SOUTH CAROLINA EARLY CHILDHOOD PAY FOR SUCCESS FEASIBILITY STUDY

August 23, 2013

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Institute for Child Success

This study was made possible by generous funding from:

The Duke Endowment
South Carolina Department of Health and Human Services

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INSTITUTE *for* CHILD SUCCESS

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Key Features of Pay for Success Financing

Investors front capital to implement proven, cost-effective programs on a large scale

Government contracts to pay only for agreed-on, measurable RESULTS; payments repay investors

An impartial evaluator assesses whether results are achieved. An intermediary may contract with the government & investors, then subcontract with providers

Who Benefits?

Communities & Individuals	• More effective services • Better results
Nonprofits	• Up-front funding to scale programs
Government	• More cost-effective services • Better results
Investors	• Modest returns • Ability to make a positive impact

Criteria for Pay for Success Projects

- Evidence that program produces positive outcomes for the state
- Program produces net benefits to society and net savings to government
- Significant unmet need
- Program has capacity to expand with fidelity to its proven model
- Financing model can be developed that is acceptable to investors, government, and providers

Pay for Success Transactions Completed

U.S.

U.K.

Australia

1. US - New York City
   Recidivism Reduction
2. US – Salt Lake City, Utah
   Early Childhood Education
3. UK – Peterborough
   Recidivism Reduction
4. UK – West Midlands
   Workforce Development
5. UK – Manchester
   Workforce Development
6. UK – London
   Homelessness
7. Australia - New South Wales
   Child Maltreatment/Foster Care Prevention

& 30+ Projects in Development

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Outcomes for South Carolina Youth

SC ranked **45th** in overall child well-being

Economic Well-Being

- Children in poverty
- Children with a high housing cost burden
- Children with parents lacking secure employment
- Teens not in school and not working

Health

- Low-birth-weight babies
- Child and teen deaths/100,000
- Children without health insurance
- Teens who abuse alcohol or drugs

Education

- Children not attending preschool
- Eighth graders not proficient in math
- Fourth graders not proficient in reading
- High school students not graduating on time

Family & Community

- Children in single-parent families
- Children living in high-poverty areas
- Children in families where the household head lacks a high school diploma
- Teen births per 1,000

Source: *KIDS COUNT Databook*, 2013

Early Childhood Home Visiting Programs

- Trained professionals provide services and support to pregnant women and families with young children, primarily during visits to families' homes

- Address maternal and child health, parenting practices, education, and economic self sufficiency

Source: *Lessons Learned from the Home Visiting Evidence of Effectiveness Review, DHHS,* Jan. 2011

Home Visiting Programs Improve Outcomes

Home Visiting Programs Have Been Shown to

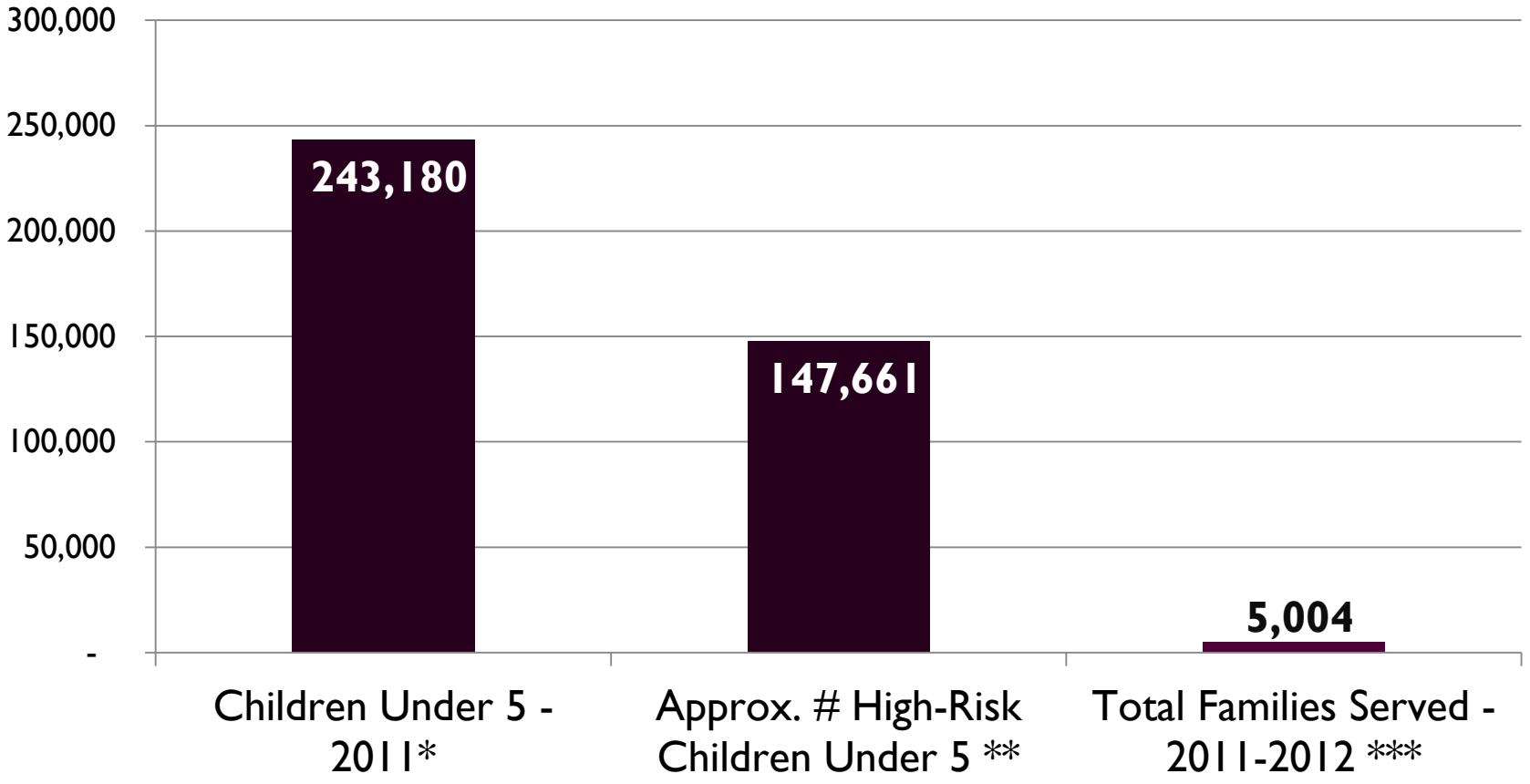
1) Improve birth outcomes
2) Improve child health and development
3) Reduce child maltreatment
4) Improve maternal self-sufficiency

