Diabetes Education and Intergenerational Technology Transfer

Flint and Detroit, Michigan, USA

November 7, 2017, 09:10 AM - 09:30 AM – APHA 2017 Annual Meeting & Expo in Atlanta (4037.0)

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Denise Soltow Hershey, PhD, RN, FNP-BC (Co-Investigator)
Terrance Campbell, MA Ed (Co-Investigator)
Presenter Disclosures

Charles Senteio

Terrance Campbell

No personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months.
Elder African Americans and Diabetes Disparities

• African Americans aged 45+ are twice as likely to have diabetes when compared to Whites

• 30% of all African Americans between 65 – 74 have diabetes

• Among all diabetics, African Americans are twice as likely to experience diabetes-related blindness and amputations, and 2 - 6 times more likely to have Chronic Kidney Disease
Barriers to Technology to Support Self-Management

• African Americans more frequently have low health literacy which is associated with poor outcomes from traditional diabetes self-management programs\(^1\).

• 66% of all elders report difficulty in using and interpreting health information\(^3-5\).

• Self-care intervention efficacy enhanced by use of ICTs\(^6\).

• Low SES elders less likely to have internet access, a positive predictor of SNS use – an increasingly important resource for self-management (health information, social support)\(^7,8\).

AAs elders experience barriers to access technology designed to support diabetes self-management.
Accessibility Limited by Requisite Skills to Routinize Use of ICTs to Support Self-Care

- Use of mobile **apps** to support self-care across 4 areas: Rx behaviors (e.g., alerts), tracking of **physical activity**, dietary choices, **appointment** reminders

- Use of ICT-enabled **glucometers** and **pedometers**

- Use requisite **hardware** (wearable, smartwatch, tablet, laptop)

- Seeking and interpreting **online** health information
Emerging Insights on Intergenerational Technology Skills Transfer—Reciprocal Learning

• Intergenerational technology activities facilitate learning for both young adults and elders for *skills required* to use *ICTs* to support *self-care*... 
  o Leading practices include activities to focus on new *skills*, rather than differences based upon *age* or technology *competencies*

• ...yet *little* is known of its applicability to support diabetes self-care for populations plagued by persistent disparate higher incidence and poor outcomes

Opportunity to Address Barriers Through Intergenerational Technology Skills Transfer
Designed intervention to help address persistent disparities via intergenerational technology transfer

• Collaboration between Rutgers, Michigan State University, and YOUR center, a Flint-based non-profit - 2 study sites: Flint and Detroit, Michigan
  - Participants: Elders (50+) with diabetes, young adults (18 – 49) connected to elders via naturally occurring social networks

• CBPR approach included participatory design – participants helped design the session – and insights concerning intergenerational technology transfer\(^{10,11}\)
  - Design Sessions: Paired AA elders (50+) with diabetes with young adults from their social network to develop the seminar (D-Party). Discussed how to promote intergenerational skills transfer - technical skills to elders; and diabetes and aging health/wellness information to younger adults

Support diabetes self-management for AA elders via enhancing technology skills required to access to digital resources designed to support self-management
Specific Aims and Research Questions

• Specific Aims

1. Develop diabetes self-care seminar using a proven intervention for increasing health literacy for similar participant population

2. Document factors which promote intergenerational technology transfer in support of diabetes self-care for selected participant population

• Research Questions

1. What is the level of digital knowledge, technology readiness, and self-efficacy for African American (AA) elders, aged 50 or older, with respect to managing their chronic condition (diabetes)?

2. What impact do young adults have on AA elders’ perception of: relevance, knowledge, and self-efficacy concerning technology skills, access, and resources that can support chronic disease self-care?

We conducted design sessions with elders in Flint (2/18) and Detroit (2/17), then conducted a pilot (4/1) in each city - insights used to finalize the seminar.
AIM 1: Intervention Design (D-Party)

- Should target a **mixed** group of participants – elders and youth, those with and without diabetes
- Should address **both** ‘diabetes 101’, and technology overview and exercises
- Participants likely will have smartphones, but use them **primarily as phones**
- Technology exercises should be driven by pairs **themselves**, **demonstrate** use

“… keep it **mixed** so that we can [share] information from the horse’s mouth and provide information to … people that don't have [diabetes].”
~ Detroit, #6 ~

