

A photograph of three young children of Asian descent smiling at a playground. The child in the foreground is a girl with dark hair in pigtails, wearing a purple top. Two other children are behind her, also smiling. The background shows a sandy playground with colorful structures and a grassy area under a clear blue sky.

Developing Population Estimates of Childhood Health and Wellbeing in the Logan Community.

Data and Innovation Network Meeting, August 29, 2017

Professor David Hogan
Logan Together/Griffith University/Opportunity Child

1. What is Logan Together?

LT is an cross-sector, **collaborative partnership** of government agencies (Commonwealth, state and local), service providers, community representatives and organizations and national philanthropies

committed to using a **place-based collective impact** framework to co-design and implement innovative high leverage investments and programs ...

to improve the **health and wellbeing**, broadly conceived, of young people in the Logan communities south of Brisbane characterized by high levels of **childhood developmental vulnerability** and **deep and persistent disadvantage**.

LT Data Analysis: Key Objectives

1. **To measure, map and model** children's health and wellbeing and associated risk and protective factors at a population level over the course of the early life cycle
2. **To identify populations at-risk:** who is at-risk, in what suburbs, with respect to what issues?
3. **To identify and model relationships** between outcomes and risk and protective factors at a population level, and where possible, at a family or individual level, with linked data sets
4. **To identify the general features** of the architecture and logic of disadvantage at a population level in the Logan community
5. **To estimate** the size of the gap between the status of current outcome measures in Logan and benchmark standards that LT would like to close over the next 10 years ("closing the gap")
6. **To employ population data**, and where possible, **molecular data systems** focused on individuals and families, to inform and support the design and implementation of targeted, place-based, evidence-informed, high-leverage investments in the Logan community
7. **To measure changes over time** in children's health and wellbeing and the profiles of risk and protective factors of at-risk populations as a result of targeted LT investments

THE STATE OF LOGAN'S CHILDREN AND FAMILIES

Final Report on Child Health and Wellbeing in Logan, Queensland

**Professor David Hogan
Logan Together
Griffith University, Logan Campus**

April, 2017.

Outline Vol. 3

Part One. Introduction.

Chapter 1. Theory and Method

Chapter 2. Logan: Background Population Characteristics

Part Two. Perinatal Risk Factors and Health Status.

Chapter 3. Perinatal Risk and Protective Factors and Children's Health and Wellbeing Status

Part Three. Early Childhood.

Chapter 4. Home Environment: Risk and Protective Factors

Chapter 5. Australian Early Development Census (AEDC) Indicators of Developmentally Vulnerable and At-Risk Children

Part Four. Primary School

Chapter 6. Year 3 and Year 5 NAPLAN results.

Chapter 7. Student, Parent and Teacher Evaluations of Logan School Experiences

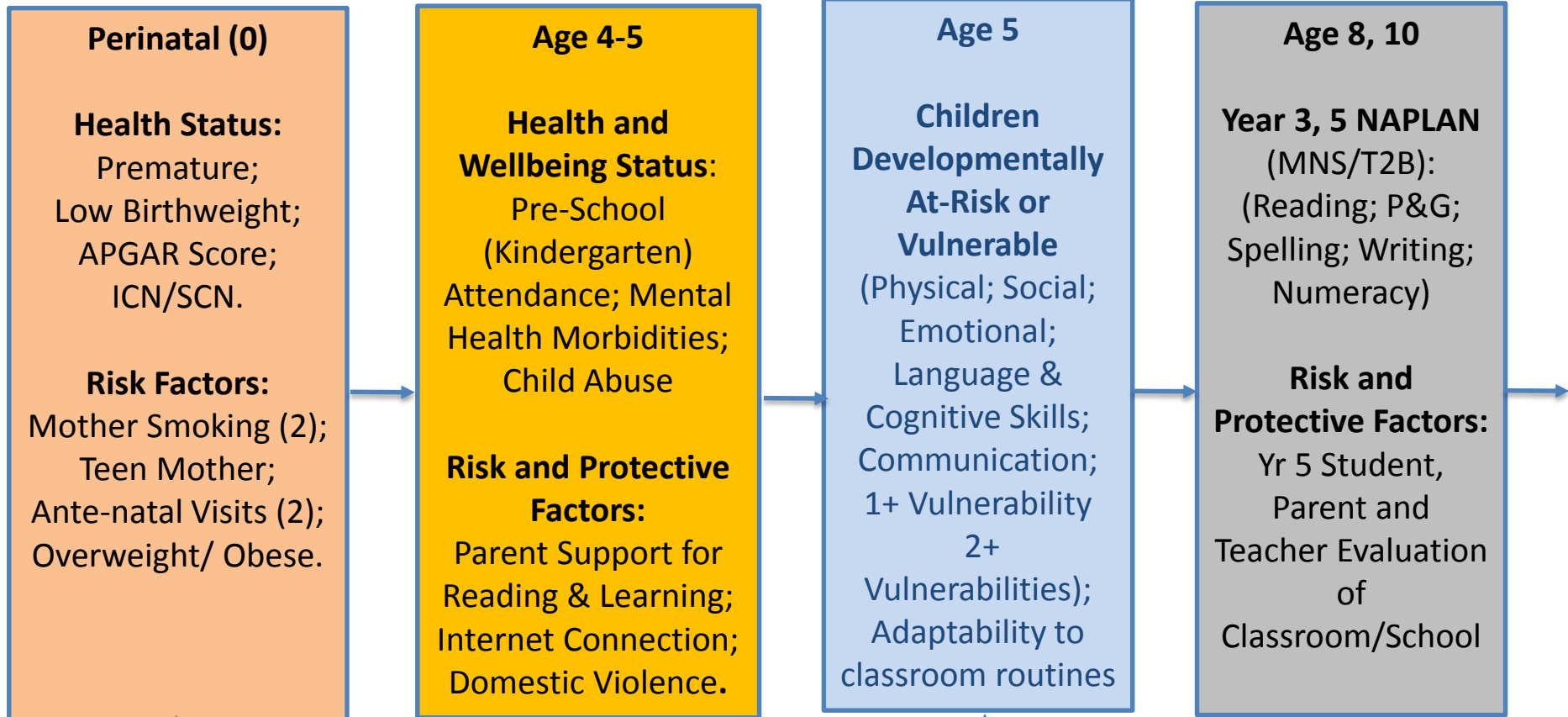
Part Five. Conclusion.

