Rural - occupation

- What does rural mean for health?
Rural Cancer Disparities Retreat

Welcome and Overview

Dr. Graham Colditz
Dr. Laurent Brard
Of the P20 Partnership to Achieve Cancer Health Equity
What is the Rural Cancer Disparities Partnership?

An NIH grant that supports the establishment of a partnership between the Simmons Cancer Institute of SIUSM and the Siteman Cancer Center of WUSTL.

This was funded in 2015 through the NCI Feasibility Studies to Build Collaborative Partnerships in Cancer Research (P20) Program, designed to promote and build collaborative research, training, career development, and education efforts between the Institutions and Cancer Centers with NCI designation or with highly integrated cancer research programs.

P20CA192966 and P20CA192987
Why is this important?

The health gap between rural and other residents is widening.

Compared with their urban counterparts, rural populations experience lower access to health care along the dimensions of

▪ affordability
▪ proximity
▪ quality

Rural populations often experience higher rates of cancer, poorer survival, and less utilization of preventive services.
Rural Health Disparities: The Illinois Example

- Downstate residents have higher rates of:
  - lung and bronchus cancer (both sexes)
  - colorectal cancer (males only)
  - kidney cancer (males only)
  - melanoma (both sexes)

The partnership **GOALS** are to:

Plan, prioritize, and implement a collaborative partnership in cancer-related and cancer-disparities research, and researcher training, **education**, and **career development** that is relevant to the population of Downstate Illinois.

By doing so, the Partnership will contribute to **reducing** and eventually **eliminating** these rural cancer disparities.
Rural Cancer Disparities Partnership Aims

The partnership **AIMS** are to:

**Promote** new and highly integrated research collaborations between SCI-SIUSM and SCC-WUSTL that specifically address cancers that disproportionately affect rural populations in Downstate Illinois.

**Establish** an integrated training and career development program to foster the scientific and career development of SIUSM investigators while enhancing SCC investigators’ rural cancer disparities awareness, research, and reach.
Rural Cancer Disparities Partnership Aims

The partnership **AIMS** are to:

Create a research environment that:

- **Enriches** research-related learning and training opportunities at SIUSM
- **Promotes** mentorship, collaboration and interaction among clinical, population health, and basic science faculty and trainees at SIUSM and SCC
- **Supports** investigators at both institutions to conduct collaborative cancer pilot projects which will result in preliminary data that will lead to competitively funded NIH/NCI grant applications.
Components of the P20 Grant

- Pilot Research Projects
- Training, Education and Career Development Program
- Administrative Core
We have supported several pilot grants.

Pilot grants include investigators from each institution working collaboratively:

- Kidney cancer and health literacy
- Awareness of head and neck cancer
- Missed appointments for follow-up of cervical cancer screening
- Promoting informed decisions about cancer clinical trials
- Cancer needs in the “Southern 7”
We have advanced rural cancer research at both institutions.

Cancer/NIH research at SIU:

- Colorectal cancer screening – faith nurses intervention (submitted)
- Rural –urban differences in cancer mortality rates across the US (Zahnd et al., 2018).
- Over 20 other papers on rural cancer disparities

Rural cancer research at SCC:

- Follow-up of positive CRC screening in Southern Illinois
- Rural clinical/community research fellows training
- Lung cancer screening referral trial with multiple hospitals across IL and MO.
- Physical activity and quit line RO1s focused on rural MO
We have educated and trained investigators at multiple levels.

Trainees at multiple levels engaged in:
- MPHS class
- Participating in research projects
- Leading a pilot under the mentorship of an experienced investigator

Faculty at both SIUSM and SCC engaged in:
- Shared seminars and learning opportunities
- Outside experts to give talks and meet with faculty and trainees
Moving forward – U54 planning

As we move forward toward a U54 submission, the new grant will include:

▪ 2 Full Research Projects
▪ 1 Pilot Research Projects
▪ Research Education efforts
▪ Shared Resources and Cores
▪ Outreach

Institutional support from each university.
Assessing Head and Neck Cancer Awareness as a Function of Rural Residence

August 24, 2018

Lauren D. Arnold, PhD, MPH
Associate Professor, Epidemiology
Saint Louis University

Arun Sharma, MD, MS
Assistant Professor, Otolaryngology-Head & Neck Surgery
SIU School of Medicine
Why HNC and rural populations?