“… limit it to pretty much, to you know, **cell phones**. Don’t nobody have a tablet … you know, we who are older, we want to keep it simple … one device [phone] to help our health. I just can see the value of getting some of this stuff figured out. I mean maybe I'll learn how to download an app!”
~ Flint, #3 ~

Quotes from *design sessions* with elders in Flint (2/18) and Detroit (2/17) - insights used for the pilot (4/1) then to finalize the seminar (5/20 & 5/21), the *D-Party*. 
AIM 2: Factors promoting intergenerational technology skills transfer

• Conducting technology skills transfer should emphasize pace of learning - patience level

• Consider physical limitations (i.e., eyesight, operating on relatively small screens) and/or reading levels

• Demonstrate one skill (e.g. download and use a phone app) in small groups (pairs/triads)

“… somebody that’s gonna, you know … [have] patience with us because we might not pick it up fast.”
~Flint, #5~

“you gotta find a young person who is interested … those who have helped you in the past, or [are] just interested in you.”
~Flint, #3~

“a demonstration is definitely helpful … a demonstration [for the] phone [would increase] interest.”
~Detroit #6~
D-Party Participants – N=66
(39 Elders, 27 Young Adults)

D-Party Results – D-Party Participants Flint 5/20; Detroit 5/21
D-Party Impact – Sample (N=66), Elders (N=39) & Young Adults (N=27)

Statistically Significant Difference For 3 Groups

<table>
<thead>
<tr>
<th>Variable</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAPP6</td>
<td>I can get the help I need to use technology to help me with my health.</td>
</tr>
<tr>
<td>MAPP8</td>
<td>I can download a health app.</td>
</tr>
<tr>
<td>MAPP10</td>
<td>I like when others help me use technology.</td>
</tr>
</tbody>
</table>
D-Party Impact – Total Sample (N=66)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Statement</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAPP3</td>
<td>I can argue with my doctor if I felt he/she was not being fair to me</td>
<td>• 1 - Strongly Disagree • 2 - Disagree • 3 - Undecided • 4 - Agree • 5 - Strongly Agree</td>
</tr>
<tr>
<td>MAPP5</td>
<td>I can use technology designed to help me with my health</td>
<td></td>
</tr>
<tr>
<td>MAPP6</td>
<td>I can get the help I need to use technology to help me with my health</td>
<td></td>
</tr>
<tr>
<td>MAPP8</td>
<td>I can download a health app</td>
<td></td>
</tr>
<tr>
<td>MAPP9</td>
<td>I like helping others use technology</td>
<td></td>
</tr>
<tr>
<td>MAPP10</td>
<td>I like when others help me use technology</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Statement</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXER1</td>
<td>Number of days per week, on average, you can walk more than 20 minutes at a time.</td>
<td></td>
</tr>
<tr>
<td>EXER3</td>
<td>It will take a lot of effort to exercise</td>
<td></td>
</tr>
<tr>
<td>DIET1</td>
<td>I can figure out meals and snacks at home</td>
<td></td>
</tr>
<tr>
<td>DIET2</td>
<td>I can follow an ideal diet</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pretest</th>
<th>Posttest</th>
<th>95% CI for Mean Difference</th>
<th>t</th>
<th>Df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>M¹</td>
<td>SD²</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>EXER1</td>
<td>4.02</td>
<td>2.50</td>
<td>4.23</td>
<td>2.42</td>
</tr>
<tr>
<td>EXER3</td>
<td>3.17</td>
<td>1.29</td>
<td>2.94</td>
<td>1.25</td>
</tr>
<tr>
<td>DIET1</td>
<td>3.97</td>
<td>0.84</td>
<td>4.26</td>
<td>0.69</td>
</tr>
<tr>
<td>DIET2</td>
<td>3.83</td>
<td>0.85</td>
<td>4.05</td>
<td>0.76</td>
</tr>
<tr>
<td>MAPP3</td>
<td>3.73</td>
<td>1.08</td>
<td>4.08</td>
<td>0.85</td>
</tr>
<tr>
<td>MAPP5</td>
<td>3.89</td>
<td>0.88</td>
<td>4.31</td>
<td>0.68</td>
</tr>
<tr>
<td>MAPP6</td>
<td>3.81</td>
<td>0.96</td>
<td>4.23</td>
<td>0.68</td>
</tr>
<tr>
<td>MAPP8</td>
<td>3.57</td>
<td>1.13</td>
<td>4.06</td>
<td>0.93</td>
</tr>
<tr>
<td>MAPP9</td>
<td>3.54</td>
<td>1.13</td>
<td>4.06</td>
<td>0.85</td>
</tr>
<tr>
<td>MAPP10</td>
<td>3.86</td>
<td>0.90</td>
<td>4.23</td>
<td>0.70</td>
</tr>
</tbody>
</table>

* p < 0.05, **p<=0.01, ***p<=0.0001

¹ M represents Mean.
² SD represents Standard Deviation.

