Perceived neighborhood safety and social support during childhood and its impact on mental health

PLACE
MATTERS

A GIS analysis of children's population health needs and resources in Philadelphia

SCATTERGOOD
FOUNDATION

City of Philadelphia
DBHIDS
DEPARTMENT of BEHAVIORAL HEALTH
and INTELLECTUAL disABILITY SERVICES

Neighborhood level traits such as poverty, lower education, and high crime are linked with worse mental health outcomes. Social capital, or neighbors that watch out for each other, can protect against the negative impact of neighborhood deterioration. Less is known about how perceived neighborhood trust and safety protects against mental illness.

This project uses statistical and spatial (mapping) analyses to better understand the impact of changeable neighborhood characteristics on mental health, and proposes a way to use population level risk factors to assess service need and adequacy of community resources.

For the first time, a multiple risk factor index is used to determine higher levels of need across the city of Philadelphia. This work has implications for the behavioral health system, as well as can guide policy and planning for other social and city services.
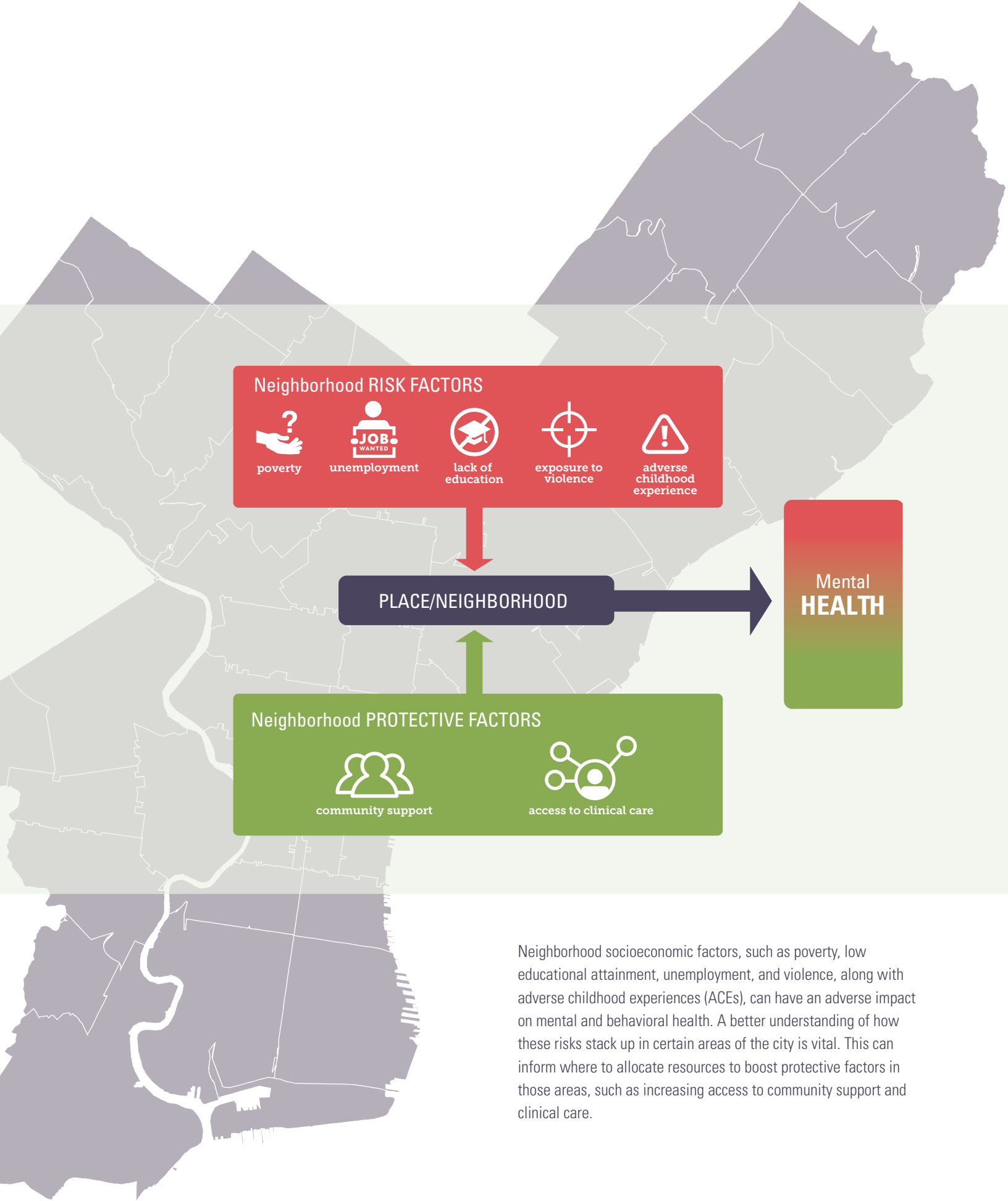
Neighborhood RISK FACTORS