Chapter 8. Summative Statistics: Suburbs at Risk

Chapter 9. Logan Together: Mediating Deep and Persistent Disadvantage

Bibliography

Current LT Children Outcome Measures and Family Background Measures Across the Early Life Cycle



Family Background and Community Context

Location (SA2/Suburb); Demographics; Family Composition; Family Functioning (Family Violence); Family Economy (Education, Employment, Income, Housing); SEIFA (IRSD); Parent and Teacher Evaluations of Classroom/School Experience; Crime; Volunteering

Note

- Ecological data generally reported at SA2 (n=10,000 persons) level, not individual level
- 33 SA2s in Logan, rendering statistical analysis challenging, although not impossible
- Big gaps in data, especially 0-4

Question 1:

Who is At Risk, In What Suburbs, On What Issues?

(Perinatal, AEDC)

Perinatal Health Status (Ch. 3)

Suburbs	% Premature Babies (% Under 37 Weeks)	% Low Birthweight (% under 2500 grams)	% Low APGAR 1 Scores	% Low APGAR 5 Score	% babies admitted to ICN/SCN	Average %	Rank Order by SA2
Australia	8.5	6.3	-	1.7 (<7)	15.4		
Queensland	9.3	6.6	-	1.7 (<7)	17.9		
Logan (N)	10.5	7.4	11.9	3.92 (<8)	16.9		
Chambers Flat - Logan Reserve	20.80	14.60	10.40	10.40	27.10	16.66	1
Waterford West	11.80	10.00	14.20	7.50	26.70	14.04	2
Boronia Heights - Park Ridge	15.60	9.70	17.50	5.20	20.10	13.62	3
Slacks Creek	13.40	9.30	13.90	7.20	19.60	12.68	4
Munruben - Park Ridge South	12.80	7.70	17.90	5.10	17.90	12.28	5
Beenleigh	8.60	6.40	15.00	7.90	21.40	11.86	6
Kingston	11.80	10.10	14.00	4.80	16.20	11.38	7
Eagleby	12.30	8.40	12.60	3.40	19.20	11.18	8
Daisy Hill	11.10	6.70	15.60	4.40	17.80	11.12	9
Bahrs Scrub / Wolfdene	11.80	7.90	13.20	6.60	14.50	10.80	10
Edens Landing - Holmview	10.10	6.50	11.50	3.60	22.30	10.80	11
Greenbank	9.20	5.70	13.20	6.30	19.50	10.78	12
Crestmead	11.80	5.00	15.10	5.50	16.40	10.76	13