Despite ordinal data, mean and standard deviation can reveal statistical differences for smaller sample sizes.
## D-Party Impact – Elders (N=39)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Statement</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXER1</td>
<td>Number of days per week, on average, you can walk more than 20 minutes at a time.</td>
<td>From 0 – 7 (days)</td>
</tr>
<tr>
<td>EXER3</td>
<td>It will take a lot of effort to exercise</td>
<td>Likert scale&lt;br&gt;• 1 - Strongly Disagree&lt;br&gt;• 2 - Disagree&lt;br&gt;• 3 - Undecided&lt;br&gt;• 4 - Agree&lt;br&gt;• 5 - Strongly Agree</td>
</tr>
<tr>
<td>DIE2</td>
<td>I can follow an ideal diet</td>
<td></td>
</tr>
<tr>
<td>MAPP5</td>
<td>I can use technology designed to help me with my health</td>
<td></td>
</tr>
<tr>
<td>MAPP6</td>
<td>I can get the help I need to use technology to help me with my health</td>
<td></td>
</tr>
<tr>
<td>MAPP8</td>
<td>I can download a health app</td>
<td></td>
</tr>
<tr>
<td>MAPP9</td>
<td>I like helping others use technology</td>
<td></td>
</tr>
<tr>
<td>MAPP10</td>
<td>I like when others help me use technology</td>
<td></td>
</tr>
<tr>
<td>MAPP13</td>
<td>My personal information is safe when I use technology to help me with my health</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Statement</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>M(^1)</td>
<td>SD(^2)</td>
</tr>
<tr>
<td>EXER1</td>
<td>3.15</td>
<td>2.48</td>
</tr>
<tr>
<td>EXER3</td>
<td>3.39</td>
<td>1.29</td>
</tr>
<tr>
<td>DIE2</td>
<td>3.84</td>
<td>0.82</td>
</tr>
<tr>
<td>MAPP5</td>
<td>3.74</td>
<td>0.98</td>
</tr>
<tr>
<td>MAPP6</td>
<td>3.61</td>
<td>1.05</td>
</tr>
<tr>
<td>MAPP8</td>
<td>3.29</td>
<td>1.23</td>
</tr>
<tr>
<td>MAPP9</td>
<td>3.16</td>
<td>1.17</td>
</tr>
<tr>
<td>MAPP10</td>
<td>3.84</td>
<td>0.87</td>
</tr>
<tr>
<td>MAPP13</td>
<td>3.71</td>
<td>0.86</td>
</tr>
</tbody>
</table>

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1. M represents Mean.  
2. SD represents Standard Deviation.
   Despite ordinal data, mean and standard deviation can reveal statistical differences for smaller sample sizes.
## D-Party Impact – Young Adults (N=27)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Statement</th>
<th>Responses</th>
</tr>
</thead>
</table>
| DIET1    | I can figure out meals and snacks at home. | Likert scale  
|          |           | • 1 - Strongly Disagree  
|          |           | • 2 - Disagree  
|          |           | • 3 - Undecided  
|          |           | • 4 - Agree  
|          |           | • 5 - Strongly Agree |
| MAPP2    | I know what to ask my doctor | |
| MAPP6    | I can get the help I need to use technology to help me with my health | |
| MAPP7    | I have used websites to get health information | |
| MAPP8    | I can download a health app | |
| MAPP10   | I like when others help me use technology | |