poverty

unemployment — JOB WANTED

lack of education

exposure to violence

adverse childhood experience

PLACE/NEIGHBORHOOD

Mental HEALTH

Neighborhood PROTECTIVE FACTORS

community support

access to clinical care

Neighborhood socioeconomic factors, such as poverty, low educational attainment, unemployment, and violence, along with adverse childhood experiences (ACEs), can have an adverse impact on mental and behavioral health. A better understanding of how these risks stack up in certain areas of the city is vital. This can inform where to allocate resources to boost protective factors in those areas, such as increasing access to community support and clinical care.

Where are the high risk areas?

Zip codes were assigned a composite risk ranking based on five factors:

POVERTY
% of families with children below poverty level

+

EDUCATION
% less than 9th Grade

+

UNEMPLOYMENT
% Unemployed

+

CRIME
Shooting victims per 10,000

+

ACE Rank
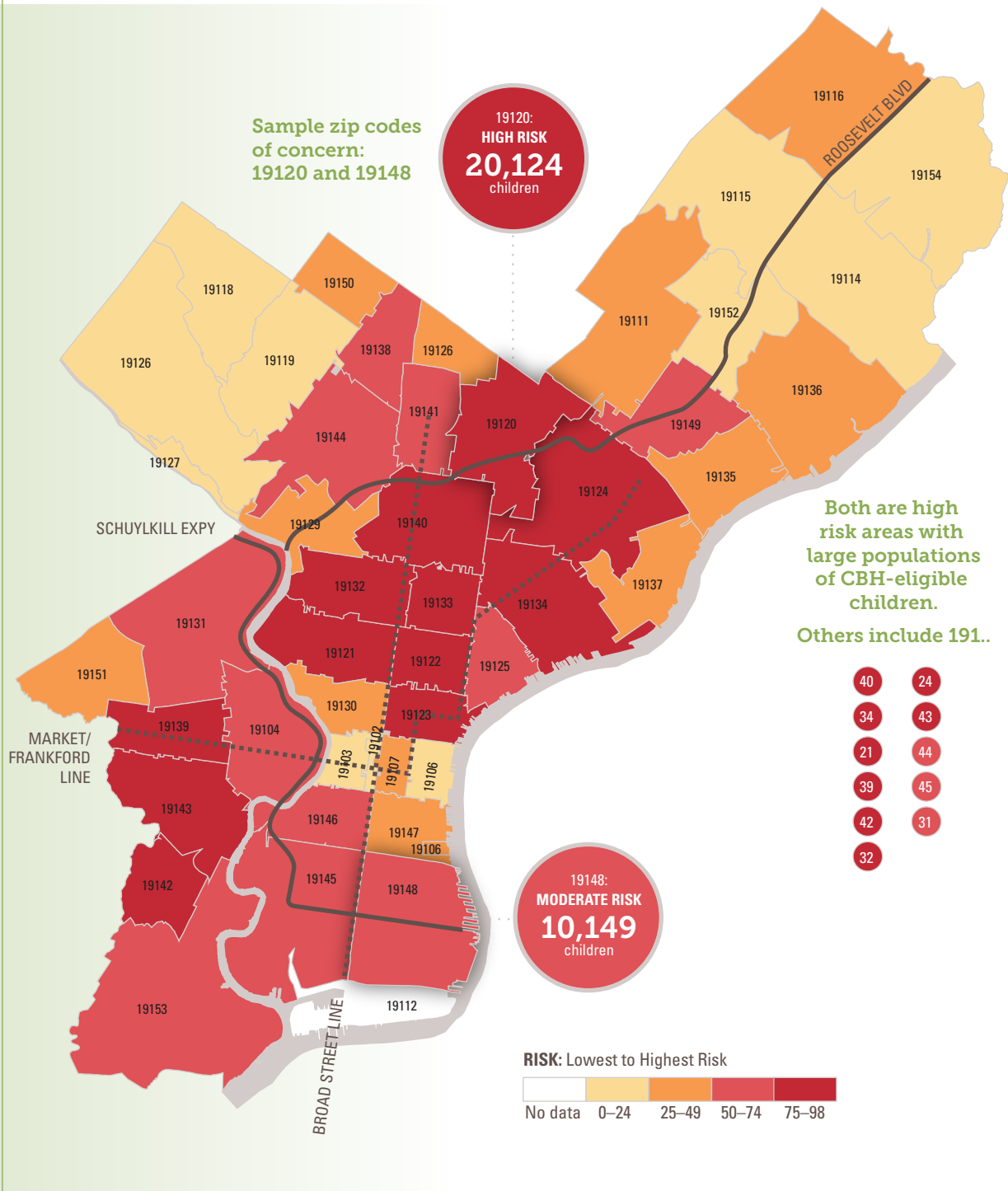% with at least one ACE

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COMPOSITE RISK RANK

Statistical analysis (multivariate logistic regression) used data from the 2013 Philadelphia Expanded Adverse Childhood Experience (ACE) Survey to test the impact of perceived neighborhood trust and safety during childhood, witnessing violence during childhood, and overall adverse childhood experiences on the reported mental health of Philadelphia adults.

