Process and Effectiveness Outcomes from a Family-Based Childhood Obesity Treatment Program
Presenters

Jamie Zoellner, PhD, RD
University of Virginia, School of Medicine
Associate Professor, Department of Public Health Sciences
Associate Director, Cancer Center without Walls at the UVA Cancer Center

Bryan Price, BS
University of Virginia, School of Medicine
Education and Outreach Specialist, Cancer Center without Walls at the UVA Cancer Center
Partnering for Obesity Planning and Sustainability (POPS)-Community Advisory Board (CAB)

- **Facilitator**
  - Morgan Barlow

- **PD Health Department**
  - Kathryn Plumb
  - Corliss Jones
  - Annette Yates
  - Brenda Wright
  - Lynn Burton
  - Kathy Waller

- **Children’s Healthcare Center**
  - Ruby Marshall
  - Kimberly Wiles

- **Parks and Rec**
  - Bryan Price
  - Brianna Richie

- **Boys & Girls Club**
  - Faith Stamps

- **Caswell County Health Dept**
  - Marcy Williams

- **Virginia Tech**
  - Jamie Zoellner
  - Paul Estabrooks
  - Jennie Hill
  - Donna Brock
  - Ramine Alexander
  - Xiaolu Hou
  - Fabiana Brito
Participants will be able to:

1. define key capacity building steps in developing and sustaining a community-academic partnership to implement an evidence-based childhood obesity treatment program in a federally medically underserved region of Virginia

2. describe effectiveness outcomes (e.g. BMI, physical activity, fruits and vegetables, sugar-sweetened beverages, quality of life) among children and parents enrolled in iChoose (a family-based childhood obesity treatment program)

3. report key process and implementation outcomes when training local health care systems and parks and recreation departments to deliver an evidence-based childhood obesity treatment program
Grant Aims

1. **Capacity-Building:** to assess community capacity to develop, implement, and sustain a childhood obesity reduction initiative in the DRR

2. **Intervention Testing:** to determine the potential
   - effectiveness: changes in child BMI z-scores
   - reach
   - feasibility
   - cost

of the newly developed intervention
How did we get started?

• Who was involved in planning and writing the grant?
• How were needs identified and prioritized?

DRR Health Rankings

Prevalence Childhood Obesity 3X higher than state averages

Nearest treatment programs are more than a 2 hour drive away

Service Gap!
Our Approach

- Community-based participatory research (CBPR)
- Systems-based science
- Evidence-based practice (EBP)
The POPS-CAB was involved in EVERY aspect!

- **Identify** an evidence-based childhood obesity treatment program
- **Adapt** that program to fit within the local Dan River Region systems and culture
- **Recruit** eligible families to participate
- **Train** local program staff to implement the program
- **Evaluate** the process and outcomes of the program
- **Interpret** and **disseminate** the process and outcome data
- Develop a **sustainability action plan**
Identify & adapt an evidence-based childhood obesity program

- **Identify** an evidence-based childhood obesity treatment program
  - Reviewed 3 evidence-based programs
  - Individual rated, group rated, group discussion
  - Chose Bright Bodies

- **Adapt** that program to fit within the local Dan River Region systems and culture
  - Adapted the learning objectives and content of Bright Bodies to be appropriate for the Region
  - Developed parent & child workbooks (tested for literacy)
  - Developed program leader guides and slides
  - Developed call scripts
iChoose Structure: 3 month program

- 6 Family Classes
- 24 Exercise Sessions
- 6 Telephone Support Calls
- 6 Newsletters
Key Recruitment Players

- Participant Identification and Health Record Information, n= 557
- Screening, n= 336
- Enrollment, n= 101
Open Enrollment: Wave 3 Modification

2,000 Letters
- Danville Elementary Schools
- Westover Christian Academy
- Sacred Heart

50 Flyers
- Various health care providers in the region

Flyers Posted
- 7 Parks and Rec Facilities
- 2 Health Screenings

Advertisements
- Register and Bee
- Star Tribune
- Piedmont Shopper (1-2 weeks)
### Reach and Retention