AEDC Developmentally Vulnerable, 2015, SA2s, Rank Ordered

Suburb	N (Total AEDC Sample)	% Physical Health	% Social Competence	% Emotional Wellbeing	% Language / Cognitive Skill	% Commun. & General Knowledge	Average %	% Vulnerable on More than One Domain	% Vulnerable on More than Two Domains	Rank Order (av. % vulnerable)
Crestmead	271	18.5	20.0	16.7	26.2	17.3	19.7	46.3	23.5	1
Waterford West	99	23.1	15.4	11.1	16.5	21.1	17.4	34.1	24.2	2
Loganholme	130	17.6	22.7	17.6	7.6	21.0	17.3	39.5	24.4	3
Eagleby	233	18.9	22.6	13.4	13.4	17.5	17.2	36.9	25.8	4
Park Ridge	20	15.0	25.0	15.0	15.0	15.0	17.0	30.0	25.0	5
Logan Central	114	19.1	12.7	13.6	18.2	20.0	16.7	41.8	22.7	6
Kingston	220	18.0	17.5	15.2	15.6	11.8	15.6	35.5	22.7	7
Woodridge	232	14.0	15.8	9.5	18.5	20.3	15.6	39.2	20.3	8
Mount Warren Park	86	15.3	17.6	17.6	14.1	12.9	15.5	30.6	18.8	9
Loganlea	122	16.1	18.6	10.2	16.1	16.1	15.4	39.0	22.9	10
Kingston	220	18.0	17.5	15.2	15.6	11.8	15.6	35.5	22.7	7
Marsden	291	17.4	16.7	11.6	13.8	13.8	14.7	36.7	19.6	11
Slacks Creek	169	15.9	15.2	14.7	12.2	14.6	14.5	32.5	18.9	12
Beenleigh	116	18.5	12.0	13.0	8.3	14.8	13.3	33.3	19.4	13
Windaroo	51	10.4	20.8	18.8	6.3	10.4	13.3	25.0	20.8	14
Berrinba	24	8.7	26.1	13.0	13.0	4.3	13.0	34.8	17.4	15

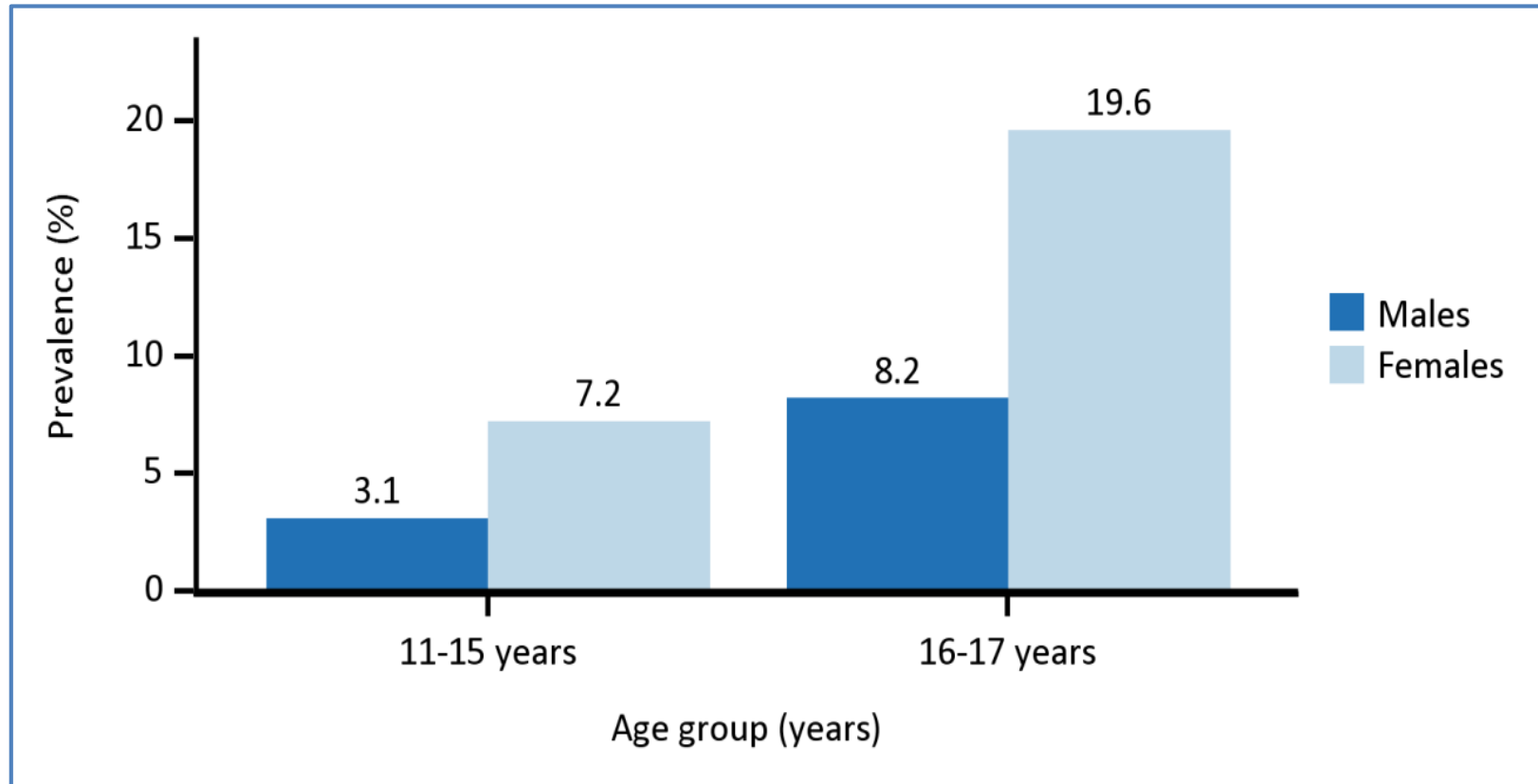
Children and Adolescent Mental Health Data (Ch. 4)