A secondary GIS analysis used zip code-level Census, crime, and ACE data to calculate multifactorial Risk Index scores to identify areas of higher need.

Sample zip codes of concern: 19120 and 19148

19120: HIGH RISK
20,124 children

19148: MODERATE RISK
10,149 children

Both are high risk areas with large populations of CBH-eligible children.

Others include 191..

40 24
34 43
21 44
39 45
42 31
32

ROOSEVELT BLVD

SCHUYLKILL EXPY

MARKET/ FRANKFORD LINE

BROAD STREET LINE

19116 19154 19115 19114 19150 19118 19126 19138 19126 19119 19111 19152 19136 19141 19120 19149 19144 19135 19127 19124 19129 19140 19137 19132 19133 19134 19131 19121 19122 19125 19151 19130 19102 19123 19139 19104 19103 19107 19106 19143 19146 19147 19106 19142 19145 19148 19153 19112

RISK: Lowest to Highest Risk

| No data | 0–24 | 25–49 | 50–74 | 75–98 |

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HIGH RISK AND HIGH POPULATION

Five of the 7 zip codes in the 25th highest percentile for risk also have the highest numbers of children in Philadelphia and large percentages of Medicaid-eligible children.
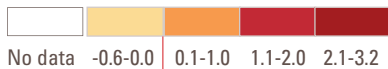
Children 0-17