### Pretest vs. Posttest

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pretest M</th>
<th>SD</th>
<th>Posttest M</th>
<th>SD</th>
<th>N</th>
<th>Difference</th>
<th>95% CI for Mean</th>
<th>t</th>
<th>Df</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIET1</td>
<td>4.00</td>
<td>0.82</td>
<td>4.31</td>
<td>0.62</td>
<td>25</td>
<td>3.92e-05, 5.6e-01</td>
<td>2.06*</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>MAPP2</td>
<td>3.96</td>
<td>1.02</td>
<td>4.35</td>
<td>0.84</td>
<td>25</td>
<td>0.0474, 0.6726</td>
<td>2.37*</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>MAPP6</td>
<td>4.12</td>
<td>0.73</td>
<td>4.42</td>
<td>0.50</td>
<td>25</td>
<td>0.0564, 0.5036</td>
<td>2.58*</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>MAPP7</td>
<td>3.92</td>
<td>1.00</td>
<td>4.35</td>
<td>0.75</td>
<td>25</td>
<td>0.0048, 0.7952</td>
<td>2.09*</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>MAPP8</td>
<td>4.00</td>
<td>0.82</td>
<td>4.38</td>
<td>0.50</td>
<td>25</td>
<td>0.0474, 0.6726</td>
<td>2.38*</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>MAPP10</td>
<td>3.88</td>
<td>0.97</td>
<td>4.35</td>
<td>0.69</td>
<td>25</td>
<td>0.1013, 0.7787</td>
<td>2.68*</td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

* p < 0.05, **p<=0.01, ***p<=0.0001

1 M represents Mean.
2 SD represents Standard Deviation.

Despite ordinal data, mean and standard deviation can reveal statistical differences for smaller sample sizes.
D-Party Follow Up Phone Interviews

• Completed D-Party **Follow-up Phone Interviews** with 18 D-Party participants (from June 11th – July 11th)

• **Survey responses** to Self-Efficacy Questions (Likert): questions specific to Elders – learning about tech from Young Adults – and Young Adults – learning about health from elders

• **Open ended** responses aimed to assess perceptions/actions since the D-Party

• Most participants were overwhelmingly **complementary** of the D-Parties, several asked us when we would be doing them again
D-Party Follow Up Phone Interviews

Like the learning

I like working with young people. I learned about Facebook at the D-party, by working together with young people (Detroit PM – P5)

I loved the seminar, would love more. (Detroit AM – P8)

We learned from each other. I like that. I would enjoy another seminar whenever it comes. It's like a prayer meeting. (Detroit PM – P4)

It was beneficial. Someone else described things that I also experienced. I'm not the only one going through this. (Detroit PM – P7)

Learned about technology and diabetes, and want to learn more.

At D-party, people showed me how to go to the store to download an app. I used a health app about diabetes after the D-party (Detroit PM – P4)

I’m taking a basic computer class now at DPL [Detroit Public Library]. It started 2 weeks ago, it’s going to run for 4 weeks. It’s a library class with people at my age (63). Then I’ll go to an advanced class for 4 more weeks. (Detroit PM – P2)

She [daughter] showed me on my phone, how to Google and download an app about all kinds of medication. I was able to do that on my own after the D-party. (Detroit PM – P7)

Before I didn’t know about medication, what to eat. Haven't used a website. But learned how to sign up for email and learned how to use it. (Detroit PM – P4)
Working with Relatives
Since the D-Party

I was with my mom. I showed her the Internet on her phone. (Detroit AM – P11)

[Since the D-Party] I’ve showed [my mom] how to use WebMD to check muscle pain. We sit together, working on the phone. A little more work would help her to do that on her own. (Detroit PM – P10)

Tips on how to teach elders

Young people need to be patient, take your time. Make sure they understand before you move on. Have them to do it themselves see if they can pull it off. (Detroit AM – P11)

Young people need to be more willing to be patient. I want to be a participant for next seminar. (Detroit PM – P10)
Next Steps

• Complete data analysis, publish* results

• Develop grant for project design to rollout intervention to build capacity for skills transfer, include measurement
  
  o Conduct intervention with additional groups, assess impact, incorporate input on improvement, explore a “train the trainer” to create further impact

• Incorporate practitioner input, integrate with current recommended diabetes education for this population (diabetes educators, MD/DO, NP, RN)

* - Abstract of methods paper submitted (11.1.2017) in response to call from Health Services Research (HSR) and the Centers for Medicare and Medicaid Services’ Office of Minority Health (CMS OMH) - in partnership to publish a Theme Issue on Health Equity: Incorporating participatory design in a CBPR approach to develop a novel intervention to address health disparities – promoting elder African Americans’ use of technology to support diabetes self-care
Acknowledgements

Team and Acknowledgements

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Terrance R. Campbell - MA Ed, Co-Investigator,
Deputy Director – YOUR Center –
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Flint, Michigan

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* - We wish to acknowledge the support of the grant mentor Sheila Cotten, Professor and Director of MSU Center for Innovation and Research. We also wish to thank our study participants, especially those who actively engaged with us throughout the project as we nurtured reciprocal relationships with communities and individuals, most of whom had never participated in health research.