Population Estimates of 12-month prevalence of mental disorders among 4-17 year-olds by sex and age group: Logan LGA (Derived From TKI, *Young Minds Matter Report 2015*).

Disorder	All Persons 4-11 N=38,505 (Est.)		All Persons 12-17 N=28,878 (Est.)	
	%	n	%	n
Anxiety disorders	6.9	2,657	7.0	2,021
Major depressive disorder	1.1	424	5.0	1,444
ADHD	8.2	3,157	6.3	1,819
Conduct disorder	2.0	770	2.1	606
<i>Any mental disorder (1 or more)</i>	13.6	5,237	14.4	4,158

Disorder	Males 4-11 N=19,253 (Est.)		Females 4-11 N=19,253 (Est.)		Males 12-17 N=14,439 (Est.)		Females 12-17 N=14,439 (Est.)	
	%	n	%	n	%	n	%	n
Anxiety disorders	7.6	1,463	6.1	1,174	6.3	910	7.7	1,112
Major depressive disorder	1.1	212	1.2	231	4.3	621	5.8	837
ADHD	10.9	2,099	5.4	1,040	9.8	1,415	2.7	390
Conduct disorder	2.5	481	1.6	308	2.6	375	1.6	231
<i>Any mental disorder</i>	16.5	3,177	10.6	1,174	15.9	2,296	12.8	1,848

Prevalence of major depressive disorder in the past 12 months based on *self-reports* in 11-17 year-olds



Note: The prevalence of major depressive disorder was far higher when young people provided the information themselves than when their parents and carers did so.

Question 2:

How Strong is the Relationship Between Key Outcome Measures at the SA2 level?

Correlation Developmental Vulnerabilities & NAPLAN (Year 3)

Developmental Vulnerabilities							
	Physical Health	Social Competence	Emotional Wellbeing	Language and Cognitive Skills	Communication and General Knowledge	Average Vulnerability	Vulnerable on 2 or more domains
NAPLAN3 MNS							
Reading	-.584**	-.570*	-.113	-.563*	-.425	-.540*	-.525*
Punctuation and Grammar	-.684**	-.555*	.030	-.704**	.471*	-.518*	-.495*
Spelling	-.680**	-.594**	-.203	-.524*	-.441	-.566**	-.480*
Writing	-.467*	-.550*	.118	-.604**	-.417	-.393	-.353
Numeracy	-.370	-.374	.151	-.546*	-.199	-.217	-.139
NAPLAN3 T2B							
Reading	-.657**	-.609**	-.014	-.682**	-.697**	-.611**	-.642**
Punctuation and Grammar	-.443	-.507*	.197	-.531*	-.445**	.378	.402
Spelling	-.433	-.613**	-.082	-.578**	-.445*	-.378	-.402
Writing	-.486*	-.425	-.256	-.447	-.500*	-.543*	-.633**
Numeracy	-.383	-.564*	-.044	-.611**	-.602**	-.529*	-.514*

Question 3:

**How Strong is the Relationship Between
Key Risk Factors at the SA2 level?**

Perinatal Risk Factors Indicators: Correlation Matrix

	Perinatal Risk Factors						
	% Smoking During 1 st 20 weeks	% Smoking During 2 nd 20 weeks	% First prenatal visit during 3 rd Trimester	% Low N. Prenatal Visits	% Overweig ht and Obese	% Mother Aged Under 20	% Single Mother Under 25
Perinatal Risk Factors (Mother)							
% Smoking during first 20 weeks of pregnancy	1						
% Smoking after 20 weeks of pregnancy	.955**	1					
% Mothers Attending First Antenatal Visit During 3rd Trim.	.691**	.695**	1				
% Mothers making low number of prenatal visits overall	.666**	.670**	.726**	1			
% Mothers Overweight or Obese	.739**	.788**	.604**	.581**	1		
% Mother Aged Less Than 20	.750**	.766**	.681**	.605**	.627**	1	
% Single Mothers Under 25	.575**	.664**	.227*	.380**	.353**	.520**	1

*N=33; * statistically significant at the .05 level (two tailed); ** statistically Significant at .01 Level (two tailed)*

Question 4:

How strong is the relationship between key outcome measures and risk factors at the SA2 level?

