Systems for Action
National Coordinating Center
Systems and Services Research to Build a Culture of Health

Clinical-Community Partnerships & 2-1-1 Technology to Improve Early Childhood Developmental Screening and Care

Research In Progress Webinar

Thursday, July 27, 2017 1:00-2:00pm ET/ 10:00-11:00am PT

Funded by the Robert Wood Johnson Foundation

College of Public Health
Center for Public Health Systems and Services Research

Agenda

Welcome: **Rick Ingram, DrPH,** Assistant Professor, U. of Kentucky College of Public Health

Presenter: **Bergen B. Nelson, MD, MS,** Assistant Professor, Department of Pediatrics, Virginia Commonwealth University School of Medicine
bergen.nelson@vcuhealth.org

Commentary: **Susan N. Dreyfus**, President & CEO, Alliance for Strong Families and Communities, S4A National Advisory Committee Member
sndreyfus@alliance1.org

Jacque Hale, Director of Programs and Community Impact, Smart Beginnings Greater Richmond *jacque.hale@smartbeginningsrva.org*

Questions and Discussion

Presenter

Bergen B. Nelson, MD, MS

Assistant Professor

Department of Pediatrics

Division of General Pediatrics and Emergency Care

Children's Hospital of Richmond

Virginia Commonwealth University School of Medicine

bergen.nelson@vcuhealth.org

Clinical-Community Partnerships and 2-1-1 Technology to Improve Developmental Screening and Care Coordination

Bergen B. Nelson, MD, MS

Virginia Commonwealth University

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Acknowledgments

- Funded by the Robert Wood Johnson Foundation Public Health Systems and Services Research Program

  (Grant Period: Feb, 2015 – Jan, 2017)

- Team Members:
  - Paul Chung, Bergen Nelson, Lindsey Thompson, Damaris Arriola Zarate, UCLA Pediatrics
  - Patricia Herrera and Irene Aceves, 211 LA
  - Ingrid Estrada, Clinica Msr. Oscar A. Romero

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Trabajando Juntos por Nuestros Niños
(Working Together for Our Kids)

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Background: Developmental Screening is a Recommended Preventive Service

The American Academy of Pediatrics (AAP) recommends universal screening and surveillance:

- Ask about and document family concerns at every well visit
- Use a validated screening tool at 9, 18 and 24-30 months
- Use an autism-specific screening tool at 18 and 24-30 months
- Refer promptly for evaluation and services when concerns are detected

AAP Council on Children with Disabilities. Identifying Infants and Young Children with Developmental Disorders in the Medical Home: An Algorithm for Developmental Surveillance and Screening. Pediatrics 2006;118(1):405-420.

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Need for Systems Improvement

- 30-50% of parents with young children report having had a developmental assessment in primary care
  (Halfon, et al., 2004; Guerrero, et al., 2010)
- Even with increased rates of screening:
  Families often struggle with follow-up (Jimenez, et al. 2012)
  Few clinics have good systems for tracking outcomes
  (King, et al. 2010)

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Barriers to Screening and Care Coordination in Primary Care

- Lack of time
- Lack of familiarity/ training with screening tools, and widespread use of non-validated checklists
- Challenges making referrals
- Challenges with follow-up

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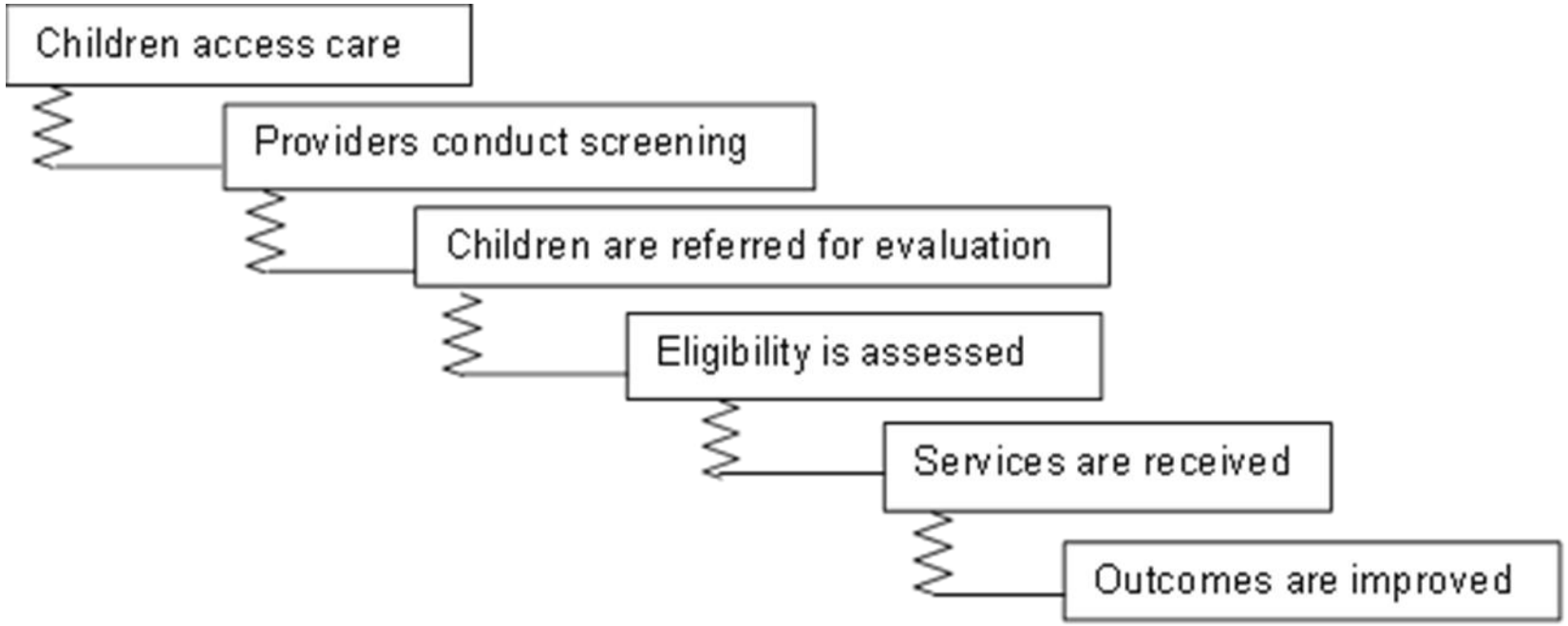
Voltage Drops