- HNC knowledge has not been assessed in rural populations

- 5-year oral cavity and oropharyngeal cancer incidence (per 100,000)
  - Illinois: 11.8
  - Highest incidence in Illinois is in 3 rural counties: 18.0-21.0

- Risk factors: tobacco, alcohol, HPV
  - Rural populations have higher tobacco use
Montgomery County Profile

<table>
<thead>
<tr>
<th></th>
<th>Illinois</th>
<th>Montgomery County</th>
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<tbody>
<tr>
<td>OCPC incidence (95% CI)</td>
<td>11.8 per 100,000</td>
<td>18.7 per 100,000</td>
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<td>(11.5-12.0)</td>
<td>(12.9-26.3)</td>
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<td>Smoking prevalence (95% CI)</td>
<td>16.7%</td>
<td>20.9%</td>
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<td>(15.2-18.2)</td>
<td>(14.4-29.4)</td>
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<td>Chewing tobacco prevalence (95% CI)</td>
<td>3.1%</td>
<td>5.3%</td>
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<td>(2.5-4.0)</td>
<td>(2.6-10.4)</td>
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</table>
Pilot Study Aims

1. Collect pilot survey data to characterize OCPC knowledge (risk factors, symptoms, screening) and needs among rural Illinois residents

2. Assess preference for survey modality among rural Illinois residents in preparation for a larger follow-up survey study

3. Conduct interviews to gain in-depth insight to OCPC knowledge, perceptions, and needs among rural Illinois residents
Participant Characteristics

- Median age = 45.9 years ± 16.25
- 69% female
- 66.4% married
- 40% college degree
- 68.5% employed
- 26.6% household income < $35K
- 5.6% uninsured
- 65.7% had dental insurance
- 63.6% dental visit in last year
HNC Risk Factors

- Only 11% were worried about getting HNC, yet....
  - 42.7% ever smoker
  - 47.5% reported multiple lifetime sexual partners
    - 30.8% refused to provide lifetime number of sexual partners
  - 62.9% history oral sex
74% believed that HNC is easier to treat with early detection, but there was uncertainty about....

- Risk factors (age, gender, diet)
- Symptoms (persistent ulcer, painless ulcer, dizziness, rash, sore throat, swelling)
- Screening procedures (time, use of x-rays, who screens)
74% believed that HNC is easier to treat with early detection but...

- 81.1% never talked with a doctoral about mouth/throat cancer
- 12.6% reported ever receiving a screening recommendation
- 28.7% reported ever screening, with the majority screened by a dentist

Gender differences in screening recommendation and uptake
HNC Screening & Dental Care

- HNC conversations and screening happened at the dentist
  - 75% who screened saw a dentist in the last 12 months
  - 66% who talked about HNC saw a dentist in the last 12 months

- But remember....
  - 65.7% had dental insurance
  - 63.6% dental visit in last year
Aims

1. Collect pilot survey data to characterize OCPC knowledge (risk factors, symptoms, screening) and needs among rural Illinois residents

2. Assess preference for survey modality among rural Illinois residents in preparation for a larger follow-up survey study

3. Conduct interviews to gain in-depth insight to OCPC knowledge, perceptions, and needs among rural Illinois residents
Acknowledgements

- Montgomery County Cancer Association (MCCA)
- Kathy Robinson, PhD
- Whitney Zahnd, MS
- Research coordinators:
  - Candace Griffith
  - Ali Davis
  - Rebecca Wolf
- Meera Muthukrishnan, MPH
- Jeffrey Schootman
Addressing unmet basic needs to improve colposcopy adherence among women with an abnormal Pap test

- **WUSM PI:** Lindsay M. Kuroki, MD, MSCI
  Assistant Professor
  Division of Gynecologic Oncology

- **Mentor:** Stewart Massad, MD

- **SIUM PI:** Assaad Semaan, MD and Anne Martin, MD

- **Co-investigators:** Matthew Kreuter, PhD, MPH (WUSM) and Yahia Zeino, MD (SIUM)
Rural Disparity involving cervical cancer

- Cervical cancer is preventable, and its incidence has decreased largely due to implementation of the Pap test.
  - 12,820 new cases; 4,210 deaths in the U.S. expected to occur in 2017
- Rural cancer disparities:
  - Suboptimal cervical cancer screening rates
  - Poor follow up after an abnormal Pap
  - More advanced disease at presentation
  - 22% higher cervical cancer mortality rates
Influence of unmet basic needs on cervical cancer screening disparity

- These women likely have numerous unmet basic needs which take priority over preventative cancer care.
  - WUSM & SIUM colposcopy clinic has a follow up rate of 50%.