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invitations Sent</td>
<td>586</td>
<td>By CHC and VDH physician partners</td>
</tr>
<tr>
<td>Screened as eligible</td>
<td>557</td>
<td>29 were not eligible</td>
</tr>
</tbody>
</table>
| Enrolled                     | 101   | 456 not enrolled
                                        | 235 actively declined participation and 221 were not reached         |
| 3 months follow-up           | 71    | 30 lost to follow-up                                                   |
| 6 months follow-up           | 72    | 63 with all 3 data points                                              |
# Child Reach and Representation

<table>
<thead>
<tr>
<th>Demographic Characteristics</th>
<th>Eligible and enrolled (n=101)</th>
<th>Eligible and not enrolled (n=456)</th>
<th>Statistical test (significance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>51.5% Male 48.5% Female</td>
<td>49.9% Male 50.1% Female</td>
<td>$x^2 = 0.084$ (p=0.77)</td>
</tr>
<tr>
<td>Mean Age (SD)</td>
<td>10.29 (1.30)</td>
<td>10.44 (1.37)</td>
<td>$t=-1.005$ (p=0.32)</td>
</tr>
<tr>
<td>Race</td>
<td>61.4% Black 35.6% White 3.0% Other</td>
<td>54.2% Black 43.2% White 2.6% Other</td>
<td>$x^2 = 1.957$ (p=0.38)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>97.0% Non-Hispanic 3.0% Hispanic</td>
<td>98.2% Non-Hispanic 1.8% Hispanic</td>
<td>$x^2 = 0.568$ (p=0.45)</td>
</tr>
<tr>
<td>Insurance Type</td>
<td>71.3% Medicaid 26.7% Private 2.0% None</td>
<td>68.8% Medicaid 30.1% Private 1.1% None</td>
<td>$x^2 = 0.807$ (p=0.67)</td>
</tr>
</tbody>
</table>
## Parent Demographics

<table>
<thead>
<tr>
<th>Demographic</th>
<th>n</th>
<th>Descriptive Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>94</td>
<td>6.4% Male, 93.6% Female</td>
</tr>
<tr>
<td>Mean Age (SD)</td>
<td>94</td>
<td>M=39.70 years, SD=8.84 years</td>
</tr>
<tr>
<td>Marital Status</td>
<td>92</td>
<td>48.9% Married, 44.6% Not married, 6.5% Other</td>
</tr>
<tr>
<td>Highest Education</td>
<td>94</td>
<td>10.6% No High School, 30.9% High School/GED, 58.5% College</td>
</tr>
<tr>
<td>Employment Status</td>
<td>94</td>
<td>47.9% Employed full time, 14.9% Employed part time, 27.7% Unemployed/Homemaker/Student, 9.5% Other</td>
</tr>
<tr>
<td>Income</td>
<td>80</td>
<td>48.8% Less than 25K, 46.2% Between 25K-55K, 24.5% More than 55K</td>
</tr>
</tbody>
</table>
Who Implemented the Program?
Implementation Processes: Waves

Wave 1
Research Delivered & Community Supported
Intervention: n = 27 Total families
December 2014

Wave 2
Research & Community Delivered
Intervention: n = 35 Total families
May 2014

Wave 3
Community Delivered & Research Supported
Intervention: n = 39 Total families
June 2015
Implementation Processes: Training

- Evidence-based training approach
  - Instruction on specific topics to be covered
  - Role playing
  - Self-evaluation
  - Feedback based on observations of sessions and call logs

- Virginia Department of Health, Children's Health Clinic, and Danville Parks and Rec
- 2 hour sessions every Friday before the Family Sessions on Saturday
Implementation Processes: Fidelity Monitoring

- All sessions were delivered with very high quality after the trainings were completed
  - Classes—greater than 95% of objectives covered during each session
  - Telephone support—greater than 95% of objectives covered
  - Exercise session—greater than 80% of time in moderate to vigorous physical activity
How Was Attendance and Engagement Monitored?
Process to encourage adherence

- **Reminder calls/texts**: Reminder calls and texts were completed for each family and exercise class.