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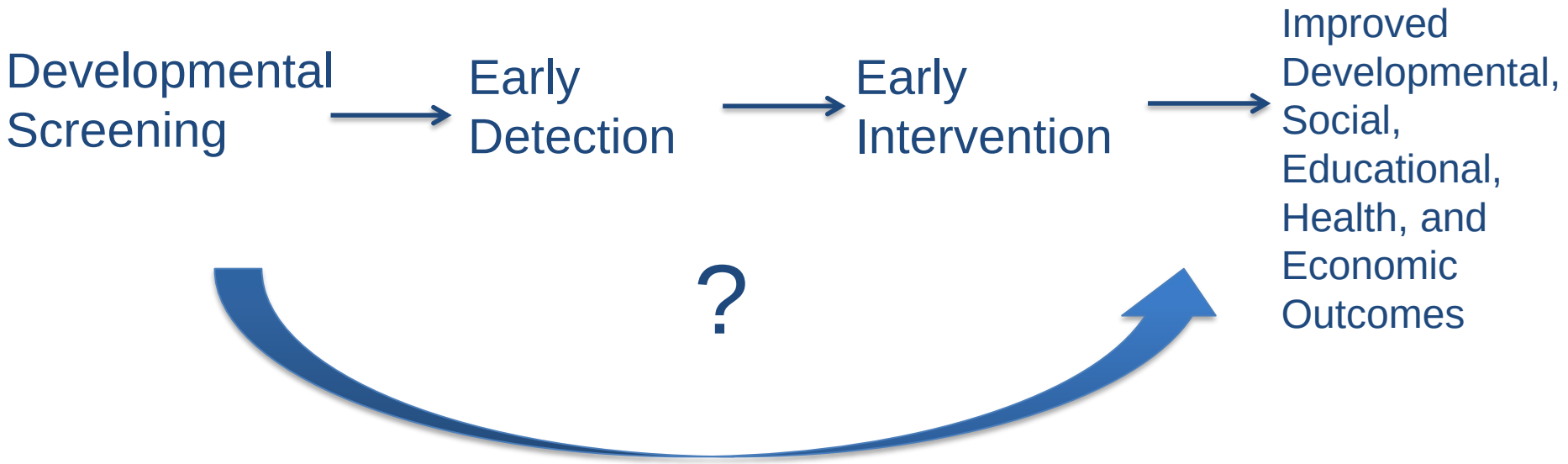
Background: Gaps in Evidence for Developmental Screening



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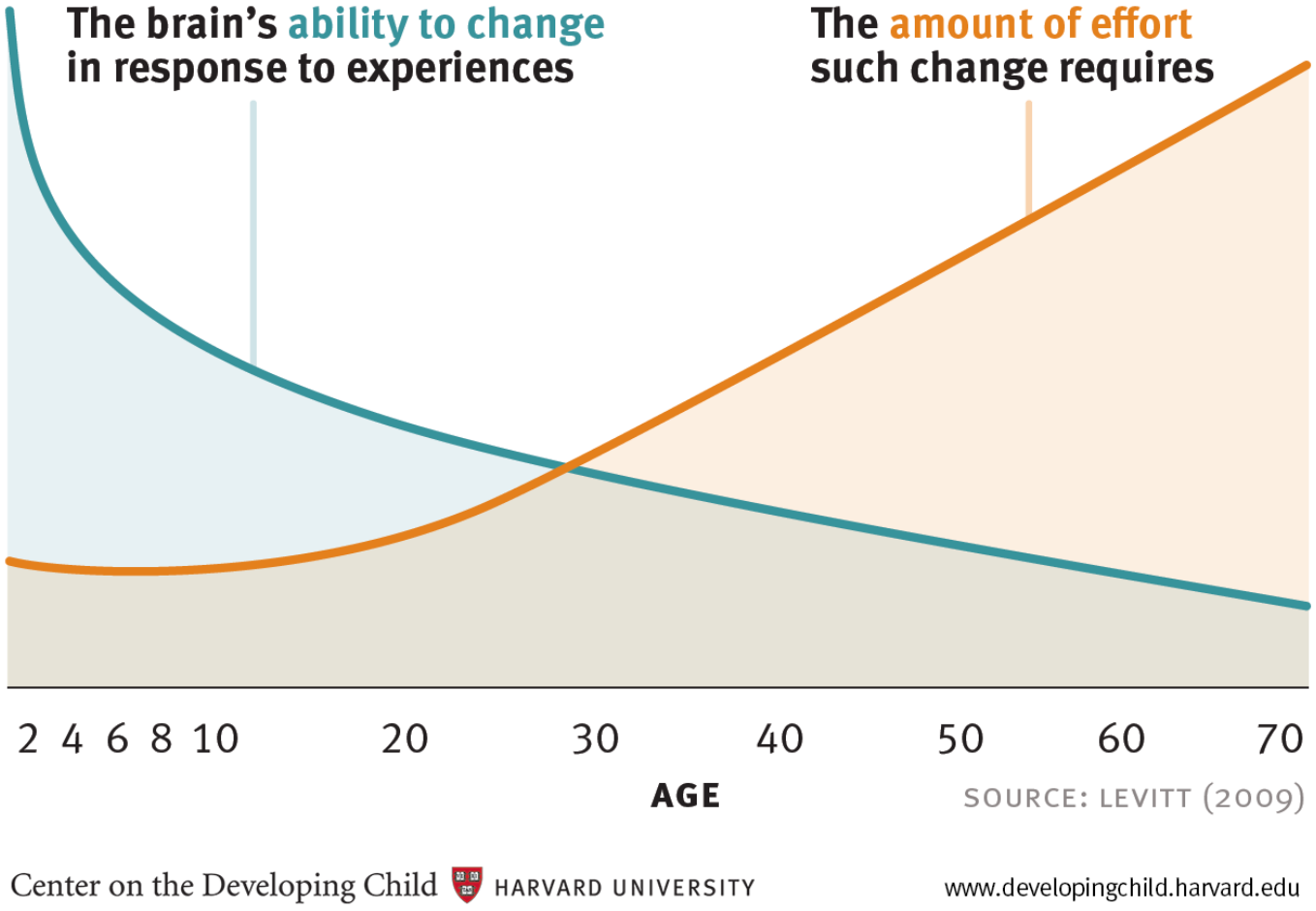
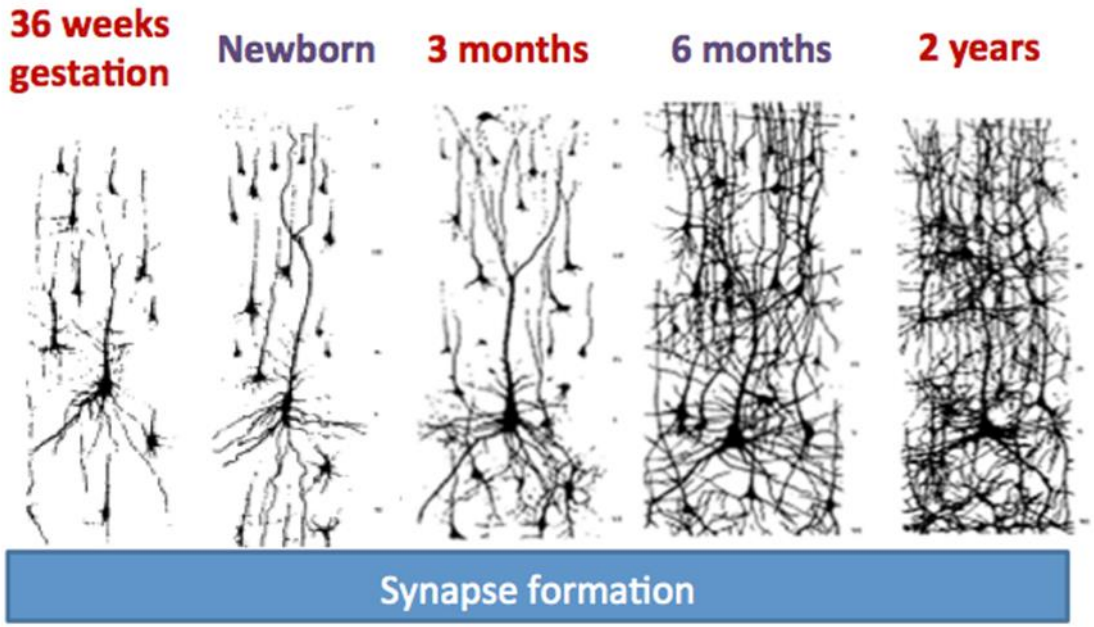