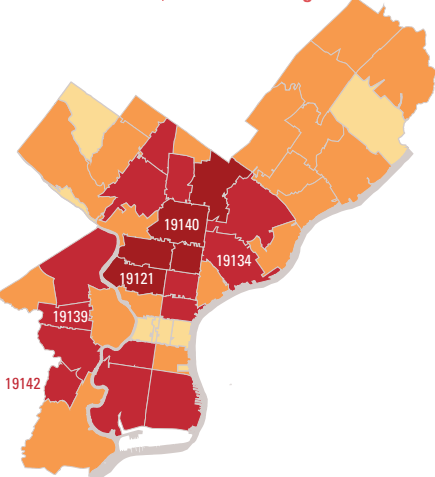| 2– 2,277	2,278– 5,513	5,514– 8,168	8,169– 11,372	11,373– 21,448
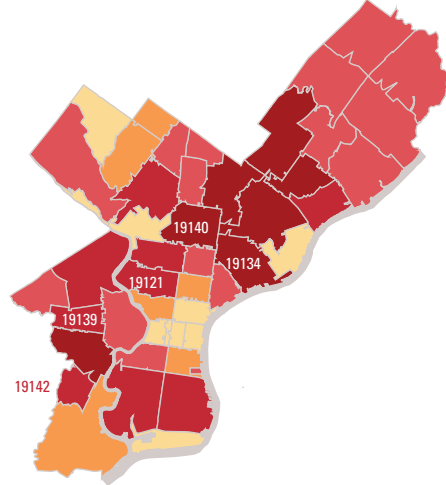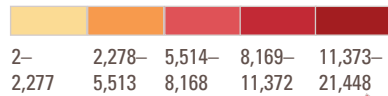
GREATER RISK THAN AVERAGE

Of Philadelphia's 46 zip codes, 39 (85%) fall above national average for need, and 7 (15%) fall below national average for need.

Risk deviations from national average

No data	-0.6-0.0	0.1-1.0	1.1-2.0	2.1-3.2

Greater risk than national average

Comparison by Risk Factor

COMPOSITE RISK RANK BY ZIP CODE		POVERTY	EDUCATION	UNEMPLOYMENT	CRIME	ACEs
US Avg		17.6%	5.8%	5%	3.7	63.9%
19133	97.8	61.81	19.21	25.89	27.61	96.9
19140	95.7	46.43	12.98	25.51	23.56	98.2
19122	93.6	52.99	11.04	21.87	13.15	NA
19134	91.4	56.28	15.28	22.47	14.41	87
19121	89.3	61.57	6.12	21.73	22.14	93.4
19139	87.2	39.43	6.02	18.38	17.53	92.5
19142	85.1	32.62	8.74	17.21	9.66	NA
19132	82.9	41.64	4.80	23.39	25.26	86.7
19120	80.8	32.96	11.88	16.73	8.73	95.9
19124	78.7	37.60	11.36	19.94	11.87	71
19123	76.5	20.97	5.80	16.36	14.95	NA
19143	74.4	33.19	4.77	20.02	13.90	77.2
19141	72.3	28.08	4.66	17.02	15.64	89.2
19104	70.2	35.48	5.37	12.56	8.52	NA
19148	68.0	30.19	13.30	12.45	2.36	94.8
19144	65.9	32.21	4.01	16.26	11.16	91.6
19146	63.8	36.21	4.34	12.40	13.18	87.6
19145	61.7	31.82	7.59	14.09	7.85	79.3
19138	59.5	24.00	4.26	16.71	10.28	93.1
19125	55.3	31.34	6.92	14.36	0.85	92.1
19131	55.3	32.87	3.50	14.01	10.37	83.1
19149	53.1	23.03	7.93	17.07	1.06	77
19153	51.0	17.67	4.47	13.42	8.95	NA
19126	48.9	17.42	4.39	14.49	5.47	NA
19135	46.8	21.18	4.95	18.83	1.80	72.1
19137	44.6	23.31	5.23	17.21	0.00	NA
19129	42.5	30.67	3.63	9.73	9.10	NA
19151	40.4	23.47	2.73	13.62	6.85	NA
19111	36.1	16.68	5.93	12.12	1.24	80.6
19130	36.1	24.98	3.81	10.36	3.98	82.6
19147	34.0	29.95	6.96	7.84	3.22	60.7
19107	31.9	4.91	6.98	8.93	1.32	NA
19116	27.6	7.04	4.77	9.97	2.69	79.5
19136	27.6	16.48	3.36	14.62	0.98	73.7
19150	25.5	15.66	1.93	11.96	3.47	NA
19152	23.4	10.67	4.60	10.40	0.60	81.6
19119	21.2	15.31	2.45	9.97	3.42	75.9
19115	19.1	10.47	5.53	9.12	0.00	71.4
19114	17.0	11.00	2.36	11.24	0.64	NA
19106	10.6	13.46	3.19	3.50	0.86	NA
19127	10.6	10.07	1.82	6.67	1.61	NA
19128	10.6	7.33	3.38	9.30	0.00	79.2
19154	8.5	7.92	3.05	8.12	0.88	66.2
19103	6.3	3.52	0.59	5.70	0.90	63.1
19118	4.2	1.49	1.70	7.28	0.00	NA
19102	2.1	5.22	1.44	4.79	0.00	NA