Correlation Matrix: Perinatal Risk Factors and Health Status Indicators.

	Perinatal Baby Health Status				
	Premature Babies	Low Birth Weight	APGAR 1	APGAR 5	ICN/SCN
Perinatal Risk Factors (Mother)					
% Smoking during first 20 weeks of pregnancy	.299**	.201*	.044	.283**	.229
% Smoking after 20 weeks of pregnancy	.320**	.216**	.101	.329*	.268**
% Mothers Attending First Antenatal Visit During 3 rd Trimester	.227**	.132	-.105	.164*	.049
% Mothers making low number of prenatal visits overall	.251**	.120	-.070	.229**	-.036
% Mothers Overweight or Obese	.151**	.128	.122	.268**	.220**
% Mothers Aged Under 20	.309**	.128	.034	.157*	.176*
% Single Mothers Under 25	.100	.154	.185*	.354**	.072

*N=33; * Statistically significant at the .05 level (two tailed); ** Statistically Significant at .01 Level (two tailed)*

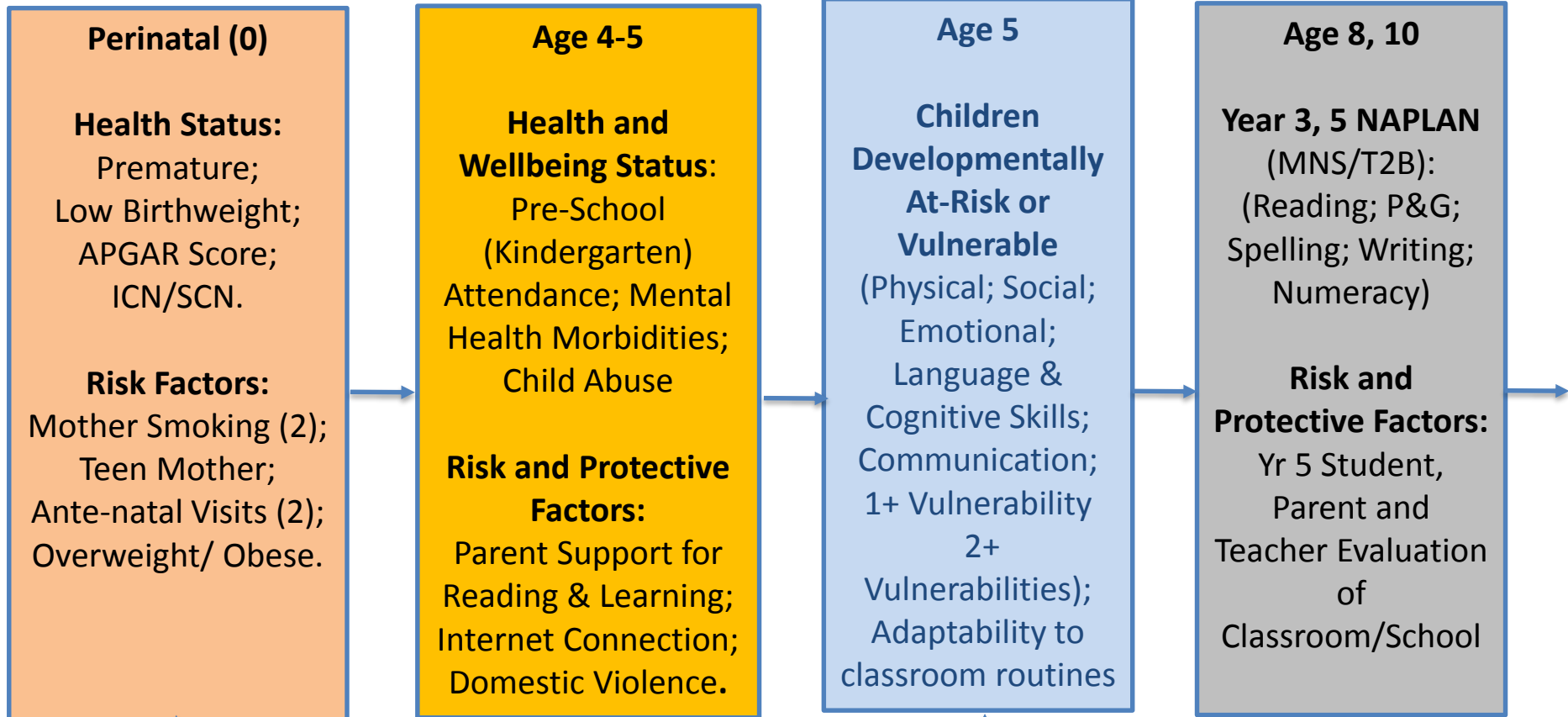
Correlation AEDC Developmental Vulnerability and Perinatal RF at the SA2 Level