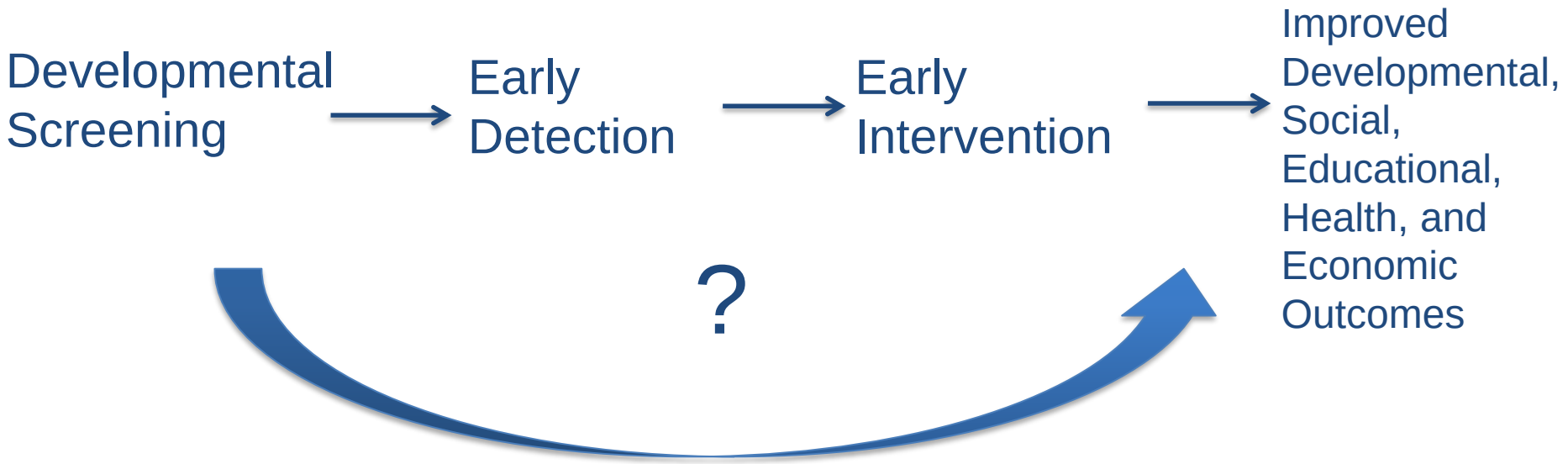


Source: Center on the Developing Child at Harvard University; http://developingchild.harvard.edu/

Garcia, Heckman, et al (2016): The Life-cycle Benefits of an Influential Early Childhood Program

- 13% annual rate of return on investment, and benefit/cost ratio of 6.3
- Reduced crime, increased education attainment, and increased labor force participation

Background: Gaps in Evidence for Developmental Screening



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Research Question

- Can the system of early childhood developmental screening and care coordination be improved through partnership with a centralized, telephone-based community service, compared to usual clinical care alone?

(PHSSR Focus: Bridging Public Health and Health Care)

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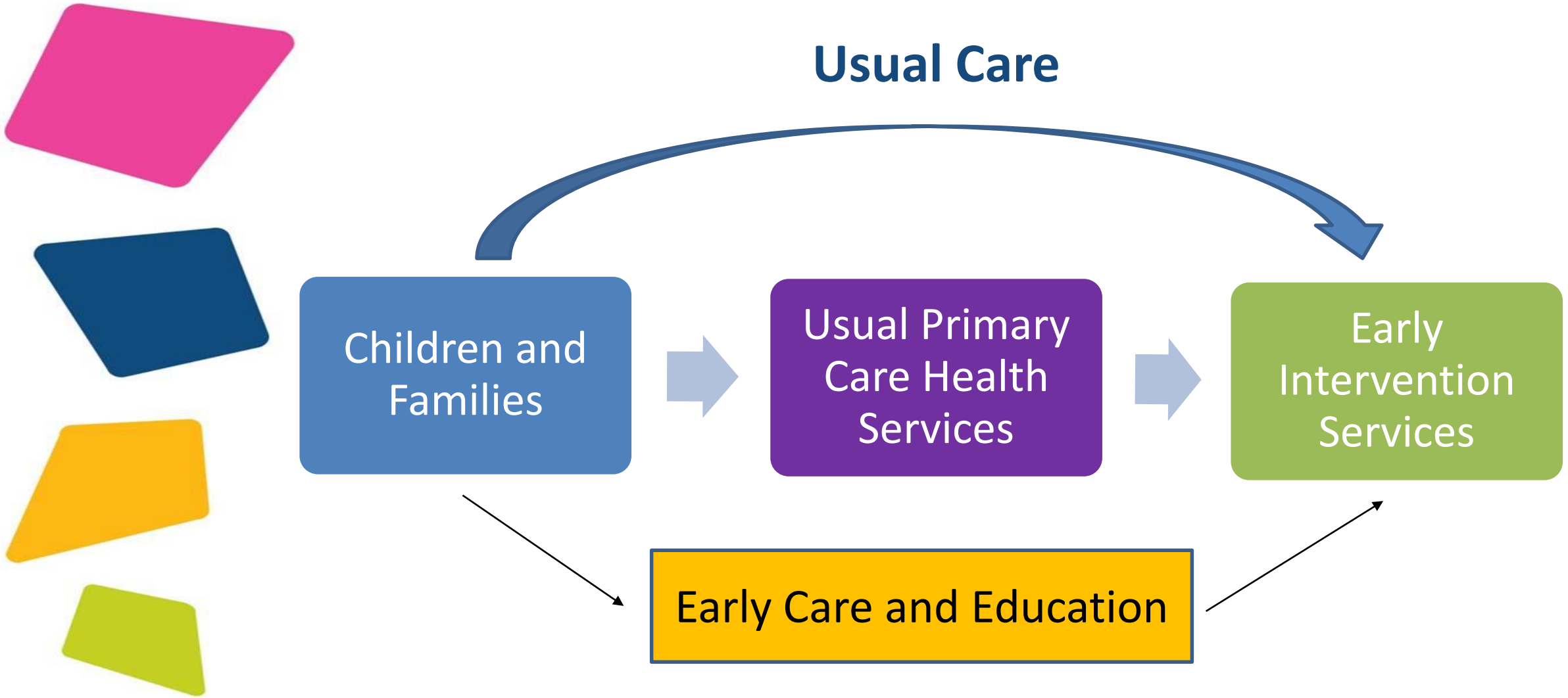
Usual Care