Source: *South Carolina Evidence Based Home Visiting Needs Assessment, DHEC,* Sep. 2010

Home Visiting Programs in SC

- Nurse-Family Partnership
- Healthy Families America
- Parent Child Home Program
- Parents as Teachers
- Early Head Start
- Early Steps to School Success
- Healthy Start
- Healthy Steps
- Family Check-Up

Current SC Home Visiting Programs Do Not Meet Need



Source: * *2011 Data; DHEC Population Database*
** *2007-2011 Data - # of Medicaid births; DHEC SCAN Database*
*** *2011-2012 Data; Children's Trust* (Including EarlyHS, ESSS, HFA, NFP, PCHP, H.Steps, and PAT)

Assessing Suitability for PFS

Home visiting programs meet first criterion:

✓Evidence that program produces positive outcomes for the state

Additional criteria need to be assessed for each program model:

❑Program produces net benefits to society and net savings to government

❑Substantial unmet need

❑Program has capacity to expand with fidelity to its proven model

❑Financing model can be developed that is acceptable for investors, government, and providers

This feasibility study focuses on the Nurse-Family Partnership

Contents

Nurse-Family Partnership

- Targets high-risk (low-income) mothers' first pregnancies
- Home visitation by registered nurses from pregnancy through age 2
- Effectiveness proven in 5 randomized controlled trials plus > 20 other rigorous evaluations
- Cost-benefit analyses showing positive ROI
- NFP infrastructure supports expansion with fidelity to its service model

Nurse-Family Partnership
Helping First-Time Parents Succeed®

Suitability for PFS: Conclusion

- NFP program model is well suited to PFS financing
- SC has unmet need and NFP can grow to meet it
- Savings and outcomes sufficient to attract private investment and government support

Proven Benefits of Expanding NFP

- Fewer preterm births
- Fewer injury-related visits to the emergency room
- Reductions in child abuse and neglect
- Children more ready for kindergarten
- Fewer closely spaced 2nd births → lower risk
- More economically independent mothers
- Less youth crime

NFP Benefits Far Exceed Costs

RAND Corporation*	Pacific Institute for Research and Evaluation**	Washington State Institute for Public Policy***
$5.70 return for every dollar invested on high- risk families (current NFP target population); $1.26 return for lower-risk families	Net return of $44,510 per family; benefit-cost ratio of 6.2 to 1	Long-term net return of $13,181 per person; $2.37 return per dollar (does not include any health benefits or Medicaid savings)

Source: * *RAND Corporation, Early Childhood Interventions: Proven Results Future Promise* (2005), p 109
** *Miller, Cost Savings of Nurse-Family Partnership Home Visitation: Costs, Outcomes, and Return on Investment,* April 2013, Executive Summary, p 4
*** *Washington St. Inst. For Public Policy, Nurse-Family Partnership for Low-Income Families* (April 2012)

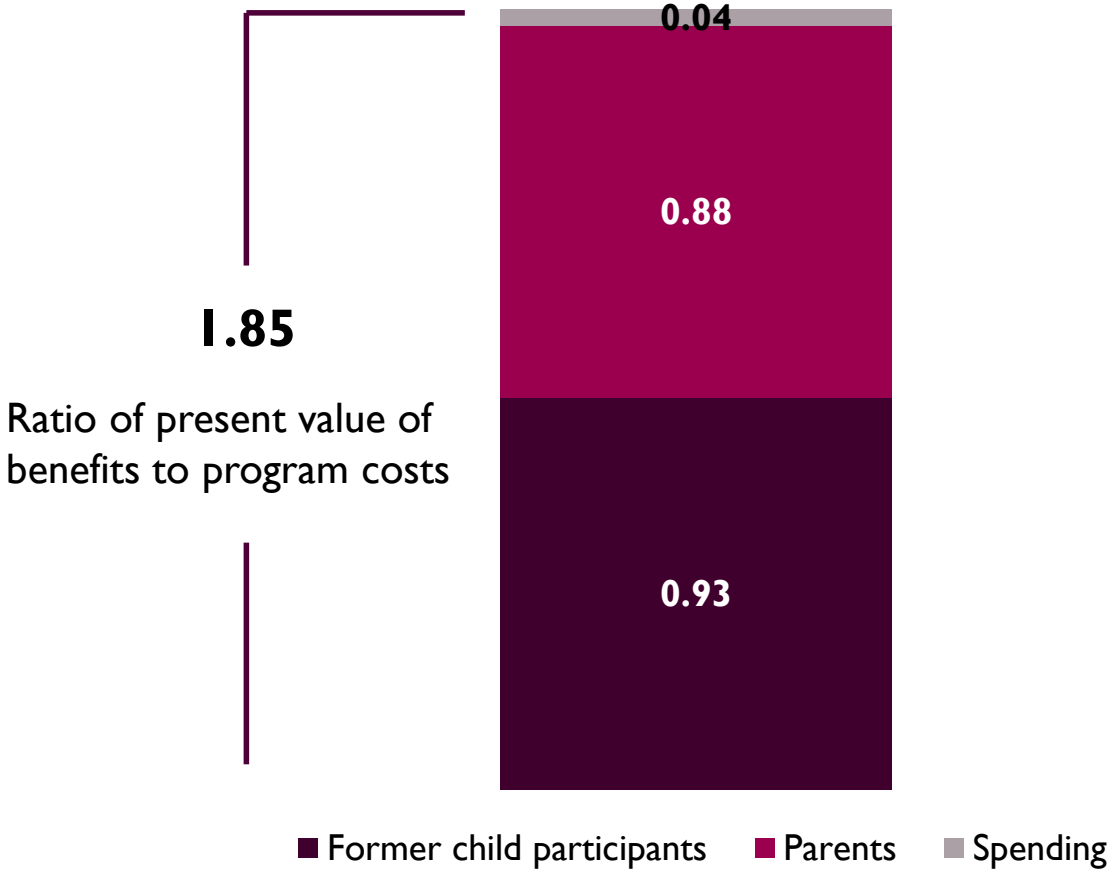
Economic Development Benefits of NFP

Economic analysis shows expanding NFP would improve South Carolina's economy.