- Having unmet basic needs adversely affects physical and mental health outcomes and is disproportionately experienced by low-income and minority populations.

Gaps in the literature:

- Few health care initiatives to address vulnerable populations recognize the common overlap of risk factors.

- No study has included a screen for unmet basic needs and included a navigator to help meet those needs.
Addressing unmet basic needs to improve colposcopy adherence among women with an abnormal Pap test

Study Objective:
To identify and address unmet basic needs and thereby improve adherence to colposcopy for management of an abnormal Pap.

Central Hypothesis:
▪ Colposcopy adherence can be improved in these populations by connecting women with life navigators who will offer assistance over the phone to help with unmet basic needs.
Addressing unmet basic needs to improve colposcopy adherence among women with an abnormal Pap test

PHASE 1: N= 50 women (WUSM: 25; SIUM: 25)

**Aim 1a:** Identify the most prevalent unmet basic needs among women referred to colposcopy clinic.

- **Hypothesis:** Women from both areas, rural and urban, will have similar basic needs including food, clothing, transportation, childcare, and safety.

**Aim 1b:** Evaluate patient acceptability of the basic needs assessment

- **Hypothesis:** Patient will find the basic needs survey acceptable to ask over the phone during the colposcopy visit reminder.
Addressing unmet basic needs to improve colposcopy adherence among women with an abnormal Pap test

PHASE 2: ONGOING (WUSM: 16; SIUM: 14)

Aim 2: Assess the ability of a life navigator to improve patients' adherence to initial colposcopy appointment and subsequent follow-up recommendations.

- **Hypothesis:** Patients who utilize the life navigator will have at least a two-fold higher rate of adherence to their initial colposcopy visit than women who receive usual care.

Aim 3: Evaluate patient perceived effectiveness of the life navigator.

- **Hypothesis:** Patient are willing to discuss their unmet basic needs with a trained life navigator and will find the offered resources useful.
# Pilot Study Design at WUSM and SIUM

<table>
<thead>
<tr>
<th>PHASE 1 (Months 1-5)</th>
<th>PHASE 2 (Months 6-10)</th>
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</thead>
<tbody>
<tr>
<td><strong>Aim 1:</strong> Telephone assessment of basic needs</td>
<td><strong>Aim 1:</strong> Telephone assessment of basic needs</td>
</tr>
<tr>
<td>Eligible patients: All new referrals to WUSM &amp; SIUM colposcopy clinic (2 weeks prior to initial colposcopy visit)</td>
<td>Eligible patients: All new referrals to WUSM &amp; SIUM colposcopy clinic (2 weeks prior to initial colposcopy visit)</td>
</tr>
</tbody>
</table>
## Adherence to first colposcopy visit