Shading indicates scores that are worse than national averages

Where are behavioral health services located?

Total population of children
346,863

CBH eligible children
272,223

Total children served by CBH network in 2105
33,378

Children served by non-hospital mental health services in 2015
31,778

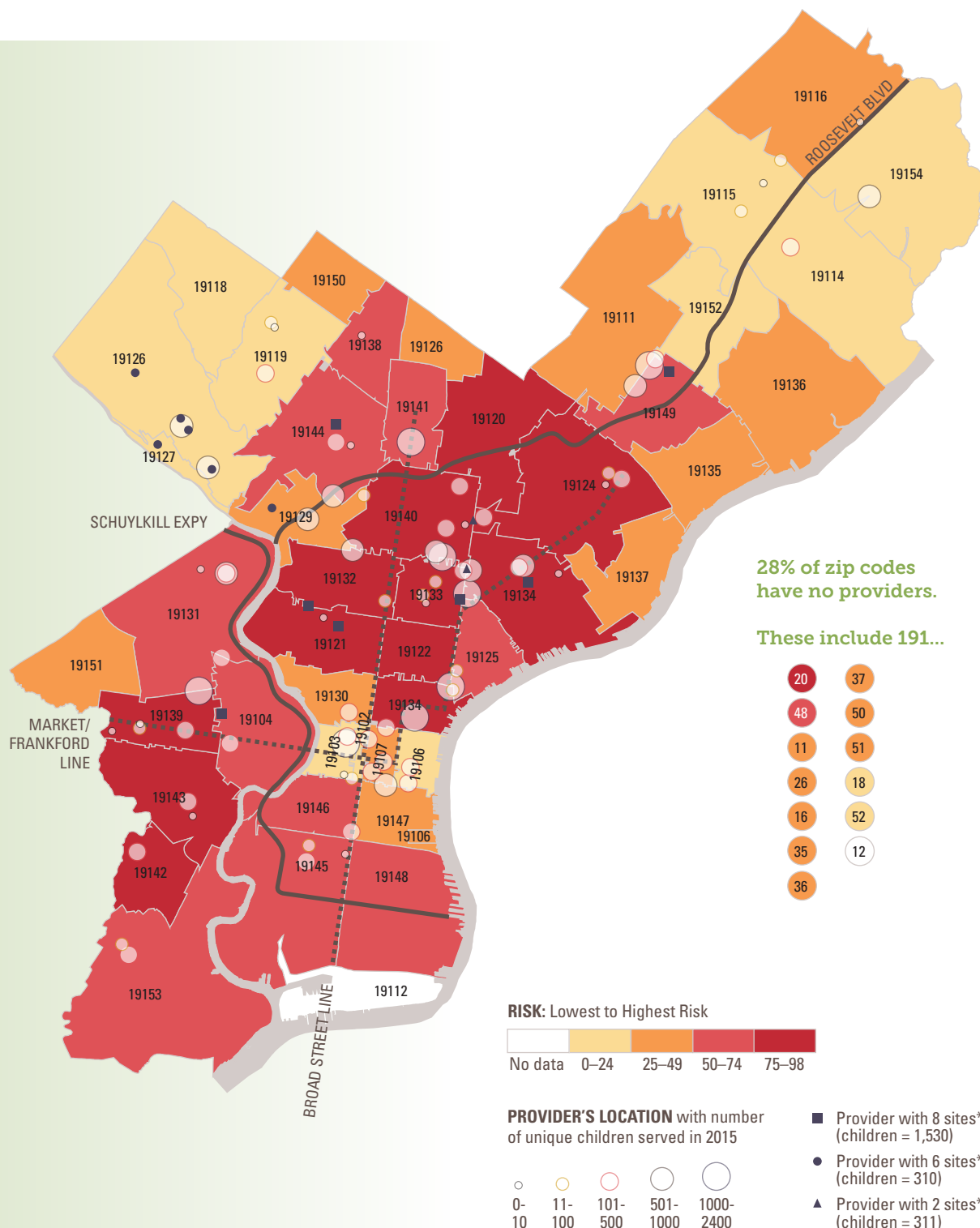Total sites
103

Total providers
53

The Risk Index was used to compare location and utilization of outpatient mental health services available to Philadelphia's Medicaid-eligible children ages 0 to 17 years.

28% of zip codes have no providers.

These include 191...

20	37
48	50
11	51
26	18
16	52
35	12
36	

ROOSEVELT BLVD

SCHUYLKILL EXPY

MARKET/ FRANKFORD LINE

BROAD STREET LINE

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RISK: Lowest to Highest Risk

No data	0–24	25–49	50–74	75–98

PROVIDER'S LOCATION with number of unique children served in 2015

0-10	11-100	101-500	501-1000	1000-2400

■ Provider with 8 sites* (children = 1,530)

● Provider with 6 sites* (children = 310)

▲ Provider with 2 sites* (children = 311)

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2015 Behavioral Health Utilization Rates

RISK RANK BY ZIP CODE	Risk	0-4.7%	4.8-8.3%	8.4-12.4%	12.5-17.3%
19133	97.8				•
19140	95.7				•
19122	93.6				•
19134	91.4				•
19121	89.3			•	
19139	87.2			•	
19142	85.1		•		
19132	82.9			•	
19120	80.8			•	
19124	78.7			•	
19123	76.5			•	
19143	74.4			•	
19141	72.3			•	
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19144	65.9			•	
19146	63.8			•	
19145	61.7			•	
19138	59.5			•	
19125	55.3			•	
19131	55.3			•	
19149	53.1			•	
19153	51.0		•		
19126	48.9			•	
19135	46.8			•	
19137	44.6			•	
19129	42.5			•	
19151	40.4		•		
19111	36.1		•		
19130	36.1			•	
19147	34.0		•		