Source: *Bartik, Timothy, Investing in Kids* (2011), p 81

Economic Development Benefits of NFP

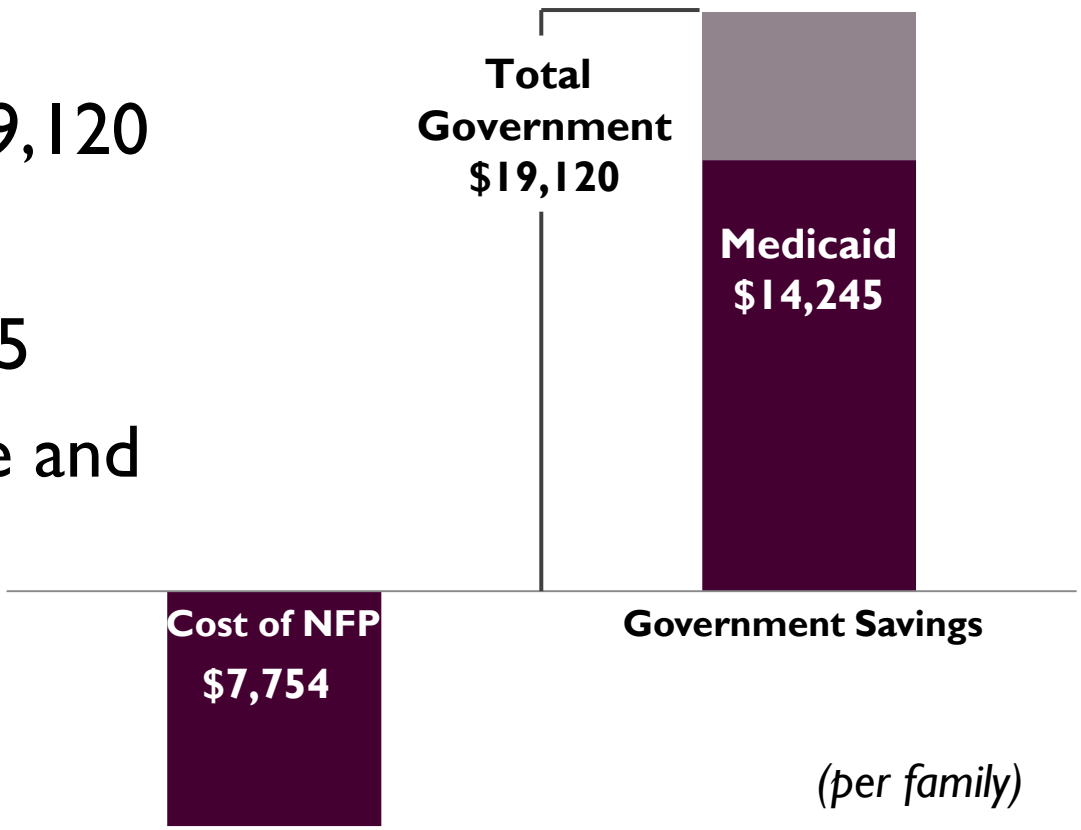
Economic benefits alone produce an 85% return on investment



Source: *Bartik, Timothy, Investing in Kids* (2011), p. 81

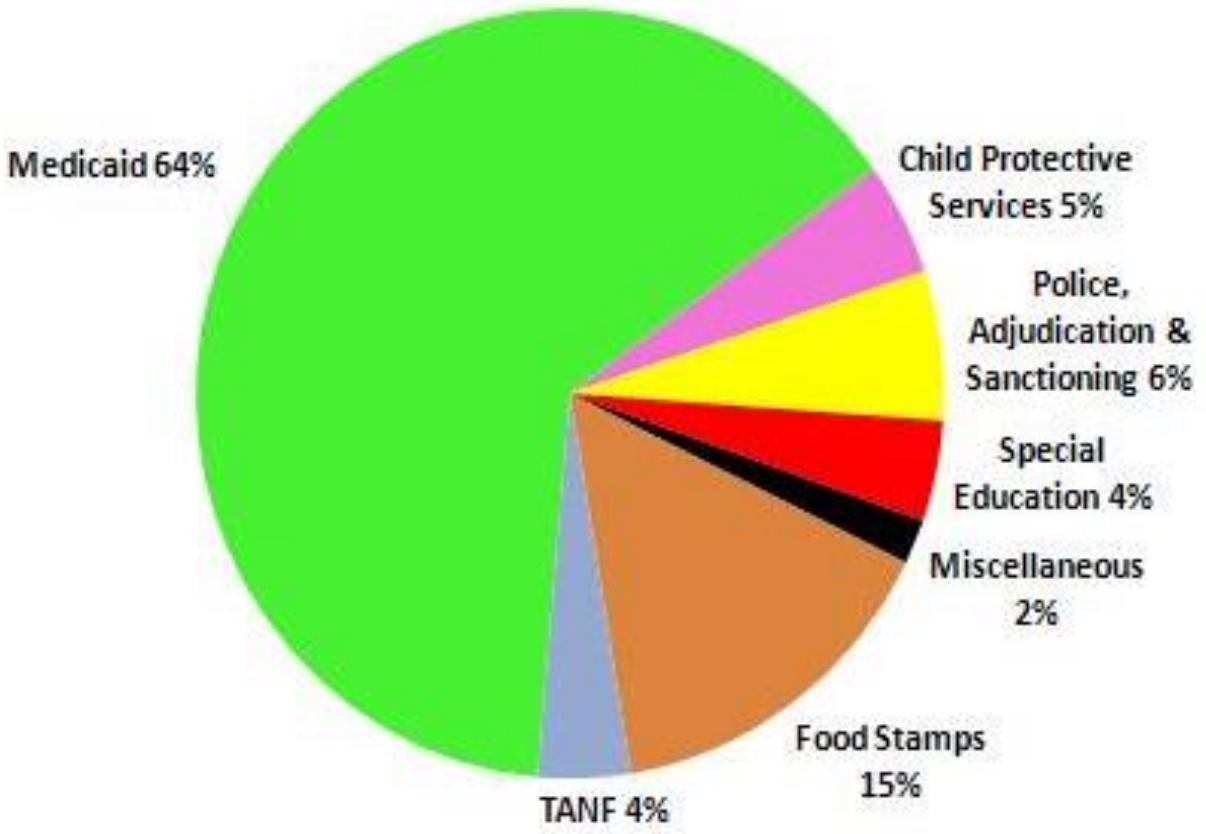
Government Savings* More Than Cover Cost

- Cost of NFP = $7,754
- Government saves $19,120 over 18 years
- Medicaid saves $14,245
- Savings shared by state and federal governments