<table>
<thead>
<tr>
<th>Adherence to 1st colposcopy visit</th>
<th>WUSM N=25</th>
<th>SIUM N=25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-P20</td>
<td>50%</td>
<td>50.8%</td>
</tr>
<tr>
<td>Phase I</td>
<td>88%</td>
<td>80%</td>
</tr>
</tbody>
</table>
Patient demographics (N=65)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>WUSM N=35</th>
<th>SIUM N=30</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean, SD)</td>
<td>41±11.8</td>
<td>34±8.0</td>
<td>0.008</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>14 (39)</td>
<td>21 (70)</td>
<td>0.007</td>
</tr>
<tr>
<td>AA</td>
<td>21 (61)</td>
<td>8 (30)</td>
<td></td>
</tr>
<tr>
<td>Non-hispanic ethnicity</td>
<td>35 (100)</td>
<td>30 (100)</td>
<td>NS</td>
</tr>
<tr>
<td>Cigarette smoking (# pks/day, mean ± SD)</td>
<td>0.41± 0.57</td>
<td>0.17±0.28</td>
<td>NS</td>
</tr>
<tr>
<td>Gravidity</td>
<td>2.8±1.8</td>
<td>3.6±2.8</td>
<td>NS</td>
</tr>
<tr>
<td>Age at first intercourse</td>
<td>16.6±2</td>
<td>16.6±3.3</td>
<td>NS</td>
</tr>
<tr>
<td>HIV</td>
<td>3 (9)</td>
<td>1 (4)</td>
<td>NS</td>
</tr>
<tr>
<td>Lifetime # of sexual partners (median, IQR)</td>
<td>5 (4-9.5)</td>
<td>10 (6-23)</td>
<td>NS</td>
</tr>
</tbody>
</table>
## Patient demographics (N=65)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>WUSM N=35</th>
<th>SIUM N=30</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifetime # of abnormal Pap (median, IQR)</td>
<td>1 (1-2)</td>
<td>1 (1-2)</td>
<td>0.42</td>
</tr>
<tr>
<td>HPV status</td>
<td>29 (85)</td>
<td>24 (77)</td>
<td>0.13</td>
</tr>
<tr>
<td>Received HPV vaccine</td>
<td>3 (9)</td>
<td>9 (20)</td>
<td>0.12</td>
</tr>
<tr>
<td>Abnormal Pap results</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low-grade</td>
<td>27 (75)</td>
<td>26 (87)</td>
<td>0.44</td>
</tr>
<tr>
<td>High-grade</td>
<td>7 (19)</td>
<td>4 (13)</td>
<td></td>
</tr>
<tr>
<td>Time to colposcopy (days, mean IQR)</td>
<td>69.2 ± 72.5</td>
<td>53.5 ±51.7</td>
<td>0.33</td>
</tr>
<tr>
<td>Follow-up recommendation(s)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeat Pap</td>
<td>15 (36)</td>
<td>18 (60)</td>
<td>0.40</td>
</tr>
<tr>
<td>Repeat Colposcopy</td>
<td>3 (9)</td>
<td>3 (10)</td>
<td></td>
</tr>
<tr>
<td>LEEP</td>
<td>10 (29)</td>
<td>5 (17)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>5 (14)</td>
<td>1 (3)</td>
<td></td>
</tr>
<tr>
<td>Return to normal Pap screening</td>
<td>0 (0)</td>
<td>1 (3)</td>
<td></td>
</tr>
</tbody>
</table>
## Patient acceptability of basic needs questionnaire

<table>
<thead>
<tr>
<th></th>
<th>Total N=65</th>
<th>WUSM N=35</th>
<th>SIUM N=30</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is ok to ask about basic needs</td>
<td>64 (98)</td>
<td>35 (100)</td>
<td>29 (97)</td>
<td>0.46</td>
</tr>
<tr>
<td>It was hard to talk about my basic needs</td>
<td>4 (6)</td>
<td>4 (11)</td>
<td>0 (0)</td>
<td>0.12</td>
</tr>
<tr>
<td>When answering the questions, I felt: *</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fine</td>
<td>50 (77)</td>
<td>24 (69)</td>
<td>26 (87)</td>
<td>0.25</td>
</tr>
<tr>
<td>Relieved</td>
<td>17 (26)</td>
<td>12 (34)</td>
<td>5 (17)</td>
<td>0.17</td>
</tr>
<tr>
<td>Nervous</td>
<td>5 (8)</td>
<td>3 (9)</td>
<td>2 (7)</td>
<td>1.00</td>
</tr>
<tr>
<td>Overwhelmed, sad, and/or worried</td>
<td>8 (13)</td>
<td>5 (14)</td>
<td>3 (10)</td>
<td>0.72</td>
</tr>
<tr>
<td>I had trouble answering questions about basic needs</td>
<td>4 (6)</td>
<td>3 (32)</td>
<td>1 (3)</td>
<td>0.62</td>
</tr>
</tbody>
</table>

*Not mutually exclusive*
## Patient perception of basic needs navigator (Phase 2)

<table>
<thead>
<tr>
<th></th>
<th>Total N=12</th>
<th>WUSM N=6</th>
<th>SIUM N=6</th>
</tr>
</thead>
<tbody>
<tr>
<td>The patient navigator was helpful</td>
<td>11 (92)</td>
<td>6 (100)</td>
<td>5 (83)</td>
</tr>
<tr>
<td>I used the resource(s) that the navigator told me about</td>
<td>6 (50)</td>
<td>3 (50)</td>
<td>3 (50)</td>
</tr>
<tr>
<td>I would you recommend this kind of helper to a family member or friend</td>
<td>12 (100)</td>
<td>6 (100)</td>
<td>6 (100)</td>
</tr>
<tr>
<td>There were parts I didn’t like or didn’t find helpful</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>The navigator helped me so that I could get to my clinic appointment</td>
<td>6 (50)</td>
<td>5 (83)</td>
<td>1 (17)</td>
</tr>
<tr>
<td>It would be helpful to talk to the navigator more</td>
<td>9 (75)</td>
<td>6 (100)</td>
<td>3 (50)</td>
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</table>
## Mean Accrual Rates per Month