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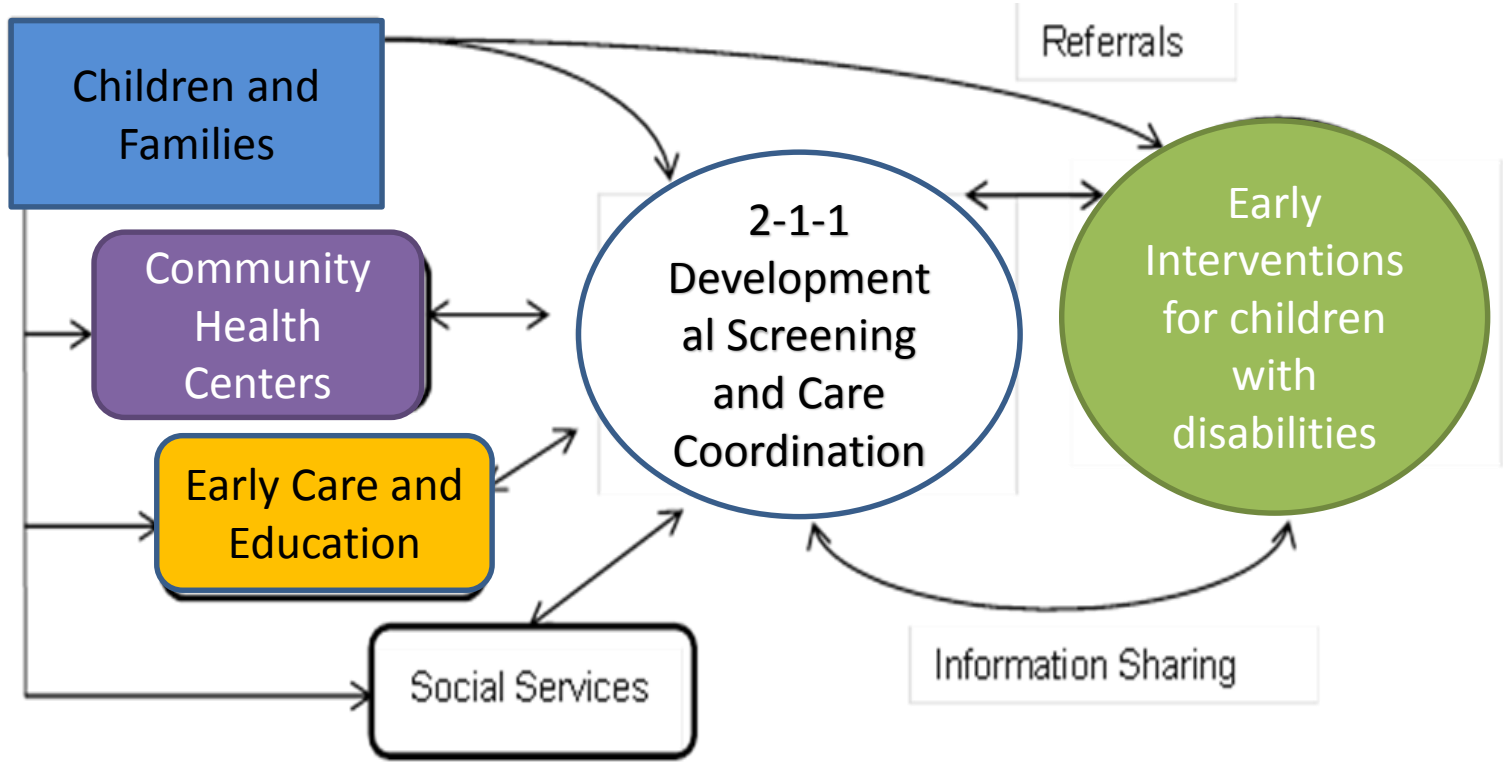
A New System of Care



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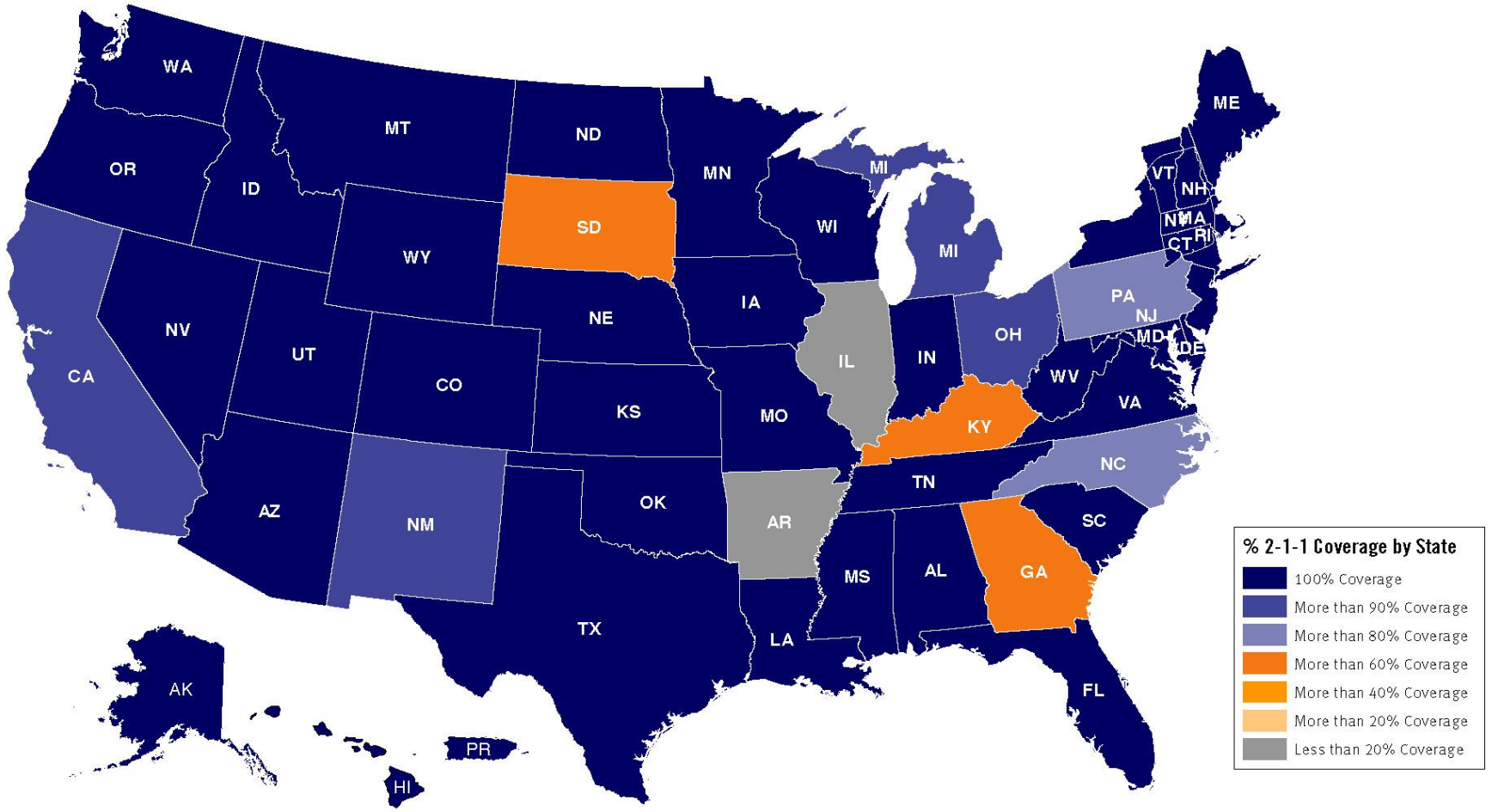
93.5% Overall Coverage

% of Population Covered* by 2-1-1 in Each State

United Way • AIRS 2-1-1 Get Connected. Get Answers.