- **Classes offered on different times/days**: Family classes offered at two times on Saturday.
  - Choice of two weekday exercise sessions.

- **Missed class calls**: Callers taught back the class to those who could not attend class.

- **Scheduled support calls**: Scheduled regular times for support calls.
  - Callers texted reminders on the day of the call.

- **Call methods**: Teach back and teach to goal methods to provide health information and encourage goal progress.

- **Incentives**: Small incentives at each family class for those who attended (e.g., t-shirts, jump ropes, water bottles...)
  - Class attendance and call completion included participants in a raffle for a larger prize (e.g., duffle bag of iChoose related items).
# Program Attendance

<table>
<thead>
<tr>
<th></th>
<th>Wave 1</th>
<th>Wave 2</th>
<th>Wave 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Family Class</strong></td>
<td>Range=0-6</td>
<td>Range=0-6</td>
<td>Range=0-6</td>
</tr>
<tr>
<td></td>
<td>Mean=2.56 (.45)</td>
<td>Mean=2.14 (.41)</td>
<td>Mean=2.26 (.37)</td>
</tr>
<tr>
<td></td>
<td>Median=3.00</td>
<td>Median=1.00</td>
<td>Median=2.00</td>
</tr>
<tr>
<td><strong>Exercise Class</strong></td>
<td>Range=0-15</td>
<td>Range=0-25</td>
<td>Range=0-16</td>
</tr>
<tr>
<td></td>
<td>Mean=5.22 (1.00)</td>
<td>Mean=6.83 (1.40)</td>
<td>Mean=4.87 (.90)</td>
</tr>
<tr>
<td></td>
<td>Median=5.00</td>
<td>Median=2.00</td>
<td>Median=2.00</td>
</tr>
<tr>
<td><strong>Support Calls</strong></td>
<td>Range=0-6</td>
<td>Range=0-6</td>
<td>Range=0-6</td>
</tr>
<tr>
<td></td>
<td>Mean=3.59 (.48)</td>
<td>Mean=4.00 (.41)</td>
<td>Mean=3.67 (.36)</td>
</tr>
<tr>
<td></td>
<td>Median=4.00</td>
<td>Median=5.00</td>
<td>Median=4.00</td>
</tr>
</tbody>
</table>
Did the Program Work?
BMIz Scores

![Bar Chart]

**Child BMIz score**

- **Baseline**: 1.91
- **Post Program**: 1.87
- **3 Months Post Program**: 1.93

*Choose to be healthy*
Moderate to Vigorous Physical Activity

Child MVPA minutes/week

Baseline | Post Program | 3 Months Post Program

Choose: I choose to be healthy
Fruit and Vegetable Intake

Child FV servings/day

- Baseline
- Post Program
- 3 Months Post Program
Sugar Sweetened Beverage Intake

![Chart showing Child SSB kcal/day at Baseline, Post Program, and 3 Months Post Program.}]
Parent Reported Satisfaction Ratings for iChoose

Average Satisfaction Rating
Based on Partnership Feedback

**Challenges of iChoose**

1. Longer intervention needed for maintenance of significant BMI-z-score reductions
2. Session attendance was lower than expected
3. Support calls placed a large burden on the community stakeholders

**Plans to Address these Challenges**

1. Expand iChoose to iChoose+
   - Compare against Family Connections (#2 choice) - benefit for all
2. Developed Parent Health Advisors (PHA) Model (with POPS-PAT)
   - Improve reach, recruitment, retention, attendance, adherence
3. Use of Interactive Voice Response (IVR) for reduced burden
What About the Partnership? Did it Work?
Evaluating & Advancing Our Partnership

Skill
Problem Assessment
Sense of Community
Resources
Organizational Structure
Leadership
Participation
Partnership
How We Evaluated Our Team Work: A Hybrid

**Survey (quantitative)**
- 65 items, rated on a scale

**Interview (qualitative)**
- 21-item, semi-structured
  - 2 times in Year 1
  - 1 time per year, Years 2 & 3
  - All active members completed a survey, followed by an interview
  - As the facilitator, reporting information back to all CAB members became a priority to maintaining healthy group dynamics