<table>
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<tr>
<th></th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Avg/mo</th>
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<tbody>
<tr>
<td>WUSM</td>
<td>1</td>
<td>12</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td>SIUM</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>2.3</td>
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## Timeline and Milestones

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<th>Milestones</th>
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<tbody>
<tr>
<td>WUSM Cohort recruitment</td>
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<tr>
<td>Implementation of fidelity (WUSM site only)</td>
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<td>Data entry and cleaning</td>
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<td>Statistical analysis</td>
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<tr>
<td>Manuscript writing</td>
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<td>Planning for K23</td>
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</table>
STUDY OBJECTIVE: To identify and address unmet basic needs and thereby improve adherence to colposcopy for management of an abnormal Pap.

STUDY DESIGN: A Phase II randomized controlled, superiority trial comparing a basic needs navigator versus usual care to improve colposcopy adherence.
EMBRACE

Ethnic Minorities Bear the Risk for non-Adherence to Colposcopy Exam after an abnormal Pap

**Patient population**
Women 21 years and older with an abnormal Pap test who are referred for colposcopy at SIUM/WUSM

**Exclusion criteria**
- Established colposcopy patient
- Non-English-speaking
- Known cancer
- Pregnant
- Incarcerated
- Unable to consent
- Do not have access to a working contact phone number

**Randomization**

**Allocation**

**Intervention A**
Basic needs navigator

**Intervention B**
Usual Care

**Primary outcome assessment**
Difference in adherence rate to initial colposcopy appointment within 4 weeks of study enrollment


Siteman Biostatistics Shared Resource

Graham Colditz, Director
Feng Gao, Co-Director
Esther Lu
Jingqin (Rosy) Luo
Yan Yan
Siobhan Sutcliffe
Ningying Wu
Kathryn (Kim) Trinkaus
Yu Tao
Service to SCC and Affiliates

- Collaboration and education in biostatistics and epidemiology
- Clinical, epidemiological and experimental designs
- Grant writing
- Database and data forms design
- Study monitoring
- Data analytics and visualization
- Manuscript and presentation preparation

- "Best practices" in biostatistics and epidemiology
Study design and proposal preparation

- Hypotheses and Aims
- Study Design
- Measurements
- Analysis Plan
Study start-up and monitoring
Database and forms design

- Complete
- Clean
- Well-organized
- Well-documented
- Accessible
Data analysis and presentation

- Exploration and visualization
- Modeling
- Hypothesis testing
- Prediction
- Classification
Major collaborations

- Eliminating cancer disparities pre-SPORE (Graham Colditz, Feng Gao, Jingqin Luo)
- Implementing genomic testing in lung cancer treatment for medically underserved and rural populations (Graham Colditz, Mary Politi, Esther Lu)
- Reducing rural colorectal cancer disparities in Southern Illinois (Aimee James, Esther Lu)
- Racial differences in genomic landscape and presentation and outcomes in breast cancer (Foluso Ademuyiwa, Feng Gao, Jingqin Luo, Yu Tao)
- Racial difference in premalignant breast disease (Graham Colditz, Adetunji Toriola, Ying Liu)
- Siteman Prevention and Control Program (Aimee James, Laura Bierut)
Also ...

- **SPORE in Leukemia** (Biostatistics: Feng Gao, Kim Trinkaus)
- **SPORE in Pancreatic Cancer** (Biostatistics: Esther Lu, Feng Gao)
- **Pre-SPORE in Breast Cancer** (Biostatistics: Jingqin Luo, Feng Gao)
- **Siteman Solid Tumor Therapeutics** (Feng Gao, Ningying Wu)
- **Center for Multiple Myeloma Nanotherapy** (Biostatistics: Kim Trinkaus)
- **HPV vaccination in gynecologic cancer** (Biostatistics: Feng Gao)
- **Comparative genomic analysis of age-related factors influencing onset of colorectal cancer** (Biostatistics and genomics: Jingqin Luo)
Contact Information

▪ SBSR website:
  ▪ https://publichealthsciences.wustl.edu/Research/Biostatistics-Shared-Resource

▪ Email:
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Thank you.

We look forward to working with you.