Data produced by UWW and AIRS: April 2016

*Coverage is defined as populations with landline telephone access to 2-1-1 dialing codes. Population based on 2010 Census

2-1-1 Los Angeles County

- Part of national network of 2-1-1 call centers
- Answers ~500,000 calls per year
- In 2009 started a developmental screening and care coordination program, led by Patricia Herrera
- Families calling 2-1-1 for any reason were offered developmental screening for children 0-5 years old

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Developmental and Autism Screening Through 2-1-1

Reaching Underserved Families

Anne M. Roux, MPH, Patricia Herrera, MS, Cheryl M. Wold, MPH, Margaret C. Dunkle, BA, Frances P. Glascoe, PhD, Paul T. Shattuck, PhD

Background: Developmental disorders, including autism spectrum disorders (ASDs), are increasing in prevalence. Early identification is necessary for early intervention, which is critical for reducing challenges and lifetime costs, especially for ASDs. Because not all children have equal access to developmental and autism screening through primary care settings, nontraditional methods are needed to reach underserved populations.

Purpose: In this proof-of-concept study, the 2-1-1 Los Angeles County Developmental Screening Project (2-1-1 LA Project) provided developmental and autism screening by telephone in a population of low-income and racially and ethnically diverse children.

Methods: Aggregate data were reviewed for 2845 children who were screened for developmental delays using the Parents' Evaluation of Developmental Status (PEDS) instrument and/or autism using the Modified Checklist for Autism in Toddlers (M-CHAT) instrument between September 1, 2009, and October 31, 2011.

Results: Data analysis was conducted December 2011 through February 2012. A majority of children (56%) screened with the PEDS had a moderate to high risk of developmental delays, including 28.2% classified as high-risk, which indicates need for further evaluation. Among 1605 children screened with the M-CHAT, 21.2% had an elevated risk of ASDs. Follow-up care coordina-

Am J Prev Med 2012;43(6S5):S457–S463

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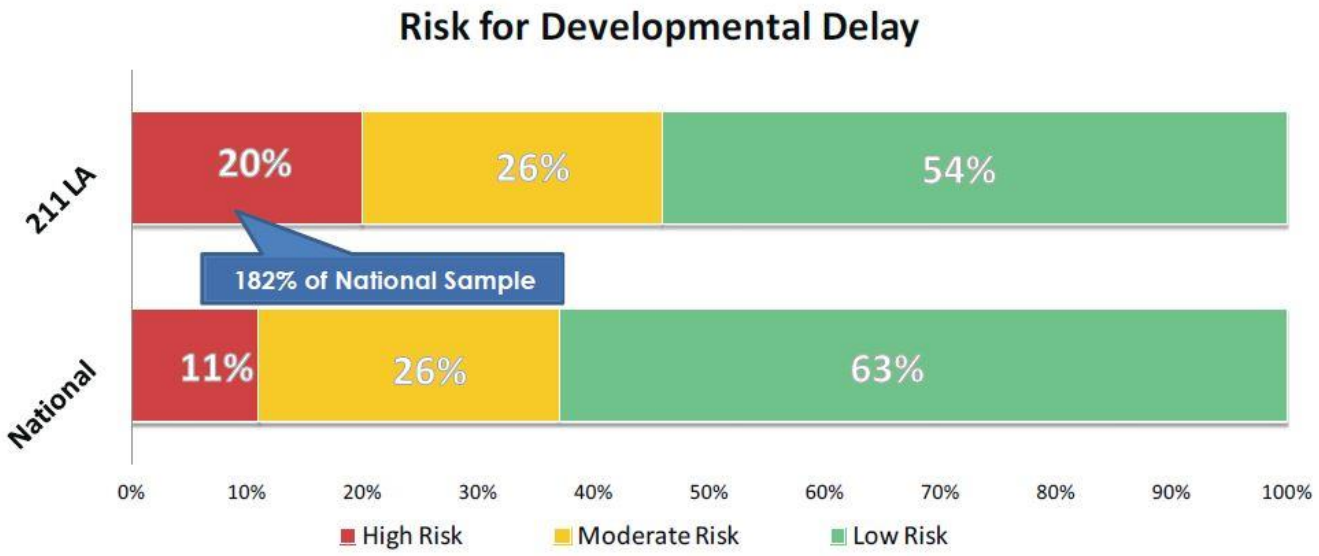
2-1-1 LA Screening and Care Coordination Program: Risk

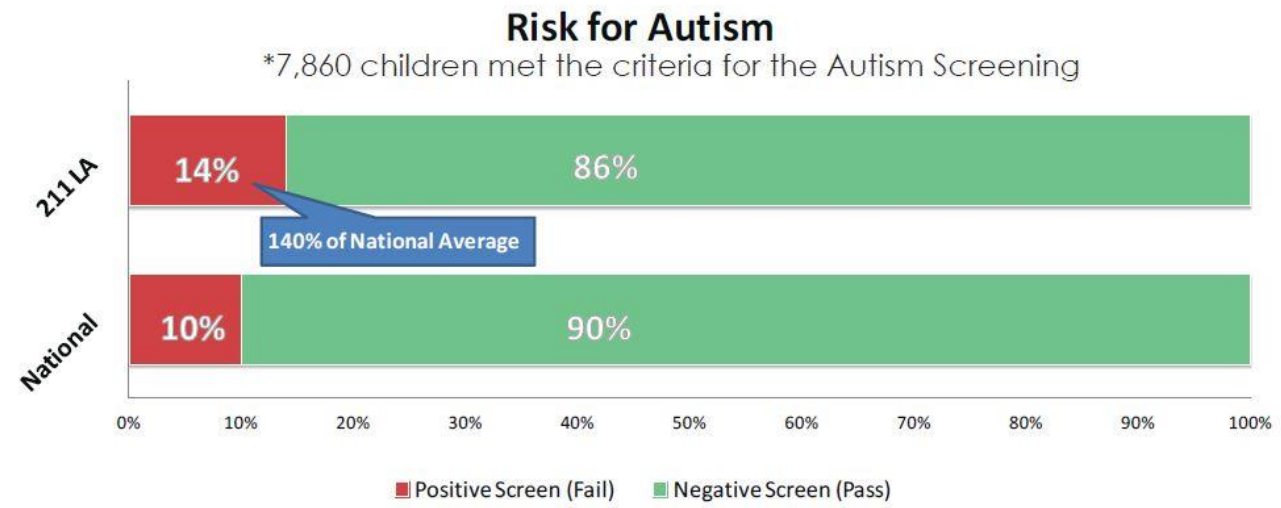
12,293 = number of children screened by 211 LA to date.