19107	31.9	•			
19116	27.6	•			
19136	27.6			•	
19150	25.5		•		
19152	23.4		•		
19119	21.2		•		
19115	19.1	•			
19114	17.0		•		
19106	10.6	•			
19127	10.6			•	
19128	10.6			•	
19154	8.5		•		
19103	6.3		•		
19118	4.2		•		
19102*	2.1				
19112	N/A	•			

* This zip code includes the Department of Human Services (DHS). Children in DHS care have this address listed as their home address but do not reside there.

What should we do?

1 Increase and align the capacity of the behavioral health network according to risk and population

2 Adopt population health approaches to better understand neighborhood risk factors and the unevenness across Philadelphia

3 Use data-driven research to inform decisions on where to locate resources to increase neighborhood protective assets where they are most needed

4 Continue using data and cross-sector collaboration to better understand the city's evolving population and needs

5 Use the Risk Index to determine need as it relates to the location of other community resources like libraries, playgrounds, and physical health providers.

The ability to better understand the city from a population level allows policy makers to work toward increasing protective assets in areas that have higher risk for adverse health. Decisions driven by evidence and data, rather than instinct, would ensure a thoughtful and systematic approach to meeting the city's needs. It can strengthen the network so that the city can move beyond compliance and serve as a model for effective and efficient care for its most vulnerable citizens.

SCATTERGOOD
FOUNDATION

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*Advancing Innovative Strategies
for Change in Behavioral Health*

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