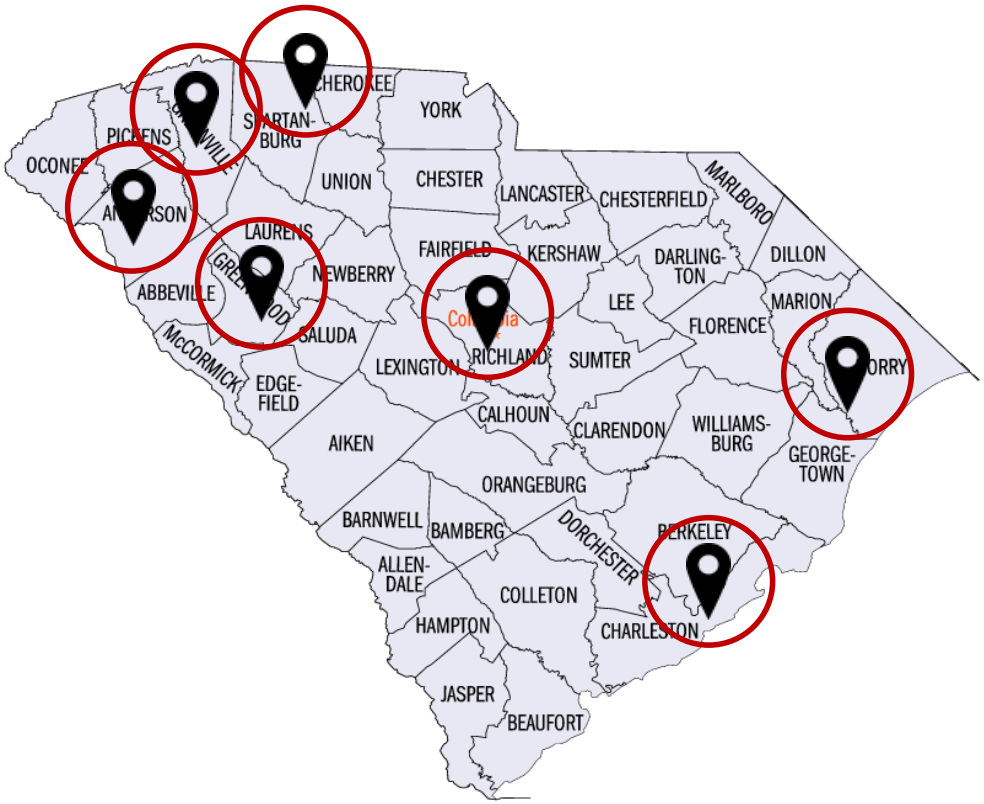
*"Savings" refers to government costs avoided. Source: *Miller, Cost Savings of Nurse-Family Partnership in South Carolina,* April 2013, p 1

Government Savings/Cost Avoidance from NFP



Source: *Miller, Cost Savings of Nurse-Family Partnership in South Carolina,* April 2013

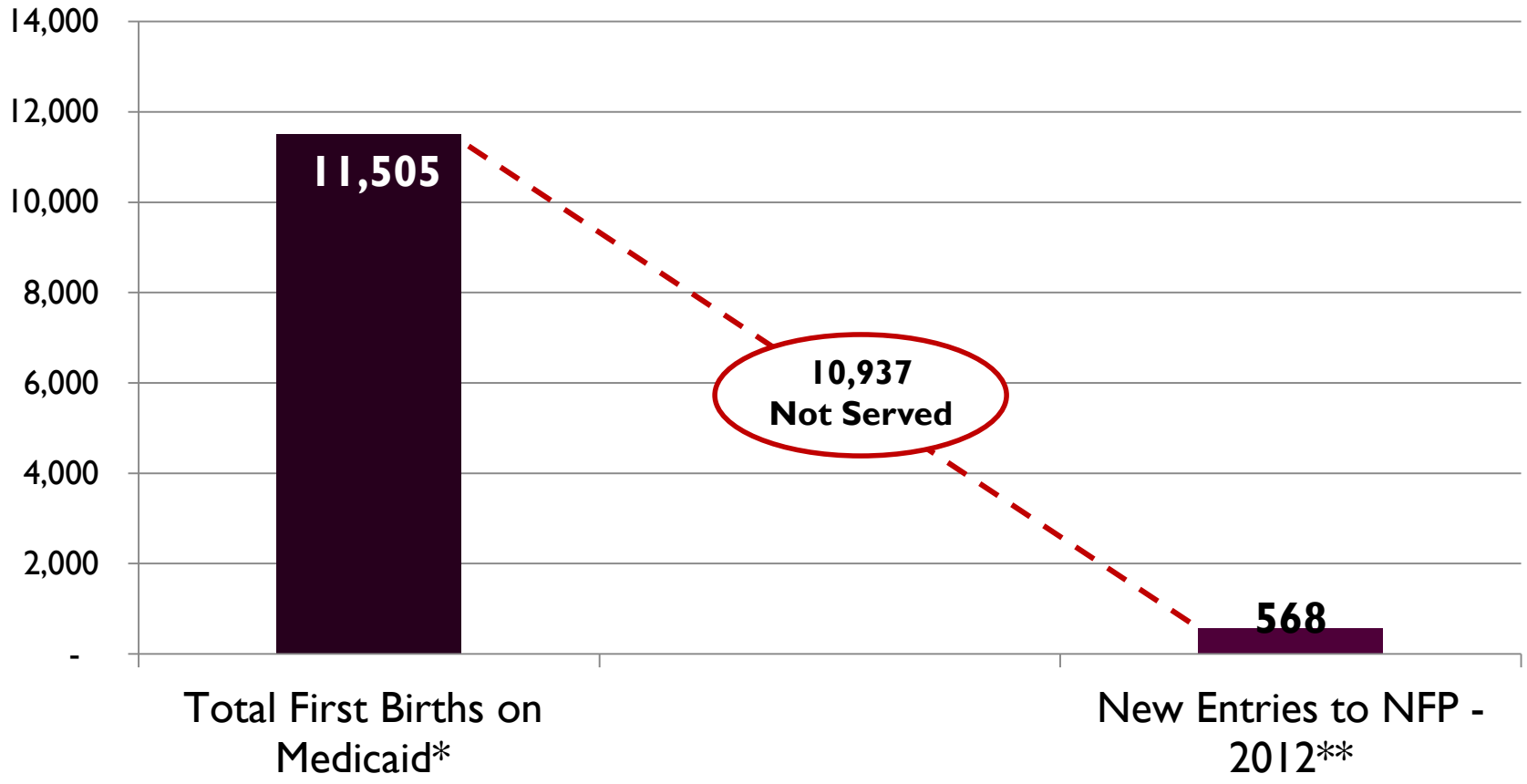
Current NFP Sites



Region	# of Nurse Home Visitors
Anderson	4
Charleston	6
Greenwood	3
Horry	4
Richland	4
Greenville	7
Spartanburg	5
Total	**33**