11. Muller, M. J., & Druin, A. (IN PRESS). Participatory Design: The Third Space in HCI.
Start with objectives & how you will meet them
Separate complex concepts into several smaller ones and focus on one concept at a time.
• Integrate audiovisual aids and handouts into your presentation to enhance and support it.
• Summarize important points at the end of each segment of the presentation
D-Party Follow Up Phone Interviews

• Completed D-Party Follow-up Phone Interviews with 18 D-Party participants (from June 11th – July 11th)

• Survey responses to Self-Efficacy Questions (Likert): questions specific to Elders – learning about tech from YAs – and Young Adults – learning about health from elders

• Open ended responses aimed to assess perceptions/actions since the D-Party

• Most participants were overwhelmingly complementary of the D-Parties, several asked us when we would be doing them again

• Have you used a technology which you learned about at the D-Party. If yes, which? If no, why?

• Describe if you have worked with another person to help you use technology to help you manage your health.

• Elders: How could younger people more effectively help you learn about
## Diabetes Seminar (D-Party) Instrument

### Demographics - Fill in or circle the answer that best describes you.

<table>
<thead>
<tr>
<th>Gender</th>
</tr>
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<tbody>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
</tr>
<tr>
<td>White</td>
</tr>
<tr>
<td>Hispanic</td>
</tr>
<tr>
<td>Other</td>
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<table>
<thead>
<tr>
<th>Marital Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
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<tr>
<td>Single</td>
</tr>
<tr>
<td>Widow/Widower</td>
</tr>
<tr>
<td>Divorced</td>
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</table>

<table>
<thead>
<tr>
<th># of Children</th>
</tr>
</thead>
<tbody>
<tr>
<td># of people living in the household</td>
</tr>
<tr>
<td>Above</td>
</tr>
<tr>
<td>w/spouse only</td>
</tr>
<tr>
<td>w/spouse and children</td>
</tr>
<tr>
<td>w/children</td>
</tr>
<tr>
<td>other</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of people living in household</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
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<table>
<thead>
<tr>
<th>Living arrangement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some high school</td>
</tr>
<tr>
<td>Some college</td>
</tr>
<tr>
<td>College grad</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Currently employed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Unemployed</td>
</tr>
<tr>
<td>Retired</td>
</tr>
<tr>
<td>Disabled</td>
</tr>
</tbody>
</table>

### Employment and Income

<table>
<thead>
<tr>
<th>Is your pay salary or hourly (if not working now, indicate for your most recent employment)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaried</td>
</tr>
<tr>
<td>Hourly</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Household Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>$24,999</td>
</tr>
<tr>
<td>$25,000 — $29,999</td>
</tr>
<tr>
<td>$30,000 — $39,999</td>
</tr>
<tr>
<td>$40,000 — $49,999</td>
</tr>
<tr>
<td>$50,000 — $69,999</td>
</tr>
<tr>
<td>$70,000+</td>
</tr>
</tbody>
</table>

### Health Insurance

<table>
<thead>
<tr>
<th>Do you have health insurance?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, through my job</td>
</tr>
<tr>
<td>Yes, through my spouse</td>
</tr>
<tr>
<td>Yes, Medicare</td>
</tr>
<tr>
<td>Yes, Medicaid</td>
</tr>
<tr>
<td>Yes, through other coverage, specify</td>
</tr>
</tbody>
</table>

### Diabetes Management

<table>
<thead>
<tr>
<th>If diabetic, what do you do to manage it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet only</td>
</tr>
<tr>
<td>Insulin shots</td>
</tr>
<tr>
<td>Oral insulin</td>
</tr>
<tr>
<td>Oral medications</td>
</tr>
<tr>
<td>Combination of shots and oral medications</td>
</tr>
<tr>
<td>all 3 (diet, shots, oral medications)</td>
</tr>
</tbody>
</table>

### Diabetes Education

<table>
<thead>
<tr>
<th>Have you attended diabetes education classes (indicate all that apply)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>When first diagnosed</td>
</tr>
<tr>
<td>Every year</td>
</tr>
<tr>
<td>More than once per year</td>
</tr>
<tr>
<td>Only when recommended by a health professional</td>
</tr>
<tr>
<td>I have never attended diabetes education</td>
</tr>
</tbody>
</table>