n=24	Developmental Vulnerability							Average at Risk	Average At Risk and Vulnerable
Perinatal Risk Factors	Physical Health	Social Competence	Emotional Wellbeing	Language and Cognitive Skills	Communication and General Knowledge	Average Vulnerability	Vulnerable on 2 or more domains		
% Smoking during first 20 weeks of pregnancy	.366**	.273**	.125*	.598**	.323**	.347**	.384**	.142	.272**
% Smoking after 20 weeks of pregnancy	.380**	.304**	.159*	.642**	.351**	.378**	.418**	.161*	.300**
% Teen Mothers (Mother Under 20)	.285**	.238**	.120	.504**	.258**	.350**	.307**	.122	.262**
% Single Mother Under 25	.457**	.409**	.370**	.457**	.410**	.452**	.502**	.208*	.382**
% Mothers Attending First Antenatal Visit During 3 rd Trimester	.260**	.231**	.163*	.486**	.289**	.337**	.325**	.025	.197**
% Mothers making low number of prenatal visits overall	.376**	.302**	.279**	.585**	.468**	.429**	.439**	.153	.323**
% Mothers Overweight or Obese	.376**	.322**	.189*	.635**	.359**	.427**	.416**	.132	.310**

Question 5:

Which suburbs are most at risk across the entire eight set of indicators in the aggregate?

Current LT Children Outcome Measures and Family Background Measures Across the Early Life Cycle Employed in Report



Family Background and Community Context

Location (SA2/Suburb); Demographics; Family Composition; Family Functioning (Family Violence); Family Economy (Education, Employment, Income, Housing); SEIFA (IRSD); Parent and Teacher Evaluations of Classroom/School Experience; Crime; Volunteering

Summary: What Suburbs are Most at Risk? Rank Ordering the Rank Ordered Scales												
	RO Perinatal Risk Factors (Mother)	RO Perinatal Health Status (Baby)	RO Limited Parent Support for Learning	RO Family Violence (DV and CA)	RO AEDC Score Develop. Vulnerable Children (2015)	RO AEDC Score Children At Risk (2015)	RO AEDC Score Adjustm. to School (2012)	RO Year 3 NAPLAN MNS (2014)	RO Year 3 NAPLAN T2B (2014)	RO Year 5 Student Evaluation Quality of School	Average RO (H-L)	Average RO Rank Ordered (H-L)
Kingston	5	7	4	1	2	16	4	23	2	12	7.6	1
Waterford West	10	2	9	8	16	2	5	21	4	9	8.6	2
Eagleby	1	8	5	2	12	26	3	14	3	13	8.7	3
Woodridge	11	16	3	3	4	5	2	11	10	23	8.8	4
Browns Plains	2	20	7	15	5	11		19	7	4	10.0	5
Marsden	19	28	6	4	3	7	6	22	1	8	10.4	6
Slacks Creek	8	4	11	11	8	12	8	18	6	20	10.6	7
Beenleigh	3	6	1	5	14	29	13	17	19	1	10.8	8
Loganlea	7	27	8	6	9	10	12	-	-		11.3	9
Logan Village	6	15	20	19	-		11	4	13	7	11.9	10

Caveat

- The selection of outcome indicators has been **opportunistic (and selective) rather than theory driven**, dependent on the availability of evidence at the SA2 reporting level and the limited amount of time to prepare the report
- Furthermore, the eight set of indicators are **equally weighted** (that is, treated as equally important). This might not be appropriate if the community concludes that some issues are more important than others and is willing to weight them accordingly
- A different set of indicators, or a system of differentially weighted indicators, would likely generate a different rank ordering of suburbs at-risk
- Nevertheless, the ten set of indicators we report are important and can stand on their own

6. Closing the Gap.

What are the **population estimates** of young people at risk in the current 0-8 cohort across all measured risk factors?

How would the health and wellbeing of the current 0-8 cohort be improved by **closing the gap** at the population level between current levels of health and wellbeing in **Logan** and current levels in **Queensland** as a whole?