Source: *NFP State Nurse Consultant, South Carolina DHEC*

Unmet Need for NFP in SC



Source: * *2011 Data; Michael G. Smith, SC DHEC, Bureau of MCH*
** *NFP State Nurse Consultant, South Carolina DHEC*

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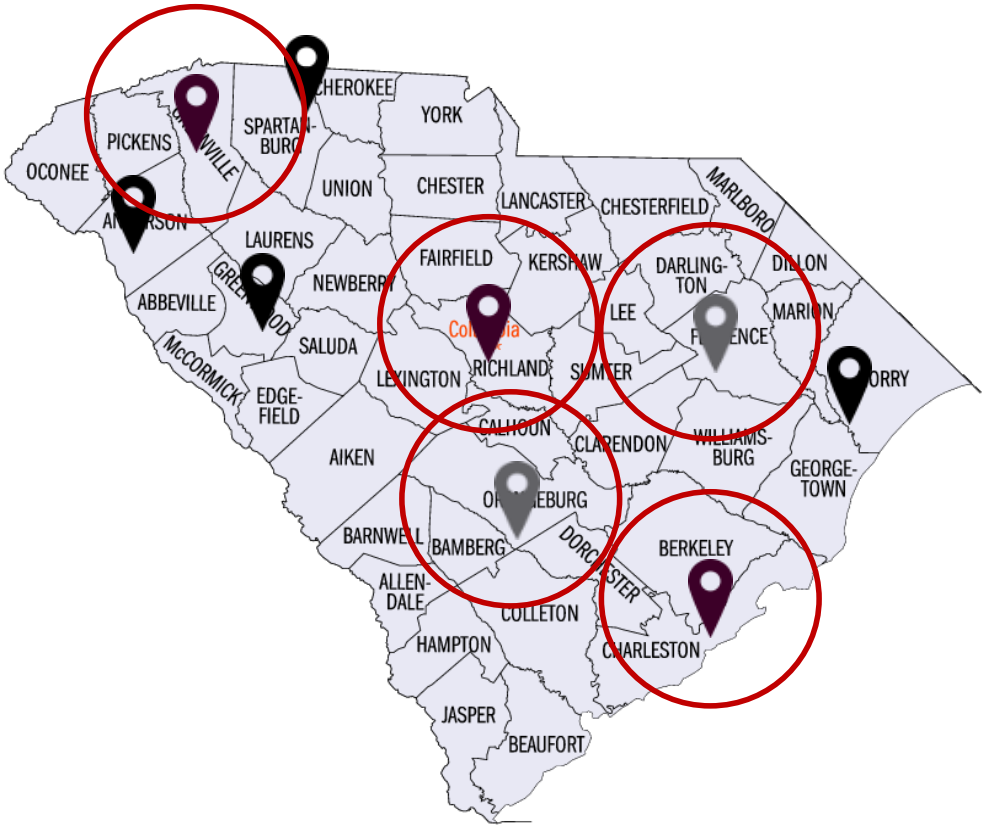
Potential NFP Expansion Strategy

Expand three current locations:

- *Greenville*
- *Richland*
- *Charleston*

Add new location(s):

- *Orangeburg?*
- *Florence?*



Potential NFP Expansion Strategy

Counties included in each region

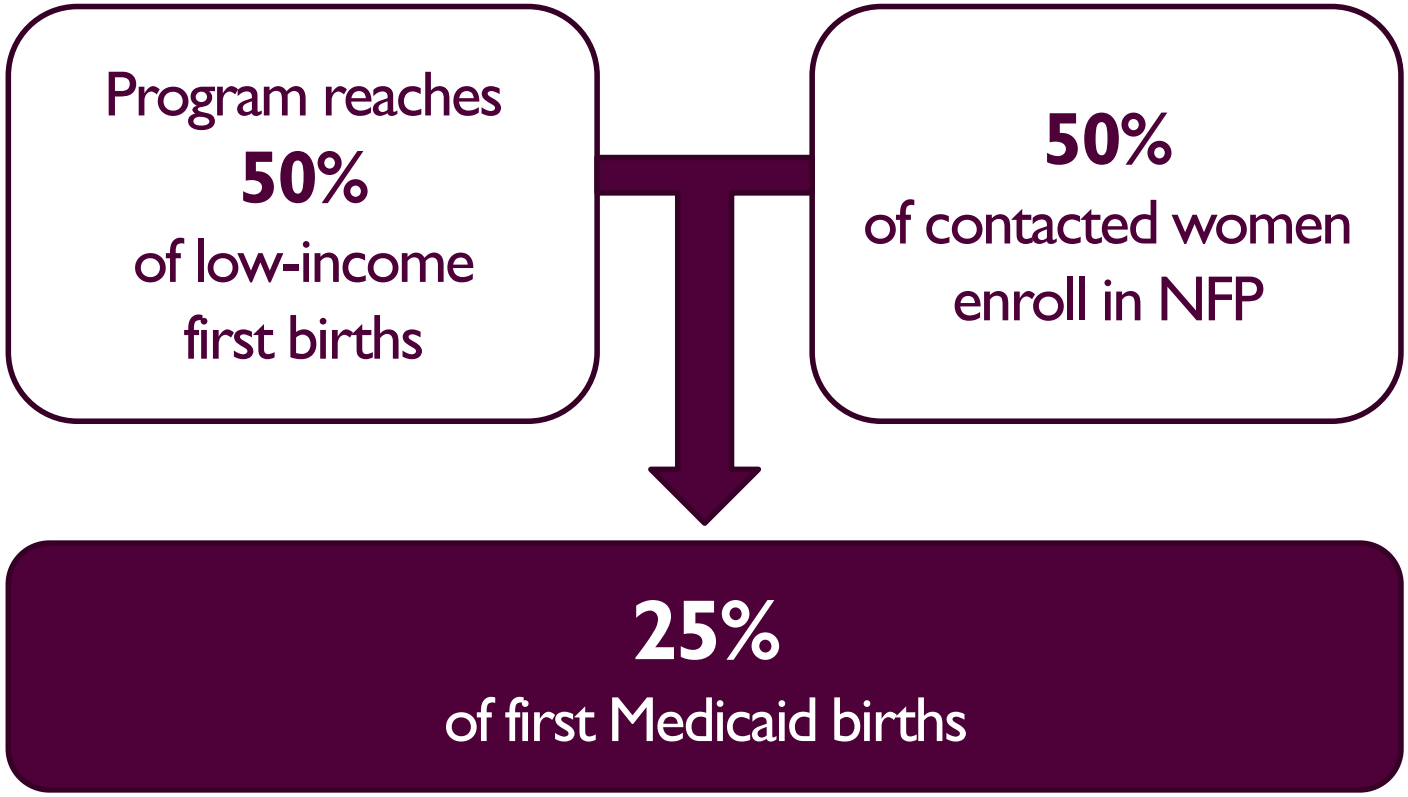
Greenville	Richland	Charleston	Orangeburg	Florence
Greenville	Barnwell	Berkeley	Allendale	Clarendon
Oconee	Kershaw	Charleston	Bamberg	Darlington
Pickens	Lexington	Colleton	Calhoun	Dillon
	Richland	Dorchester	Orangeburg	Florence
				Lee
				Marlboro
				Sumter

