainty in medicine, and may not apply fully to medical students (ex, making a diagnosis or ordering a test) we will use several items from scales intending to assess broader comfort with uncertainty.

Geller, et al developed an instrument to measure tolerance for ambiguity.\textsuperscript{20} This instrument has subsequently been used in U.S. medical students and general internists. It does not contain subscales. Roets and Van Hiel recently developed the Need for Closure (NFC) scale, which is also not specific to medicine.\textsuperscript{21} It assesses individual motivation regarding information processing and judgement. To tap into the ways in which physicians (or students) may process ambiguous medical information (for example, conflicting symptoms), we will use the short form of the revised NFC scale, which includes the subscales of order, predictability, decisiveness, ambiguity, and closed-mindedness.

The Robert Graham Center published in 2009 an extensive review of the factors that influence medical student and resident choice of career.\textsuperscript{22} Examples include pre-medical school socio-economic status,
parent occupation, rurality, and exposure to family medicine. Other influences include family physician role models in medical school, desire for a prestigious career, interest in caring for vulnerable populations, and student loan debt. Comfort with uncertainty was not mentioned in this report. We will include these predictors of medical student career choice in our survey instruments for both medical students and residents.

RRNeT residents have already selected Family Medicine as a specialty; this study will describe their anticipated career choices in greater detail using several scales. “Career Goals” includes items addressing general skills, attitudes, and responsibilities of a physician, such as doing preventive care, providing patient education, enjoying high status and prestige and being socially responsible. “Career Intentions” includes items that describe the type of practice and type of community desired in the future. “Scope of Practice” addresses their intention to provide care in particular settings (e.g. hospitals, outpatient, emergency departments) to particular populations (e.g. adults, pregnant women, Medicaid patients) using particular procedures (e.g. incision & drainage, fracture management) in collaboration with other professionals (e.g. behavioral science professionals).

**Statistical Analysis**

Each of the comfort with uncertainty scales is in a Likert-type format. Means for each question, subscale, and overall score will be calculated for both sub-studies. In study 1), logistic regression analysis will determine significant predictors (including uncertainty and other factors) of medical students’ choice of a primary care career versus other specialty. In study 2), we will similarly use resident comfort with uncertainty scores and other factors to predict career aspirations. Our study will also allow us to determine changes in comfort with uncertainty scores over the 3-year training period.

**Expected Results**

1) We will be able to determine if there is a correlation between student interest in a family medicine or primary care career and a variety of other predictive factors. We will calculate the relative influence of comfort with uncertainty scores and other known factors on career choice. We will be able to analyze if the predictive association of comfort with uncertainty and career choice is higher with physician-specific tasks or broader personality characteristics.

2) We will describe the existing comfort with uncertainty of family medicine residents – also measured in several different ways -- and correlate that with anticipated practice features including location, patient populations, and breadth of services offered (OB vs. no OB, for example). We will measure how these results change over the 3 years of residency training.

**Potential pitfalls**

Investigators are taking the following steps to avoid pitfalls.
1. Careful training for the faculty RRNET members in the study procedures.
2. Careful timing of survey administration to maximize response rates.
3. Proactively seeking permission and contact information from medical students to follow up with the match results and career aspirations, if not already known by publicly available means.

We anticipate no problems in recruiting the desired number of subjects or collecting the data.

**Estimated number of weeks**

1) We will require approximately 1 hour from each RRNET faculty participant to explain and administer the survey to medical students normally rotating at their sites, which will be repeated 8-12 times over an academic year.
2) We will require approximately 1 hour from each RRNET faculty participant to explain and administer the survey to their own family medicine residents each year for 3 consecutive years.

Additional time is needed for study preparation, IRB applications, training of RRNET faculty, database cleanup, data analysis, write-up and dissemination. We anticipate this project will take 3 years, overall. We are only asking for support for the first year of the grant. We will not ask for support in study year 2 and beyond. The work performed by each RRNeT member after the first year will be donated in kind.

The anticipated timelines are:

**Project 1 – Medical Student Surveys**

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 2017</td>
<td>Finalize surveys and submit IRB Proposals at all sites</td>
</tr>
<tr>
<td>April 2017</td>
<td>Create training manuals for all sites</td>
</tr>
<tr>
<td>May 2017</td>
<td>Review study materials with all on-site RRNeT investigators at meeting in San Antonio</td>
</tr>
<tr>
<td>July 2017-June 2018</td>
<td>Distribute surveys at the beginning of each clerkship rotation.</td>
</tr>
<tr>
<td>March-June 2019</td>
<td>Ascertain final career choice of participants</td>
</tr>
<tr>
<td>July 2019 – June 2020</td>
<td>Analyze results and write up findings.</td>
</tr>
</tbody>
</table>

**Project 2 – Resident Surveys**

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 2017</td>
<td>Finalize surveys and submit IRB Proposals at all sites</td>
</tr>
<tr>
<td>April 2017</td>
<td>Create training manuals for all sites</td>
</tr>
<tr>
<td>May 2017</td>
<td>Review study materials with all on-site RRNeT investigators at meeting in San Antonio</td>
</tr>
<tr>
<td>August 2017</td>
<td>Survey family medicine residents</td>
</tr>
<tr>
<td>Sept-Dec 2017</td>
<td>Analyze and write up results of first resident cohort (stratified by year of training)</td>
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<tr>
<td>July-August 2018-2019</td>
<td>Repeat family medicine resident survey each July-August</td>
</tr>
<tr>
<td>Sept 2019 – June 2020</td>
<td>Analyze and write up results of prospective cohort</td>
</tr>
</tbody>
</table>
J-5. Study Site and Resources