Developmentally Vulnerable and At-Risk 5 Year Olds Children in Logan

AEDC domains	Current Logan %	How many children 5 years old is this true of in the AEDC Sample (n=3,932)	How many children 5 years old is this likely to be true of for the 5 year old age cohort at large? (est. n=4,813)	How many Logan children 0-8 (n=43,319) is this likely to be true for? (est.)
Developmentally Vulnerable (Bottom 10%)				
Physical health	13.5	531	650	5,847
Social Competence	13.0	511	626	5,722
Emotional wellbeing	10.5	413	505	4,546
Language and Cognitive Development	11.2	440	539	4,852
Communication and General Knowledge	13.8	543	664	5,975
Vulnerability>1	29.3	1,152	1,410	12,694
Vulnerability>2	16.3	641	785	7,059
Developmentally At-Risk (11-25th Percentile)				
Physical health	16.7	657	804	7,236
Social Competence	17.3	680	833	7,497
Emotional wellbeing	17.5	688	842	7,583
Language and Cognitive Development	14.0	550	674	6,064
Communication and General Knowledge	18.3	720	881	7,929
Data Source: AECD 2015				

Developmental Vulnerability (AEDC)	Current Logan %	How many Logan children 0-8 (n=43,319) was, is or will this be true for? (est)	Benchmark Qld %	Estimate of Number of Children if Qld Benchmark Reached	Of all kids 0-8 how many do we need to help to close the gap / achieve parity (est)
Developmentally Vulnerable					
Physical health	13.5	5,847	11.6	5,025	822
Social Competence	13.0	5,722	11.5	4,982	740
Emotional wellbeing	10.5	4,546	9.3	4,029	517
Language and Cognitive Development	11.2	4,852	9.1	3,942	910
Communication and General Knowledge	13.8	5,975	10.7	4,635	1,340
Vulnerability>1	29.3	12,694	26.2	11,350	1,344
Vulnerability>2	16.3	7,059	13.8	5,978	1,081
Developmentally At-Risk (AEDC)					
Physical health	16.7	7,236	15.5	6,714	522
Social Competence	17.3	7,497	15.6	6,758	739
Emotional wellbeing	17.5	7,583	15.8	6,844	739
Language and Cognitive Development	14.0	6,064	12.4	5,372	692
Communication and	18.3	7,928	17.9		

Question 7:

What are the general characteristics of social disadvantage in Logan?

Does it exhibit a particular architecture, structure or logic?

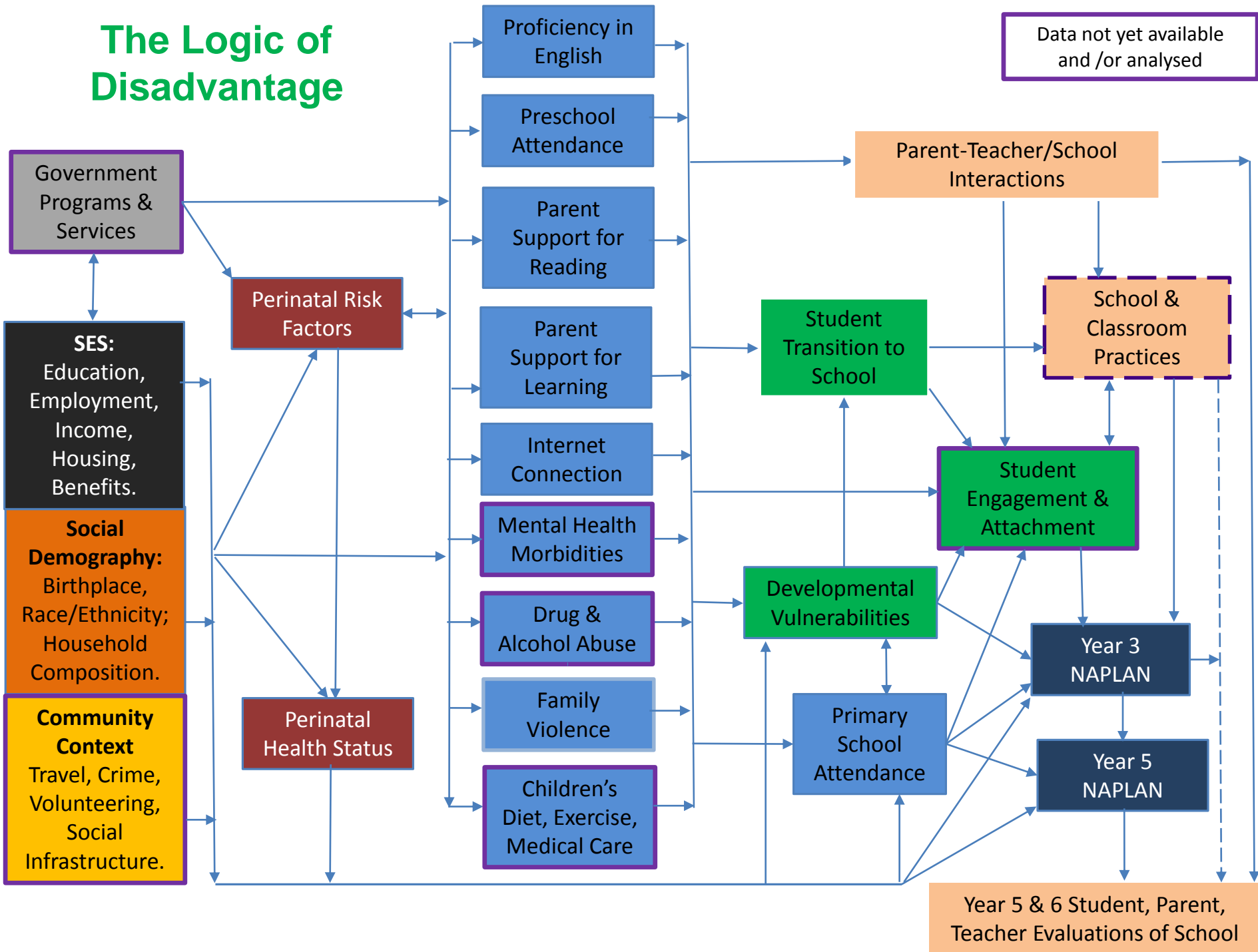
What do we know about deep and persistent disadvantage more broadly?