Rationale

- Greenville, Richland, Charleston
  - Highest numbers of people in need
  - Existing NFP sites → efficient expansion
- Florence
  - High number of people in need
  - Potential for hospital-based site (McLeod hospital)
- Orangeburg
  - Underserved geographic region

Expected New NFP Clients Calculation

Assumption:



25% of first births paid by Medicaid = 10% of all SC births to low-income women

Expected New NFP Clients by Site

Region	First Births Paid by Medicaid*	Number Expected to Enroll in NFP per Year	Current Capacity**	Number of New Clients from Expansion
Greenville	1,548	387	94	293
Richland	1,793	448	79	369
Charleston	1,352	338	95	243
Orangeburg	477	119	-	119
Florence	1,153	288	-	288

x 25%

Source: **2009-2011 Averaged data; Michael G. Smith, SC DHEC, Bureau of MCH*
***2012 Data; NFP State Nurse Consultant, South Carolina DHEC*

A Feasible Expansion Plan

- If NFP expanded in Greenville, Richland, Charleston & Orangeburg, it could serve 1,024 new families per year
- If NFP expanded in Greenville, Richland, Charleston & Florence, it could serve 1,194 new families per year
- Since we do not know which new site(s) SC will choose, we assume NFP could add 1,100 families per year
- Would serve fewer new families in first year of scale-up, while building staff and caseload

Actual expansion sites and numbers to be determined!

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Possible Scale-Up Plan for PFS Project

- Project must fund intake for multiple years to achieve efficient caseload and warrant investments in capacity
- But more years of intake funded → higher cost and longer wait for investors
- One possible scenario: fund 3 years of expanded intake, paying for outcomes of those groups; add more years of expansion if warranted by initial results
- Under expansion scenario proposed:
  - Expand to 50% of 1,100 capacity in 1st year (550 new families)
  - Add 1,100 new families in 2nd year
  - Add 1,100 new families in 3rd year

= 2,750 new families added over 3 years

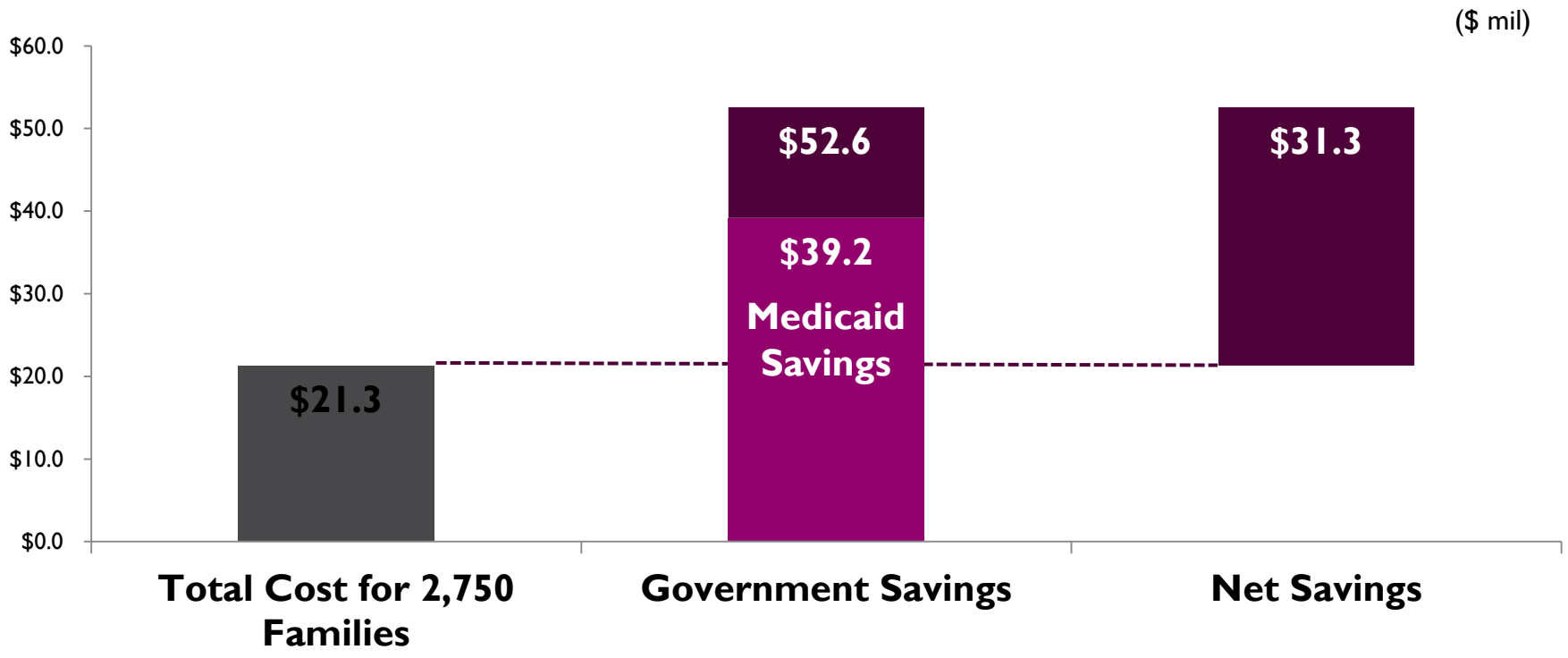
Estimated Costs of Expansion

Number of New Clients
2,750
Average Cost of NFP per Family*
$ 7,754
Cost Over Length of Program
$ 21.3 million

* Source: Average cost for full 2+ years of program services; *Miller, Cost Savings of Nurse-Family Partnership in South Carolina,* April 2013