This study will be conducted in the Residency Research Network of Texas (RRNeT), a network of 11 family medicine residency training programs in 10 cities across Texas, and six other student and resident sites across the U.S. RRNeT members have been research collaborators since 1998 and are well-equipped to implement this study successfully. Each residency program has an on-site RRNeT investigator who will supervise data collection at his/her site. He or she will travel to San Antonio before study launch to attend a mandatory training session on the final study protocol. Participating RRNeT representatives from each program are listed below. Not all member residencies of RRNeT will participate in this study because not all currently have medical students rotating with them.

<table>
<thead>
<tr>
<th>City</th>
<th>Hospital</th>
<th>Representative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Austin</td>
<td>University Medical Center at Brackenridge</td>
<td>Swati Avashia, MD</td>
</tr>
<tr>
<td>2. Corpus Christi</td>
<td>Christus Spohn Hospital Memorial</td>
<td>Jerry Kizerian, PhD</td>
</tr>
<tr>
<td>3. Dallas</td>
<td>Charlton Methodist Hospital</td>
<td>Ronya Green, MD</td>
</tr>
<tr>
<td>4. Edinburgh</td>
<td>Doctors’ Renaissance Hospital</td>
<td>Deepu George, PhD</td>
</tr>
<tr>
<td>5. Fort Worth</td>
<td>John Peter Smith Hospital</td>
<td>Richard Young, MD</td>
</tr>
<tr>
<td>6. Garland</td>
<td>Baylor Medical Center</td>
<td>Sarah Holder, DO</td>
</tr>
<tr>
<td>7. Lubbock</td>
<td>Texas Tech University</td>
<td>David Edwards, MD</td>
</tr>
<tr>
<td>8. McAllen</td>
<td>McAllen Medical Center</td>
<td>Marc Berger, MD</td>
</tr>
<tr>
<td>9. San Antonio</td>
<td>Christus Santa Rosa Hospital</td>
<td>Tammy Armstrong, PsyD</td>
</tr>
<tr>
<td>10. San Antonio</td>
<td>UTHSCSA – University Health System</td>
<td>Nehman Andry, MD</td>
</tr>
<tr>
<td>11. Harlingen</td>
<td>Valley Baptist Hospital</td>
<td>Nina Torkelson, MD</td>
</tr>
</tbody>
</table>

J-6. Instruments to be Used

See appendix for surveys.

K. PROTECTION OF HUMAN SUBJECTS

Dr. Burge, co-investigator at the University of Texas Health Science Center (UTHSCSA) will first apply for Institutional Review Board (IRB) approval with UTHSCSA. We anticipate an expedited review, because we will use prospective surveys, and we will need to include subject identifiers and contact information in order to follow medical students and residents forward in time. While the information collected will not affect the subjects’ civil or criminal liability or harm their reputation, it does have the potential for affecting their evaluations as students and residents in our training programs. An IRB template and model consent/study explanation form for this study will be distributed among all participating RRNeT sites so each can apply for IRB approval locally. Each site will inform us when they receive IRB approval. No data will be collected at a site until that site has IRB approval from their own institution.

There are no health risks to students and residents who choose to participate. There is minimal risk of psychological harm from the nature of the questions we will ask, and there is minimal risk for a negative evaluation as a learner in our training settings. We will create participant identifiers on each survey for
both sub-studies to minimize any risk of negative evaluations by non-study faculty. Only the researchers at each RRNeT site will have the code linking the unique study number to the participant’s name. In Project 1, we will follow up the students’ career choices in the Spring of their graduation year after the national match results have been distributed. In Project 2, we need to analyze year-to-year variation in the primary outcomes at the individual level. We will gather identifying information on a separate form which is linked to a subject ID number. Each survey for that participant will be tagged with the subject ID number so that responses remain as confidential as possible. Forms that match individuals to subject ID number will be filed separately from completed surveys. Completed surveys will be kept confidential and only accessible by members of the research team.

Participants will be informed of the aim of the study, the study procedures, and the information that we plan to collect. They will also be informed that their participation is completely voluntary, they can cease participation at any time, and that their participation will have no effect on their education experience, evaluations, or grades. Finally, they will be aware that their participation in this study is confidential.

Survey data will be de-identified and entered in a centralized database with access limited to the research investigators and one statistician. All data will be kept on password protected computers that have the requisite anti-virus software. Data will be kept behind locked doors or on secure investigator laptops.

L. BENEFITS OF THE PROJECTS

This project will give us new insight on both the factors that explain why medical students choose to go into family medicine or not, and how the important trait of comfort with uncertainty evolves over family medicine residency training. Knowledge generated by this study may influence medical school admission committees that try to recruit medical students with an interest in primary care careers. Knowledge generated may also influence how comfort with uncertainty is discussed and taught in family medicine residencies.

M. REFERENCES CITED


N. APPENDIX

Survey instrument included as a separate document. An information letter will be provided to the participants.