46% = At risk for Developmental Delay

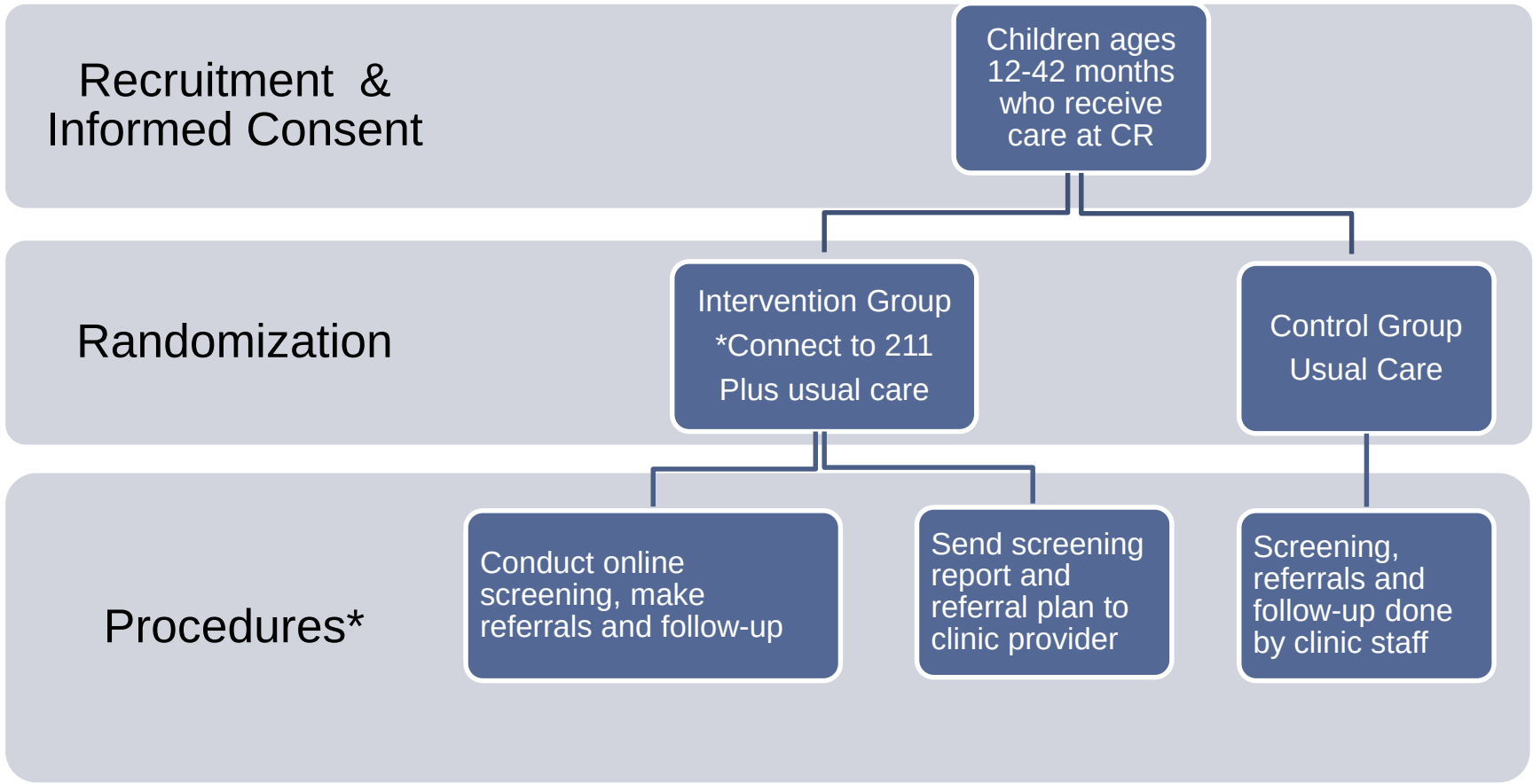
14% = At risk for Autism

That is **182**% and **140%** compared to a national sample, respectively





Study Design: Randomized Controlled Trial



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System Change Intervention: Partnership between 2-1-1 and Clinic

- Connect parent with 211:
  - "Warm hand-off" between RA and 211, OR
  - RA exchanges contact info between parent and 211

System Change Intervention: Partnership between 2-1-1 and Clinic

- Connect parent with 211:
  - "Warm hand-off" between RA and 211, OR
  - RA exchanges contact info between parent and 211
- 211 conducts screening using PEDS Online system:
  - PEDS, age-appropriate PEDS:DM, M-CHAT if >16 months old

System Change Intervention: Partnership between 2-1-1 and Clinic

- Connect parent with 211:
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  - PEDS, age-appropriate PEDS:DM, M-CHAT if >16 months old
- Automated summary of risk, recommendations for evaluation, referrals and next steps

System Change Intervention: Partnership between 2-1-1 and Clinic

- Connect parent with 211:
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- Automated summary of risk, recommendations for evaluation, referrals and next steps
- 211 makes referrals as indicated, preferably via 3-way calls, and faxes care plan to clinic

System Change Intervention: Partnership between 2-1-1 and Clinic

- Connect parent with 211:
  - "Warm hand-off" between RA and 211, OR
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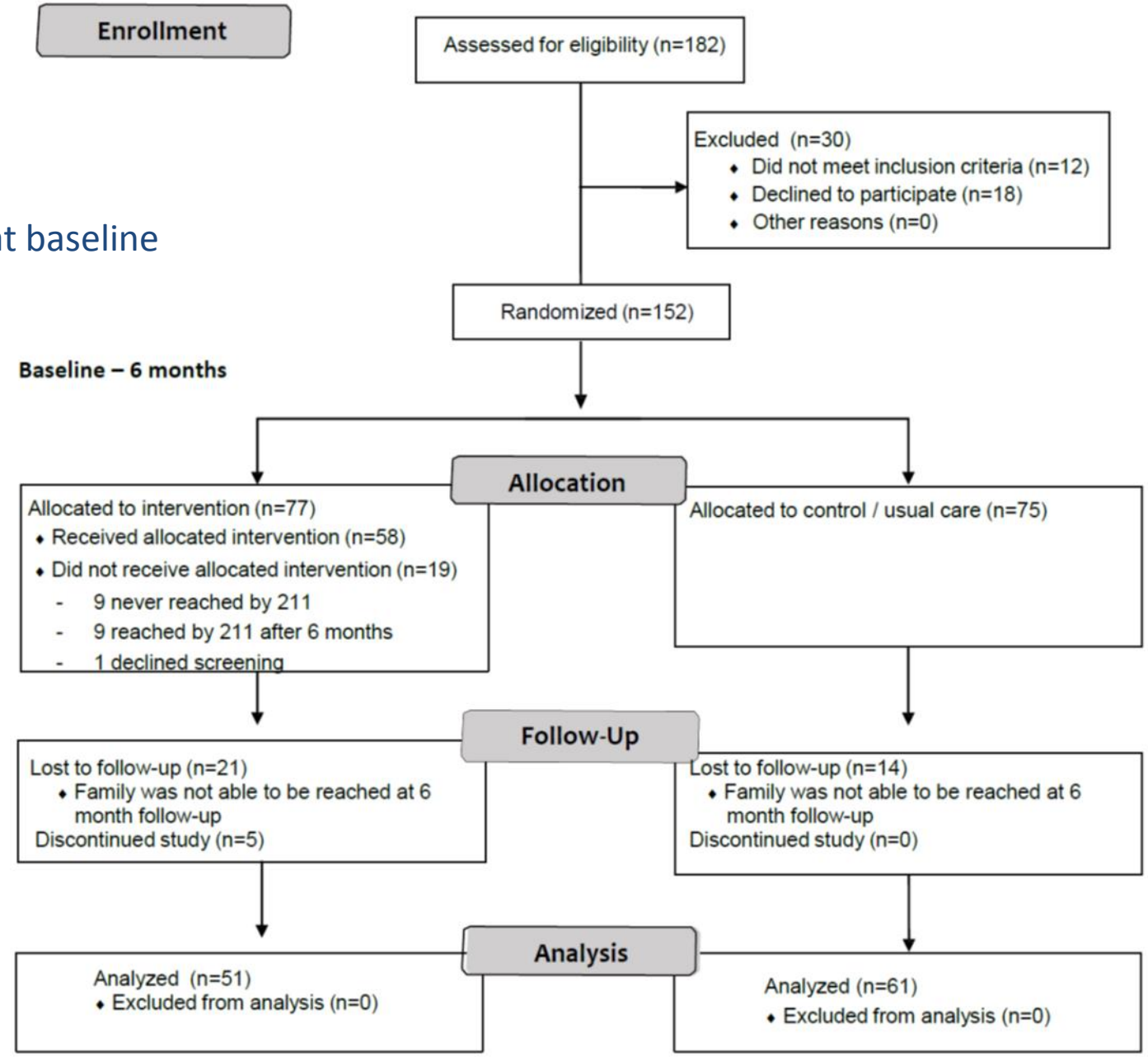
  - PEDS, age-appropriate PEDS:DM, M-CHAT if >16 months old
- Automated summary of risk, recommendations for evaluation, referrals and next steps
- 211 makes referrals as indicated, preferably via 3-way calls, and faxes care plan to clinic
- Regular follow-up to assess outcomes: connection, receipt of services; outcome summary to clinic at 6 months