Expected Savings for 2,750 New Families

For each additional NFP family, government saves $19,120 at a cost of $7,754



Source: *Miller, Cost Savings of Nurse-Family Partnership in South Carolina,* April 2013, p 1

Possible Health Outcomes for PFS Contract

- Fewer preterm births
- Fewer infant deaths
- Fewer child emergency department visits
- Fewer closely spaced second births
- Fewer subsequent births
- Fewer subsequent preterm births
- Increase in children fully immunized through age 2

Possible Other Outcomes for PFS Contract

Child welfare

- Fewer incidences of child abuse or neglect

Education

- Fewer remedial school services through age 6

Criminal justice

- Fewer youth crimes through age 17

Maternal life-course

- Increased employment, decreased TANF use

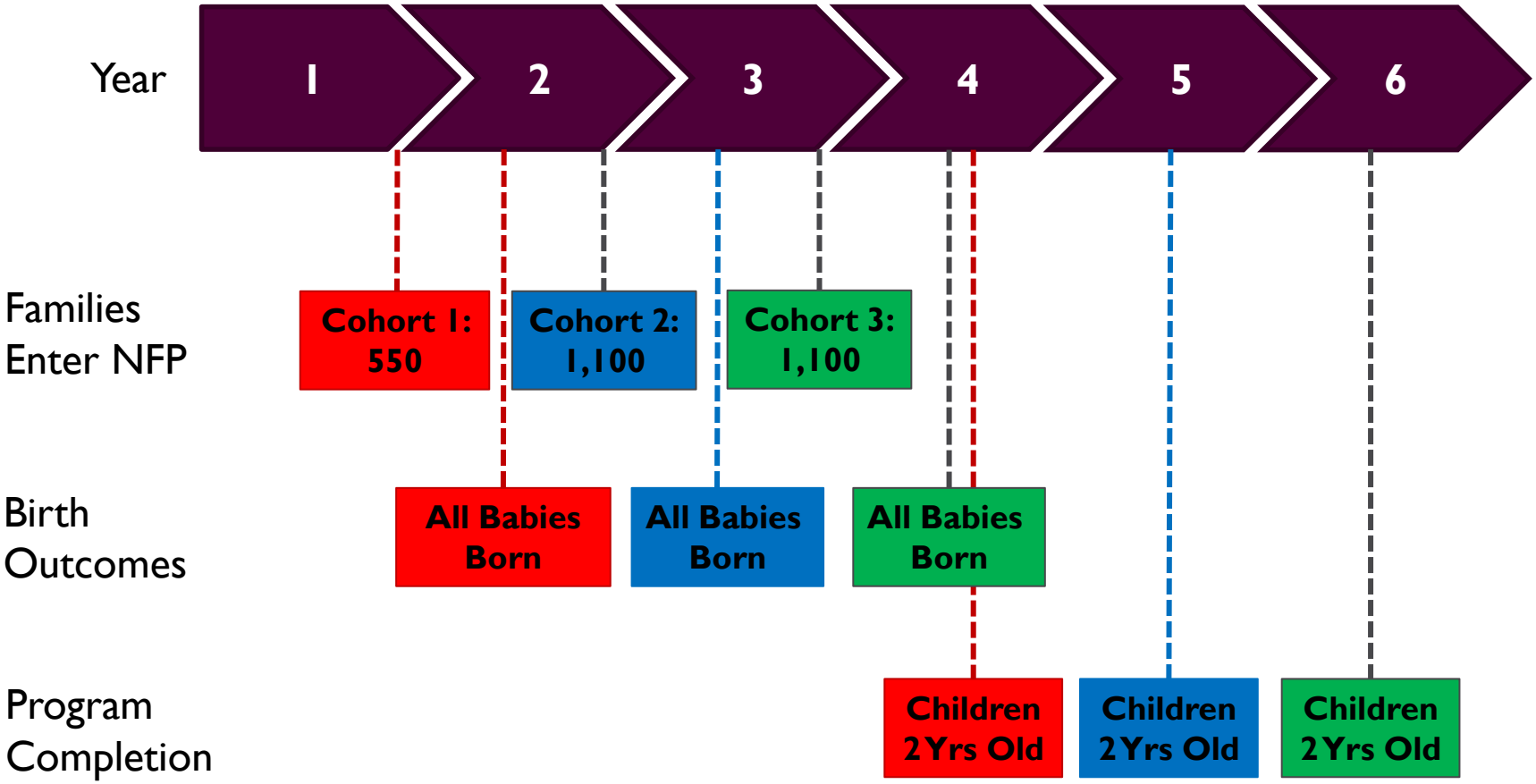
Proposal: Base PFS Contract on Health Outcomes

- Health outcomes happen relatively quickly
  - At birth/in first 2 years
  - Can do 4- or 6-year deal
- Government interest in using Medicaid dollars more efficiently

Most promising health outcomes

- Reduce preterm births
- Reduce ER visits for injuries in first 2 years
- Improve spacing of second birth to lower risk

Possible PFS Timeline: Health Outcomes



Potential PFS Outcome: Fewer Preterm Births

- SC has 4th highest preterm birth rate in the US*
- In 2011, 11.2% of SC Medicaid-paid first births were pre-term**
- Costs include medical care, early intervention services, special education, TANF***

Source: **March of Dimes 2012 Preterm Birth Report Card*
** 2011 Data on live births less than 37 weeks of gestation; *Michael G. Smith, SC DHEC, Bureau of MCH*
****Institute of Medicine, Preterm Birth: Causes, Consequences, and Prevention,* July 2006, p 398-429

Analysis of Evaluations from Around US: NFP Can Reduce Pre-term Births by 27.4%

- Most reliable of 7 studies of NFP effect on pre-term birth: Among 5,239 unmarried mothers in Oklahoma, preterm births **decreased by 29%** (Carabin et al. 2005)

- NFP National Service Office tracking data for 2005-2007: mothers in NFP reported 9.3% preterm birth rate, while age-matched national average was 13.3% (**30% lower**)

- Miller multiplies 30% expected reduction by 94% replication factor to adjust for average # visits in S.C. NFP programs

Source: *Miller, Cost Savings of Nurse-Family Partnership in South Carolina,* April 2013

SC Preliminary Analysis Shows Similar Reduction

- SC DHEC compared birth outcomes for 354 NFP participants (from DHEC sites only) to matched comparison groups*
- 8.8% of women in NFP had premature births, compared with 12.7% of women outside the program
- NFP reduced preterm births by **30.7%** in SC compared to target population
- Reduced **52.6%** compared to subset matched on race, education, WIC status