Deep and persistent social disadvantage has a clearly definable **structure** or **architecture**.

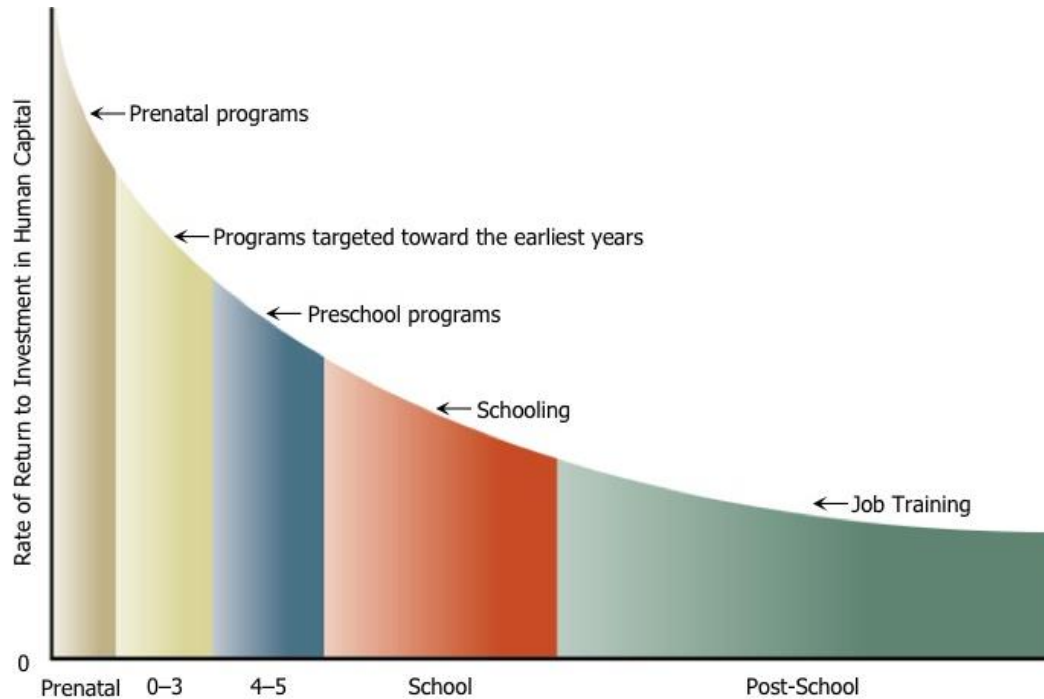
Disadvantage is:

- Multi-dimensional
- Interdependent
- Multi-factorial
- Generative, cumulative and persistent (“snowball effects”)
- Multigenerational
- Institutionally embedded
- Geographically concentrated
- Systemic, not random
- (Socially) exclusionary

The Logic of Disadvantage



The economic case for Early Intervention



Source: James Heckman, Nobel Laureate in Economics

Thank you

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