### Diabetes Education and Intergenerational Technology Transfer

<table>
<thead>
<tr>
<th>How frequently do you have difficulty paying for your treatment (e.g., copay for shots, copay for medications, diabetes supplies)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always</td>
</tr>
<tr>
<td>Very Frequently</td>
</tr>
<tr>
<td>Occasionally</td>
</tr>
<tr>
<td>Rarely</td>
</tr>
<tr>
<td>Very Rarely</td>
</tr>
<tr>
<td>Never</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Has a doctor (or other health professional) ever told you that you have diabetes (sugar in the blood)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Unsure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If so, when approximate time since diagnosis?</th>
</tr>
</thead>
</table>

---

**Page 2 of 7**
Diabetes Seminar (D-Party) Instrument

Diabetes Education and Intergenerational Technology Transfer — D-Party Questionnaire

Diabetes Seminar (D-Party) Instrument

Diabetes Education and Intergenerational Technology Transfer — D-Party Questionnaire

Circle the answer that 'best described' you.

1. How problems learning about my medical condition(s) because of difficulty understanding written information?
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

2. I feel confident when it comes to fill out medical forms by myself?
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

3. I am confident that I have the health information that I understand?
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

Exercise
4. How many days per week, on average, can you work more than 20 minutes at a time?
   - 0
   - 1
   - 2
   - 3
   - 4
   - 5
   - 6
   - 7

5. How many days per week, on average, can you engage in vigorous physical exercise such as running, swimming, tennis, dancing, vigorous yard work, housework, or work on your job?
   - 0
   - 1
   - 2
   - 3
   - 4
   - 5
   - 6
   - 7

6. It will take a lot of effort to exercise.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

7. I can see without help or aids at home
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

8. I am on an ideal diet
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

9. When I have a blood sugar, I eat more
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

10. When I know that I am going to be unusually active physically, I eat more
    - Strongly Agree
    - Agree
    - Undecided
    - Disagree
    - Strongly Disagree

Medication
11. I am not sure how to take my medications to prevent having bad reactions
    - Strongly Agree
    - Agree
    - Undecided
    - Disagree
    - Strongly Disagree

12. I would have taken medications as directed for every day over the last 30 days
    - Strongly Agree
    - Agree
    - Undecided
    - Disagree
    - Strongly Disagree

13. Taking my medications as directed interferes with my normal daily activities
    - Strongly Agree
    - Agree
    - Undecided
    - Disagree
    - Strongly Disagree

The following for individuals who use insulin:
14. When I had high blood or low sugar, I could increase my insulin dose
    - Strongly Agree
    - Agree
    - Undecided
    - Disagree
    - Strongly Disagree
# Diabetes Seminar *(D-Party)* Instrument

Diabetes Education and Inter-generational Technology Transfer – D-Party Questionnaire

25. My personal information is safe when I use technology to help me with my health:

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
</table>

**Elder Participants**

1. I like learning about technology from young people.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

2. I would welcome learning more about technology in general from young people.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

3. I would welcome learning more from young people about technology that can help me manage my health.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

**Younger Participants**

4. I like learning about health from elders.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

5. I would welcome learning more about health from elders.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

6. I would welcome teaching elders about using technology that can help them manage their health.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

7. I feel confident showing elders how to use technology.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree
Selected Results – Participants for Design Sessions

Average Age

- Elders: 63.2
- Young Adults: 28.2

Comorbidity (Elders)

- High BP: 93%
- Back Pain: 64%
- Arthritis: 57%
- Depression: 14%
- CHF: 14%

Education (Total)

- Some HS: 21%
- HS Grad/GED: 24%
- Some College: 34%
- College Grad: 21%
Intervention Design and Pilot Sessions (member checking)

1. **Design Sessions (N=11)**

<table>
<thead>
<tr>
<th>Site</th>
<th>Participants</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flint (2/18)</td>
<td>• 6 participants “designers”</td>
<td>Word of Life Christian Church</td>
</tr>
<tr>
<td></td>
<td>◦ 3 elders (50+)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>◦ 3 young adults (18 – 38)</td>
<td></td>
</tr>
<tr>
<td>Detroit (2/17)</td>
<td>• 5 participants “designers”</td>
<td>Diggs/Forest Part Place (DHA Elder living facility)</td>
</tr>
<tr>
<td></td>
<td>◦ 3 elders (50+)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>◦ 2 young adults (18 – 38)</td>
<td></td>
</tr>
</tbody>
</table>