**Sample Survey Questions**

<table>
<thead>
<tr>
<th>Community power.</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neither or Unsure</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>By working together, people in my community can influence decisions that affect the Dan River Region community</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resources.</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neither or Unsure</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>You have input regarding the allocation of the POPS-CAB resources.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The POPS-CAB makes good use of partners' financial resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The POPS-CAB makes good use of partners' in-kind resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The POPS-CAB makes good use of partners' time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To what extent does the</td>
<td>None of</td>
<td>Almost</td>
<td>Some of</td>
<td>Most of</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Communication.</th>
<th>Not at all</th>
<th>A little</th>
<th>Somewhat</th>
<th>Very Much</th>
</tr>
</thead>
<tbody>
<tr>
<td>How much do people in the POPS-CAB feel comfortable expressing their point of view?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How much do members of the POPS-CAB listen to each other's points of view, even if they might disagree?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Year 1 - Successes

Deciding how we would work together, including:

- What needed to happen at each meeting (shared agenda setting), when to meet, and where.

- How to make decisions when we have disagreement:
  - Consensus - we find a path to understanding and agreement
  - If need be, a vote - we decide by simple majority, ensuring that each organization has equal say

- What aspects of partnership are most important for us to practice and nurture, in order to give iChoose the best possible chance of success.
Most Important Aspects of Our Collaboration

14 aspects of collaboration were prioritized for us to establish and practice, in order to promote success in co-leading iChoose:

- Communication
- Trust
- Participation & influence: being valued, heard & having influence in the group
- Shared leadership
- Problem assessment: ability to identify, solve & act on a problem
- Conflict resolution
- Decision-making procedures

- Group roles: having, understanding & accepting defined & clear responsibilities
- Sustainability
- Community power: together, we can influence DRR, state, or national decisions
- Collective efficacy: together, we have the ability to do it
- Accomplishments & impact
- Resources: money, space time, people
- Overall satisfaction

These were also the elements of our evaluation, how we assessed the quality and effectiveness of our partnership.
Year 1 - More Successes

- Members (community & academic) described nearly twice as many “facilitators” than “barriers”

- Most important aspects of the collaboration the first year:
  - Communication
  - Trust
  - Problem assessment
  - Group roles
  - Participation & influence
  - Decision-making
  - Conflict resolution

  “I have a lot of confidence in the ability to develop and implement.” - Community Board Member

  “…people understand what their expertise is and they definitely speak up and let you know what their perspective is from their side of the business.” - Academic Board Member
Year 1 - What Was A Challenge

- **Community partners** were more likely to name as a barrier:
  - Limited time
  - Unresolved conflict
  - Underdeveloped external communication processes
  - Challenges in communication
  - Nontransparent allocation of resources

- **Academic partners** were more likely to name as a barrier:
  - Underdeveloped communication between in-person meetings
  - Change in CAB members (turnover)
Learning from one another about:

- what worked well,
- what didn’t work well,
- and what was simply a challenge,…

….helped positively shape the work and collaboration of Years 2 & 3
Year 3 - Results

- **No significant change for most aspects (Year 1 - Year 3), except for “participation” and “sustainability”**
  - Most aspects were rated (by CAB members) positively in Year 1 and again in Year 3: communication, trust, problem assessment, group roles, decision-making, conflict resolution

- **In Year 3, participation went down**
  - Shifting strategies between the development and implementation phases of the project (some partners were more planners than implementers)
  - Turn-over or churn in membership
  - Over-reliance on academic partners to lead (more of a concern of academic partners than of community partners)
  - Increased number of subordinates from organizations that do not feel as empowered to contribute
Results - Year 3

**In Year 3, sustainability went up**

- Collective efficacy increased
  - Sharing expertise, decision-making responsibility to make the program more feasible, AND sharing preliminary results legitimized the CAB, the process, and all the hard work
  - Experience created a greater sense of understanding how to work with one another
- Evidence of having adequate resources across all the years
- Commitment (shared vision) of all partners

“So incorporating more partners or different partners might expand our client base and enabled us to reach more people. If we had a larger base, I’m thinking that this would be more valued in the community and could be that source of funding that is necessary to keep it going. Either because if people value it enough, it would be something that they would be willing to join for a fee; or local grant opportunities might be made more available because it is seen as something that’s valued by the community.”