RCT CONSORT Diagram

N = 152 children randomized at baseline

58 of 77 (75%) of intervention group connected with 211 in first 6 months

112 (74%) of participants had 6-month follow-up



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Other Measures

- Parent surveys (structured interviews) at baseline, 6 months and 12 months
- Child medical record review at baseline, 3 months, 6 months, 9 months and 12 months
- Retrospective review of clinic visits in study age range during 6 months prior to intervention

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Results: Baseline Sample

	Total	Intervention	Control	p-value
Number	152	77	75	
Child age in months; mean (SD)	24.5 (8.8)	25.7 (9.5)	23.4 (7.9)	0.16
Child gender: N (%) Male Female	76 (50%) 76 (50%)	44 (57%) 33 (43%)	32 (43%) 43 (57%)	0.07
Race/Ethnicity: Hispanic or Latino Other	143 (94%) 5 (3%)	72 (94%) 4 (5%)	71 (95%) 1 (1%)	0.25
Language of Interview Spanish English	92 (61%) 60 (39%)	49 (64%) 28 (36%)	43 (57%) 32 (43%)	0.43

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Results: Baseline Sample, continued

	Total	Intervention	Control	p-value
N (%)	152	77	75	
US-born parent	44 (29%)	22 (29%)	22 (29%)	0.92
Parent education:				
Less than high school	75 (49%)	39 (51%)	36 (48%)	0.99
High school graduate or GED	43 (28%)	21 (27%)	22 (29%)	
Some college/ 2-year degree	26 (17%)	13 (17%)	13 (17%)	
≥ 4-year college degree	8 (5%)	4 (5%)	4 (5%)	
Annual household income:				
Under $20,000	86 (66%)	42 (63%)	44 (69%)	0.72
$20,000-$34,999	31 (24%)	16 (24%)	15 (23%)	
$35,000-69,999	11 (8%)	6 (9%)	5 (8%)	
≥ $70,000	3 (2%)	3 (4%)	0 (0%)	

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Results: Developmental Risk

	Total	Intervention	Control	p-value
N (%)	152	77	75	
Parent reported developmental-behavioral (DB) concern in past 6 months?	57 (38%)	28 (36%)	29 (39%)	0.77
Developmental Risk from PEDS Online: Low Moderate High	77 (51%) 44 (29%) 18 (12%)	36 (47%) 26 (34%) 5 (6%)	41 (55%) 18 (24%) 13 (17%)	0.08
Clinic provider asked about developmental milestones?	140 (92%)	70 (91%)	70 (93%)	0.77
Clinic provider documented a DB concern in notes?	19 (13%)	9 (13%)	10 (12%)	1.00

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Results: Referrals and Services

	Total	Intervention	Control	Retrospective Control	p-value
N (%)	152	77	75	143	
Referral to EI or ECSE*	31 (20%)	24 (31%)	7 (9%)	11 (8%)	0.001
Evaluated	16 (11%)	15 (19%)	1 (1%)	N/A	0.00
Eligible	13 (9%)	12 (16%)**	1 (1%)	N/A	0.002
Receiving services	13 (9%)	12 (16%)	1 (1%)	N/A	0.002

*EI = Early Intervention (IDEA Part C); ECSE = Early Childhood Special Education (IDEA Part B)
** 12 of 15 (80%) of those evaluated in intervention group were found to be eligible for services

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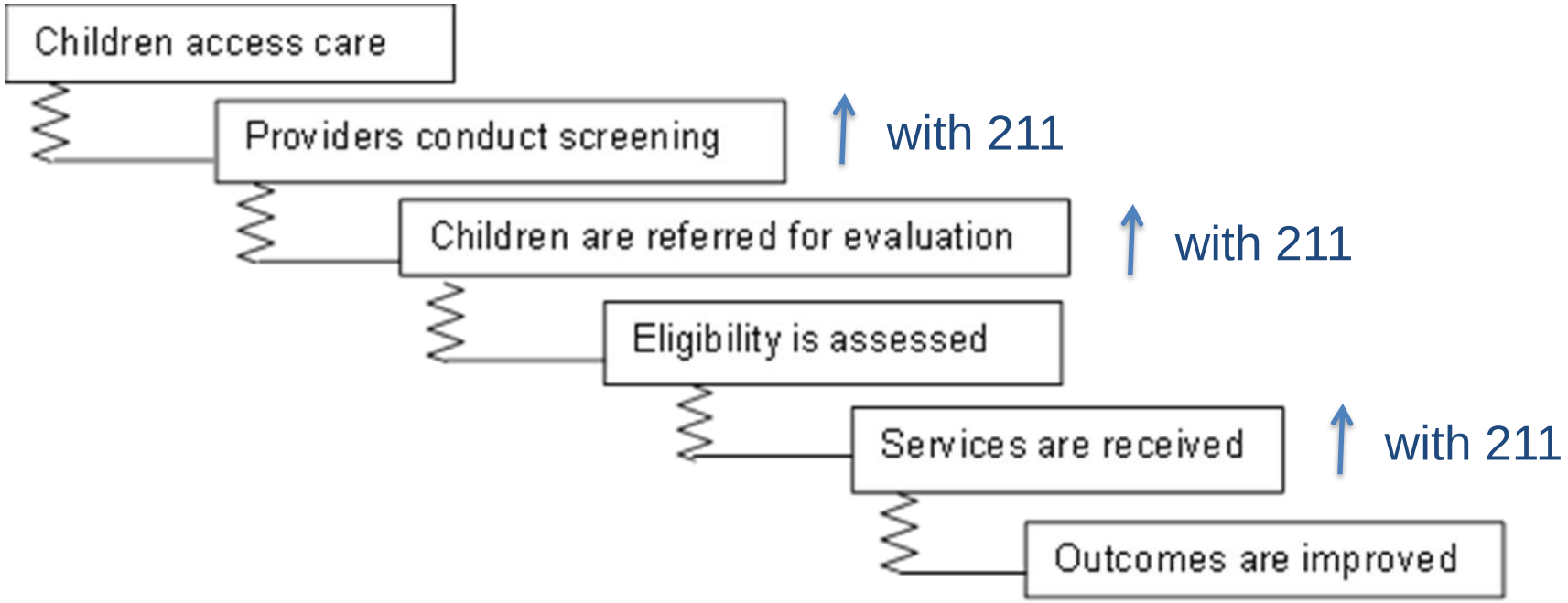

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Multivariate Analyses

- Logistic regressions, group assignment is 1˚ predictor:
  - Odds of referral = 4.1 (p = 0.003)
  - Odds of receiving services = 11.6 (p = 0.02)

For children in intervention group, compared to control, controlling for child age, gender, and home language

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Did 211 Affect Primary Care Experiences?