2. **“Pre-Pilot” Sessions (member checking) – Pre-Pilot to: confirm topics, exercises, handouts, exercises (N=14)**

<table>
<thead>
<tr>
<th>Site</th>
<th>Participants</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flint (4/1)</td>
<td>• 6 participants “designers”</td>
<td>Word of Life Christian Church</td>
</tr>
<tr>
<td></td>
<td>◦ 3 elders (50+)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>◦ 3 young adults (18 – 38)</td>
<td></td>
</tr>
<tr>
<td>Detroit (4/1)</td>
<td>• 8 participants “designers”</td>
<td>Diggs/Forest Part Place (DHA Elder living facility)</td>
</tr>
<tr>
<td></td>
<td>◦ 4 elders (50+)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>◦ 4 young adults (18 – 38)</td>
<td></td>
</tr>
</tbody>
</table>
Soumik, I’ll be copying a table from the Word doc and pasting it here. It would be very helpful if you can plug the data into the table(s) on the Word doc, with appropriate labels for the specific questions. For example, if there is statistical difference for the following, here is a suitable description:

- Q18 *I can argue with my doctor if I felt he/she not being fair to me*. The abbreviation appearing in the outcome column would be – “Can Challenge Doc”
- Q23: *I can download a health app.* - “Can Download App”
- E1.Q2: *I would welcome learning more about technology in general from young people.* – “Learn From Young”

Let’s just include the results for which there is statistical difference (‘outcome’ column which I’ve highlighted).

Also, let’s compare difference for the following, and include a table for each group. The # of rows for each table (‘outcome’ row ) will depend upon for how many questions there is statistically significant difference:

- All participants
- Just Elders (age 50+)
- Just Young Adults
Diabetes Educational and Intergenerational Technology Transfer – Outline and Content

• Elder AAs experience striking DM disparities: 45+ AAs 2x likely to have DM than Whites, 30% of all AAs 65 – 74 have DM. AAs 2x likely to experience DM-related blindness & amputations, btw 2 – 6 times more likely to have CKD.

• Resources to support DSM are not accessible for elder AAs, specifically ICTs.... : AAs more frequently have low HL, associated with poor outcomes from traditional DSM programs, 2/3rds of elders report difficulty in using and interpreting health info., Poor elders less likely to have www access, a positive predictor of SNS use and increasingly important source of DSM

• ... in part because various skills required to use ICTs to support DSM – activities include: seeking & interpreting online health info, use of glucometers and pedometers, mobile apps to support: medication behavior, tracking of physical activity and dietary choices

• Emerging research suggests that intergenerational technology transfer can promote reciprocal information flow and learning

• Designed “DM Edu and Intergen Tech Transfer” to help address persistent disparities and explore efficacy of use of younger adults to support tech skills transfer

• RQs

• Methods

• Preliminary results
Professional Goals

• Assess and address barriers to chronic disease care, with an emphasis on vulnerable patient populations, focused on:
  – Persistent health disparities, which result in **avoidable suffering**
  – Inefficient care delivery, which results in **high cost of care**
  – Creating opportunities to develop and conduct translational research, which delivers **results measured clinically and financially**

• Design and conduct translational research leveraging unique expertise
  – **Education**: PhD in Health Informatics (UMSI), Masters in Social Work (UM – SSW), and Masters in Business Administration (UM – Ross)
  – **Research Breadth**: Published on various chronic conditions (breast cancer, diabetes, CKD/ESRD), with practitioners and patients, community-based participatory research (CBPR)
  – **Breadth of Participant Experience**: Urban African American, undocumented citizens, formerly incarcerated persons, HIV positive pregnant Medicaid recipients
  – **Healthcare Delivery Training**: Community Health Worker/Promotora Certified Instructor (CHW-I), Certified Health Education Specialist (CHES), LMSW (LCSW expected 11/2017)
  – **Business and entrepreneurial experience**: Healthcare and strategy consulting, building and growing healthcare consulting practice, home health & hospice
Four Step Process – Duplicated in Flint and Detroit