- Community Board Member
Priorities Moving Forward

● Sustain capacity of the POPS-CAB
● Continue to develop the Family Advisory Team

● Improve Reach: Address recruitment & retention
● Improve effects & maintenance of BMI: Develop a maintenance component for families

● Reduce staff burden of phone calls
● Address evaluation burden of interview-administered surveys
Congratulations! We did it!

- Through the hard work of all iChoose partners, a PCORI grant was submitted in June 2016
- PCORI received 233 letters of intent
- 93 were invited to submit a proposal
- 66 submitted

ONLY 17 WERE FUNDED!
Who is PCORI? What Does PCORI Fund?

- Patient-Centered Outcomes Research Institute (PCORI)
- Patient-centered comparative clinical effectiveness research (CER)
- Research that addresses concerns most relevant to the community

**National Priorities:**
- Assessment of Prevention, Diagnosis, and Treatment Options
- Improving Healthcare Systems
- Communication and Dissemination Research
- Addressing Disparities
- Accelerating Patient-Centered Outcomes Research and Methodological Research
What are PCORI’s Expectations?

High involvement of community (patients, caregivers, clinicians etc.) along with researchers, more consistently and intensively than others have before

They call it "research done differently"

6 Principles of Engagement:
1. Reciprocal relationships
2. Co-learning
3. Partnerships
4. Transparency
5. Honesty
6. Trust
Specific Aims

**Primary Aim:** To determine the relative changes in child weight status at 6 months post baseline of iChoose+ vs. Family Connections

**Secondary Aims:**
- Determine reach, fidelity, and costs of implementation
- Assess community capacity to implement and sustain programs
- Determine impact on family eating and physical activity and parental weight
- Assess the adherence by intervention and potential dose response relationships
Comparative Effectiveness Trial

Eligible & interested families
Randomly Assigned

ALL families have the opportunity to BENEFIT!
Who Are Our Partners?

- Danville Parks and Recreation
- University of Virginia Health System
- UVA Cancer Center
- University of Nebraska Medical Center
- Virginia Tech
- Danville Public Schools
- Boys & Girls Clubs of the Danville Area
- PATHS
Why Choose Family Connections?

- Everyone will benefit!
- #2 choice during planning phases of planning grant
- Lower frequency and duration of intervention
- Family Connections has been shown to be effective at significantly reducing BMI-z-scores at 6 months and 12 months
## Program Comparison

<table>
<thead>
<tr>
<th></th>
<th>iChoose</th>
<th>iChoose+</th>
<th>Family Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruitment Goal</td>
<td></td>
<td>87</td>
<td>87</td>
</tr>
<tr>
<td>Target Population</td>
<td>Parent/Child Dyads</td>
<td>Parent/Child Dyads</td>
<td>Parents as Change Agents</td>
</tr>
<tr>
<td>Program Length</td>
<td>3 months</td>
<td>6 months + 6 months Maintenance Phase</td>
<td>6 months</td>
</tr>
<tr>
<td>Cohorts/Waves</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Program Structure</td>
<td>6 Family Classes, 6 Support Calls, 24 Family Exercise Sessions, 6 Newsletters</td>
<td>12 Family Classes, 12 IVR Calls, 48 Family Exercise Sessions, 12 Newsletters</td>
<td>2 Parent Classes, 10 IVR Calls</td>
</tr>
<tr>
<td>IVR</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Structured Exercise Session</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Parent Health Advisors</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
The CAB & PAT will be engaged in EVERY aspect of the PCORI-funded project!
• When local evidence is available to stakeholder and parents regarding differences in adherence, effectiveness, and maintenance of the two programs;
• Along with data regarding the potential for system sustainability;
• Informed decisions can be made to help reduce childhood obesity disparities in the medically underserved DRR
Questions?