* Source: *Michael G. Smith, SC DHEC, Bureau of MCH, Birth Outcomes for SC NFP Clients Delivering Live Births in 2010-2011, presentation, 2/25/13*

Expected Preterm Birth Reduction by Site

Assuming NFP reduces preterm births by **27.4%***

Region	Current Rate	Post-NFP Expansion Rate
Greenville	11.2%	8.1%
Richland	11.1%	8.1%
Charleston	10.9%	7.9%
Orangeburg	9.7%	7.0%
Florence	13.8%	10.0%

* *Source: Miller, Cost Savings of Nurse-Family Partnership in South Carolina, April 2013*

Possible PFS Contract Structure

- 2,750 new families, phased in over 3 years
- Choose 1 or 2 health outcomes
- Pay for percentage reductions in 1 or both outcomes compared to a control or matched comparison group
  - Greater percentage reduction → higher payment
  - Recognize savings from these outcomes alone do not cover full cost
- Interim payments after each cohort (group entering NFP in 1 year) reaches outcomes
- 4- or 6-year contract term
- Measure other, longer-term outcomes to test viability for future PFS contracts

NYC Payment Terms, 4-Year Investment
(for comparison)

Reduction in Reincarceration	City Payment to MDRC (Intermediary)
≥ 20.0%	$11,712,000
≥ 16.0%	$10,944,000
≥ 13.0%	$10,368,000
≥ 12.5%	$10,272,000
≥ 12.0%	$10,176,000
≥ 11.0%	$10,080,000
≥ 10.0%(breakeven)	$9,600,000
≥ 8.5%	$4,800,000

Source: *NYC Office of the Mayor, Bringing Social Impact Bonds to NYC, Media Presentation,* August 2012

Possible Financing Structures

- Several possibilities for mixing private, philanthropic & government financing to create a viable deal
- Tolerance for risk, required returns vary by funder type
- Government may need to make some non-outcome-based payments to limit down-side risk (i.e. risk that funders lose everything if outcome not achieved)
- The two largest intermediary organizations have prepared proposed structures to consider in Phase 2

Illustrative Term Sheet

Investment Required	**$24 million ($21.3 m for program + $2.7 m for intermediary and evaluation)**
Term of Financing	6 Years
Total Lifetime Government Savings [1]	$52.6 million
Government Payout	Up to $30 million
Commercial Investment	$12 million
Philanthropic Investment	$12 million (first loss position)
Investor IRR/Rate of Return	6.0%-10% [2]
Philanthropic IRR/Rate of Return	0%-4% [2]
Outcomes metrics	Reduction in pre-term births (illustrative)
Evaluation Methodology	TBD
Service Provider	Nurse-Family Partnership Implementation Agencies
Individuals Served	2,750 low-income, first time mothers and their families in South Carolina
Intervention Model	Nurse home visitation during pregnancy and after birth up to age 2

[1] Represents federal and state savings. *Source: Miller, Cost Savings of Nurse-Family Partnership in South Carolina, April 2013, p 1*

[2] Investment return dependent on various assumptions, including capital drawdown schedule and timing of investor returns.

Option 1 for Assessing Whether Outcomes Are Achieved: Randomized Controlled Trial

- Eligible women *randomly assigned* to NFP or control group at each site, ideally AFTER they consent to participate in the program

- Track outcomes through state Medicaid database for program and control groups

- Analyze differences between program and control group in preterm birth rates and other outcomes

Advantages and Disadvantages of Option 1

Advantages

- High level of confidence that program caused changes in outcomes

Disadvantages

- More complicated and expensive
- Serves fewer families since some go into control group
- Takes longer to reach efficient caseload
- Randomization process can be difficult for staff

Option 2 for Assessing Whether Outcomes Are Achieved: Quasi-Experimental Design

- NFP recruits all eligible women at each site and accepts all who agree to participate
- Using state databases, identify a group of women who gave birth at the same time who match those served by NFP on key demographic characteristics, using propensity score matching (women in this group should not have refused NFP)
- Track outcomes through state Medicaid database for program and comparison groups
- Analyze differences between program and comparison group in preterm birth rates and other outcomes

Advantages and Disadvantages of Option 2

Advantages

- Can serve all families in need
- Less expensive and easier to implement (DHEC already using similar methodology)

Disadvantages

- Possibility that differences between program and comparison group contributed to changes in outcomes
- May be difficult to find comparison group that did not refuse NFP or participate in another program

Implementation Challenges for NFP PFS Project

- Need procedures to systematically identify low-income women pregnant with first child in all sites
- Need to build proper infrastructure to achieve results at scale
- Raising substantial philanthropic capital in SC is difficult; will need national foundations
- Service provider in at least 2 expansion sites is government agency (DHEC) = unusual for PFS model

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Conclusion

Pay for Success is a *feasible* and promising way to improve outcomes for South Carolina children

Nurse-Family Partnership
Helping First-Time Parents Succeed®

Analysis shows PFS could be used to scale up Nurse-Family Partnership; it also may be appropriate for other early childhood interventions

South Carolina should pursue Pay for Success financing for early childhood programs

Benefits for South Carolina

- Better outcomes for SC youth
- Positive impact on SC economy
- International leader in PFS financing
- Test new, efficient use of Medicaid $

Acknowledgments

This study was funded by The Duke Endowment and the SC Dept. of Health and Human Services. Thanks to the many people who contributed:

Christian Soura, Office of Governor Nikki Haley

Tony Keck, Director, DHHS

John Supra, DHHS

Susan DeVenny, SC First Steps

Dan Wuori, SC First Steps

Brenda Martin, DHEC

Sara Beth King, DHEC, NFP

Michael Smith, DHEC

Amy Picklesimer, MD, GHS

Derek Lewis, Greenville First Steps

Tom Jenkins, Nurse-Family Partnership

Tamar Bauer, NFP

Chris Bishop, NFP

Sue Williams, The Children's Trust

Eric Bellamy, The Children's Trust

Megan Branham, The Children's Trust

Prof. Steven Mann, USC Moore School of Business

Ann Robinson, Certus Bank

Acknowledgments (Continued)

Rhett Mabry, The Duke Endowment

Tracy Palandjian, Social Finance US

Nirav Shah, Social Finance US

Ted Miller, Pacific Inst. for Research and Evaluation

Libby Doggett, Pew Charitable Trusts

Monica Herk, Pew Charitable Trusts

Melissa VanDyke, UNC-Chapel Hill

Amanda Wuenscher, Mike Daniel & Associates

Wanda Crotwell, Mike Daniel & Associates

George Overholser, Third Sector Capital Partners

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