• 2 Samples of Participants
  1. HIV/AIDS class attendees (“HOPE Parties”) and D-Party Designers (Subset of HOPE Party attendees)
  2. Pilot D-Party Attendees

1st Sample

HOPE Parties
Dec. 27th, 28th

D-Party Design
Feb. 17th, 18th

D-Party “Pre-Pilot”
April 1st

2nd Sample

Pilot D-Parties
May 20th, 21st
Step 1 – HOPE Parties

• Conducted **HOPE** Parties (N=29); Surveyed-demographics, health, technology use/access

<table>
<thead>
<tr>
<th>Site</th>
<th>Participants</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flint (12/27)</td>
<td>• <strong>14 total participants</strong></td>
<td>Word of Life Christian Church</td>
</tr>
<tr>
<td></td>
<td>o 6 Elders (50+)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o 8 young adults (18 – 38)</td>
<td></td>
</tr>
<tr>
<td>Detroit (12/28)</td>
<td>• <strong>9 total participants</strong></td>
<td>TechTown Detroit</td>
</tr>
<tr>
<td></td>
<td>o 8 Older adults (50+)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o 1 young adult (18 – 38) (7 cancelled)</td>
<td></td>
</tr>
<tr>
<td>Detroit (1/21)</td>
<td>‘make-up’ session</td>
<td>Diggs/Forest Part Place (DHA Elder living facility)</td>
</tr>
</tbody>
</table>
## Takeaway Insight

- Elders stressed **frustration** when young people *lost patience* with them when they attempt to *show them how to use technology* – the young adults reiterated feeling frustrated
  - Pairs should be self-selected, based on age (Elder stressed 8-12 year olds have most patience, teens do not)
  - Should *not be* in a computer ‘lab’ setting, some individuals would *get lost*
  - Written materials selected carefully, some are *not readers* (Flint)

- Intervention should be conducted for a very **diverse** audience – those with and without diabetes because those without *likely know someone who does* [have diabetes]
  - Learning about risk factors early can help individual understand *what could happen* to them
  - Young adults incentivized by opportunity to *help their children* live healthier lives

## Insight

- Describe **points** for effective technology transfer (age of young person, characteristics, topics, format, etc.)
- Pairs should select from **options** for what they would like to do *during intervention* (e.g., download and use phone app)

- Health educational **interventions** designed for broad audiences
- Pre-pilot session **useful**
Preliminary Results – Participants

**Average Age**

- Elders: 63.2
- Young Adults: 28.2

**Gender**

- Elders:
  - Male: 11
  - Female: 3
- Young Adults:
  - Male: 9
  - Female: 6

**Comorbidity (Elders)**

- High BP: 93%
- Back Pain: 64%
- Arthritis: 57%
- Depression: 14%
- CHF: 14%

**Education (Total)**

- Some HS: 21%
- HS Grad/GED: 24%
- Some College: 34%
- College Grad: 21%
Xtra slides

- XXXX XXXX
HIV, the US, and Michigan

**In 2014:** estimated 44,000 people were diagnosed with HIV in the U.S.\(^1\)

- African Americans represented 12% of the U.S. population.\(^1\)
- African Americans represented 14% of the Michigan population.\(^2\)
- African Americans represented 44% of new HIV diagnoses in Michigan.\(^2\)

**In 2015:**

- African Americans represented 62% of new HIV diagnoses in Michigan.\(^3\)
- African Americans represented 57% of stage 3 HIV infection in Michigan.\(^3\)

References:
FBOs as Community Health Workers

Faith-based organizations (FBOs) are:

• on the *front line* of community development initiatives
• *trusted* community members
• time-tested *intermediaries* between health/social services and communities
• time-tested *facilitators* of access to cultural competence of service delivery.

However, HIV Awareness and Prevention programs have historically *contradicted* FBOs culturally and organizationally.
Faith-placed v Faith-based

Faith-placed interventions:

- Developed with little input from FBO
- May not consider doctrine, vision
- May not provide training concerning legal, ethical responsibilities to project, congregation
- May not include adequate remuneration

Faith-based interventions:

- Developed in conjunction with FBO
- Consider doctrine, vision
- Considers sustainability and implications
- Includes institutional and individual remuneration

Faith-placed interventions frequently introduced via singular relationship, may or may not be in a leadership role – resulting in intervention defined by the researcher with minimal input from the church/faith community.
Questions and Answers

Peer Reviewed Papers which detail the YBH Program

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2788403/