	Intervention Group		Control Group		Difference-in-differences
	Baseline	6 months	Baseline	6 months	
%Recommend guidance topics discussed	61%	68%	55%	55%	0.01
Family-centered care (%usually/always)	87%	85%	89%	83%	0.80
Assessment of parental smoking /substance use	88%	89%	88%	84%	0.39
Assessment of parental well-being	59%	67%	50%	57%	0.81

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Cross-Over Study Design

- 2-1-1 intervention was offered to control group at 6 months
- At 12-month follow-up, 82% of intervention group and 60% of control group had received intervention by 2-1-1
- At 12-month follow-up, 21% of the control group and 35% of the intervention group had referrals for evaluation and services (p = 0.06); 8% of control group and 18% of intervention group received disability services by 12 months (p=0.06)

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Conclusions

- Telephone-based developmental screening and care coordination through 2-1-1 can increase developmental-behavioral referrals and services
- 2-1-1 does not appear to affect primary care negatively, and may increase time providers have to discuss anticipatory guidance topics

- Other considerations: in addition to disability services (EI and ECSE), 2-1-1 LA made referrals to Head Start and Early Head Start, other child care and preschool programs (68%), family literacy, parenting, behavioral health, and other family supports

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Discussion

- Limited generalizability of pilot study– single clinic site, relatively homogeneous patient population, small sample
- Larger study planned in Los Angeles with four large clinic systems (3 FQHCs and Kaiser Permanente), much larger sample and bigger geographic spread, longer follow-up time, developmental outcomes
- Potential to spread to other 2-1-1 call centers and Help Me Grow
- Potential to adapt model for different partners' needs

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Dissemination/ Next Steps

- Presentations at conferences:
  - Pediatric Academic Societies 2016
  - Academy Health 2016
  - Alliance of Information and Referral Systems (AIRS) 2017
  - North American Primary Care Research Group 2017 (upcoming)
- Follow-up research grant proposal to NIH
- Manuscript prepared for peer-reviewed journal
- Meetings with other clinics, 2-1-1 call centers, and Help Me Grow
- Other ideas?

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Many Thanks!

PHSSR Coordinating Center, Systems for Action & RWJF;

Paul Chung, Lindsey Thompson, Damaris Arriola-Zarate, Patricia Herrera, Irene Aceves, Ingrid Estrada and Clinica Oscar A. Romero staff, patients and providers;

Commentary:
Susan Dreyfus
Jacqueline Hale

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Contact: Bergen.Nelson@vcuhealth.org

Commentary

Susan N. Dreyfus

President & CEO, Alliance for Strong Families and Communities

S4A National Advisory Committee Member

sndreyfus@alliance1.org

Jacque Hale

Director of Programs and Community Impact

Smart Beginnings Greater Richmond

jacque.hale@smartbeginningsrva.org

Questions and Discussion

Webinar Archives

http://systemsforaction.org/research-progress-webinars

Upcoming Webinars

Thursday, August 10, 12-1pm ET/ 10-11am MT

HOSPITAL INVESTMENT AND INTERACTION IN PUBLIC HEALTH SYSTEMS

Danielle Varda, PhD and Adam Atherly, PhD, University of Colorado

Wednesday, August 23, 12-1pm ET/ 9-10am PT

COMPREHENSIVE POPULATION HEALTH SYSTEMS & HOSPITAL UNCOMPENSATED CARE COSTS

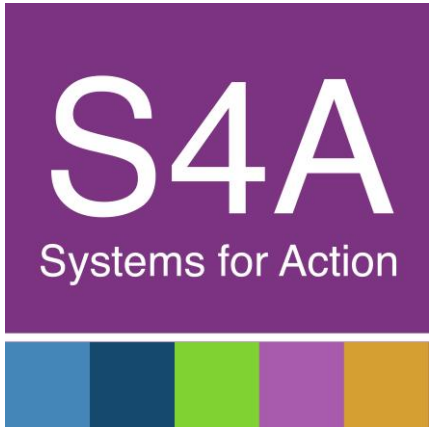
C. B. Mamaril, PhD, University of Kentucky College of Public Health

Wednesday, September 6, 12-1pm ET/ 9-10am PT

INTERORGANIZATIONAL RELATIONSHIPS AND PUBLIC HEALTH SYSTEM EFFORTS TO ADDRESS PRESCRIPTION DRUG ABUSE

Lainie Rutkow, JD, PhD MPH and Katherine Smith, PhD, Johns Hopkins Bloomberg School of Public Health

Thank you for participating in today's webinar!



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For more information about the webinars, contact:

Ann Kelly, Project Manager *Ann.Kelly@uky.edu* 859.218.2317

111 Washington Avenue #201, Lexington, KY 40536

Acknowledgements

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Speaker Bios

Bergen B. Nelson, MD, MS, is general pediatrician and child health services researcher at Virginia Commonwealth University College of Medicine, where she is an Assistant Professor in the Department of Pediatrics. Her interests include early childhood development, screening for developmental and behavioral concerns, and promoting healthy development for children living in vulnerable circumstances. Dr. Nelson is a graduate of Harvard Medical School, and the Robert Wood Johnson Clinical Scholars Program at UCLA. Prior to medical school she was a bilingual school teacher in New York City, and after medical school completed training in pediatrics in the inaugural year of UCSF's Pediatric Leadership for the Underserved (PLUS) residency program. Dr. Nelson was formerly associated with the UCLA Center for Healthier Children, Families & Communities and the David Geffen School of Medicine.

Susan N. Dreyfus is president and CEO of the Alliance for Strong Families and Communities, a strategic action network of social sector organizations that has a national reach in thousands of communities across America. She is dedicated to advancing equity in society through access and opportunity so all people can reach their full potential. Prior to joining the Alliance in 2012, Dreyfus was secretary for the Washington State Department of Social and Health Services, where she had responsibility for Medicaid, aging and long-term care, child welfare, behavioral health care, juvenile justice, economic assistance, and other human services. Before her work in Washington state, Dreyfus served as senior vice president and chief operating officer for the Alliance, was the first administrator of the Wisconsin Division of Children and Family Services.

Dreyfus is chair of Leadership 18, a coalition of CEOs from the largest and most respected nonprofit organizations in America, and was also the chair of its 2016 Executive Committee. She serves on the governing boards of several national associations, and has received several awards including the American Public Human Services Association's 2016 Lifetime Achievement Award for her contributions to the field of health and human services in both the public and private sectors.

Jacqueline Hale currently serves as Director of Programs and Community Impact for Smart Beginnings Greater Richmond, leading strategic early childhood community initiatives across nine cities and counties in the Richmond region. She has been with Smart Beginnings Greater Richmond since 2010. Formerly, Ms. Hale served as Director of Early Childhood Initiatives at United Way of Greater Richmond & Petersburg, and as Director of Finance and Administration at Leadership Metro Richmond, a community leadership association. She has also worked as a Program Coordinator at Virginia Commonwealth University Division of Quality Health Care, supporting the local safety net of free clinics and community health centers.