

Health Complexity in Children – Advanced Health

March 2019

Introduction

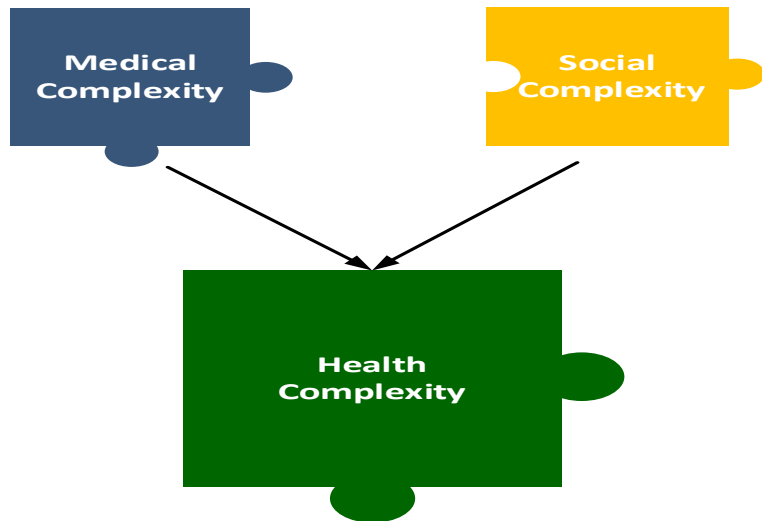
The goal of this project is to identify children with health complexity in the Medicaid population and share this information with CCOs and other partners. Health complexity is based on medical complexity and social complexity.

This report has data specific to your CCO's population. It contains data only for children enrolled in your CCO as of September 2018.

This project is a partnership between:

- 1) Oregon Pediatric Improvement Partnership (OPIP)
- 2) Oregon Health Authority (OHA) - Health Analytics Department
- 3) Department of Human Services (DHS) – Oregon Enterprise Data Analytics (OEDA) and Integrated Client Services (ICS)

Additional support for OPIP's role in providing technical consultation and facilitation of public and private stakeholders was provided by the Lucile Packard Foundation for Children's Health.



For questions about this report, please email Metrics.Questions@dhsaha.state.or.us



Data sources for this dataset include:

1. The ICS data warehouse which includes data from:
 - a) DHS programs: Aging and People with Disabilities, Child Welfare, Developmentally Disabled, Self-Sufficiency, and Vocational Rehabilitation
 - b) OHA programs: Alcohol and Drug, Contraceptive Care, Family Health Insurance Assistance Program, Healthy Kids Connect, Medical Assistance Program, Mental Health, Women Infants Children
 - c) External agencies: Department of Corrections, Oregon Housing and Community Services
2. Medicaid data sourced from the Medicaid Management Information System (MMIS).

Medical Complexity

Background

To measure medical complexity, we are using the Pediatric Medical Complexity Algorithm (PMCA). The PMCA was developed by a team at Seattle Children's Hospital and validated by the Center of Excellence on Quality of Care Measures for Children with Complex Needs (COE4CCN). The PMCA was run using three years of data and using the most conservative version of the algorithm. The target period was July 2015 to June 2016 with claims data pulled one year before this target year and one year after the target year for a three-year total period.

The PMCA takes into account 1) Utilization of services 2) Diagnoses, and 3) Number of body systems impacted, and assigns children into one of three categories:

1. Children with Complex Chronic Disease
2. Children with Non-Complex Chronic Disease
3. Children without Chronic Disease / Healthy

The three categories are co-linear with cost so as complexity increases so does cost.

PMCA is based on utilization and coding, so it does not capture children who 1) are not accessing services 2) cannot access specialized services, and/or 3) have diagnoses that were not coded, meaning medical complexity information is not in the data that we have access to.

For more information about the PMCA:

<https://www.seattlechildrens.org/research/centers-programs/child-health-behavior-and-development/labs/mangione-smith-lab/measurement-tools/>

Summary of Data and Key Findings

This dataset includes 5,015 publicly insured children that were enrolled in your CCO as of September 2018.

- 6.2% of children were placed into the complex chronic disease category
- 24.1% of children were placed into the non-complex chronic disease
- 69.8% of children were placed into the no chronic disease or healthy category

Social Complexity

Background

Social complexity is defined by COE4CCN as “a set of co-occurring individual, family or community characteristics that have a direct impact on health outcomes or an indirect impact by affecting a child’s access to care and/or a family’s ability to engage in recommended medical and mental health treatments. COE4CCN identified 18 social complexity factors associated with worse health outcomes and increased costs.

OPIP, OHA and DHS went through an extensive process to identify useable data sources for these social complexity factors using Health Analytics and Integrated Client Data Warehouse (ICS) data. After this process we were left with 12 factors of social complexity that could be identified for this population during this first phase of work. The lookback period for these data is the lifetime of the child plus one year before their birth. There are **5 child-level factors** and **7 parent/family level factors** for a total of 12 factors. For about 20% of children in this dataset, it was not possible to link the child to either parent. Therefore, these children only have data available for the 5 **child-level** social complexity factors.

Social Complexity Factors	Child-Level Factor	Parent/Family – Level Factor	Total
Poverty – Child received Temporary Assistance for Needy Families (TANF)	x		x
Foster Care – Child receiving foster care services DHS OR Kids since 2012	x		x
Mental Health – Child received mental health services through DHS/OHA	x		x
Substance Abuse – Child received substance abuse treatment through DHS/OHA	x		x
Child Abuse or Neglect – Captured by ICD-9 and ICD-10 diagnosis codes related to service	x		x
Poverty – Parent received Temporary Assistance for Needy Families (TANF)		x	x
Parental Death – Death of parent/primary caregiver in Oregon		x	x
Parental Incarceration – Parent incarcerated or supervised by the Department of Corrections in Oregon		x	x
Mental Health – Parent received mental health services through DHS/OHA		x	x
Substance Abuse – Parent received substance abuse treatment through DHS/OHA		x	x
Limited English Proficiency – Language other than English listed in primary language field		x	x
Parental Disability – OHA disability due to parent disability		x	x
Total Factors	5	7	12

Summary of Data and Key Findings

There was an average of 2.41 social complexity factors per child across the state. In other words, the average child had 2.41 social complexity factors. This did not vary significantly by CCO/Open Card. There was a range of 2.38 to 2.46 social complexity factors per child.

The table below shows the percent and the number of children with that social complexity factor for your CCO. Data for each child includes the lifetime of the child plus one year before their birth.

Prevalence by Social Complexity Factor

CCO	Total
ADVANCED HEALTH	5,015

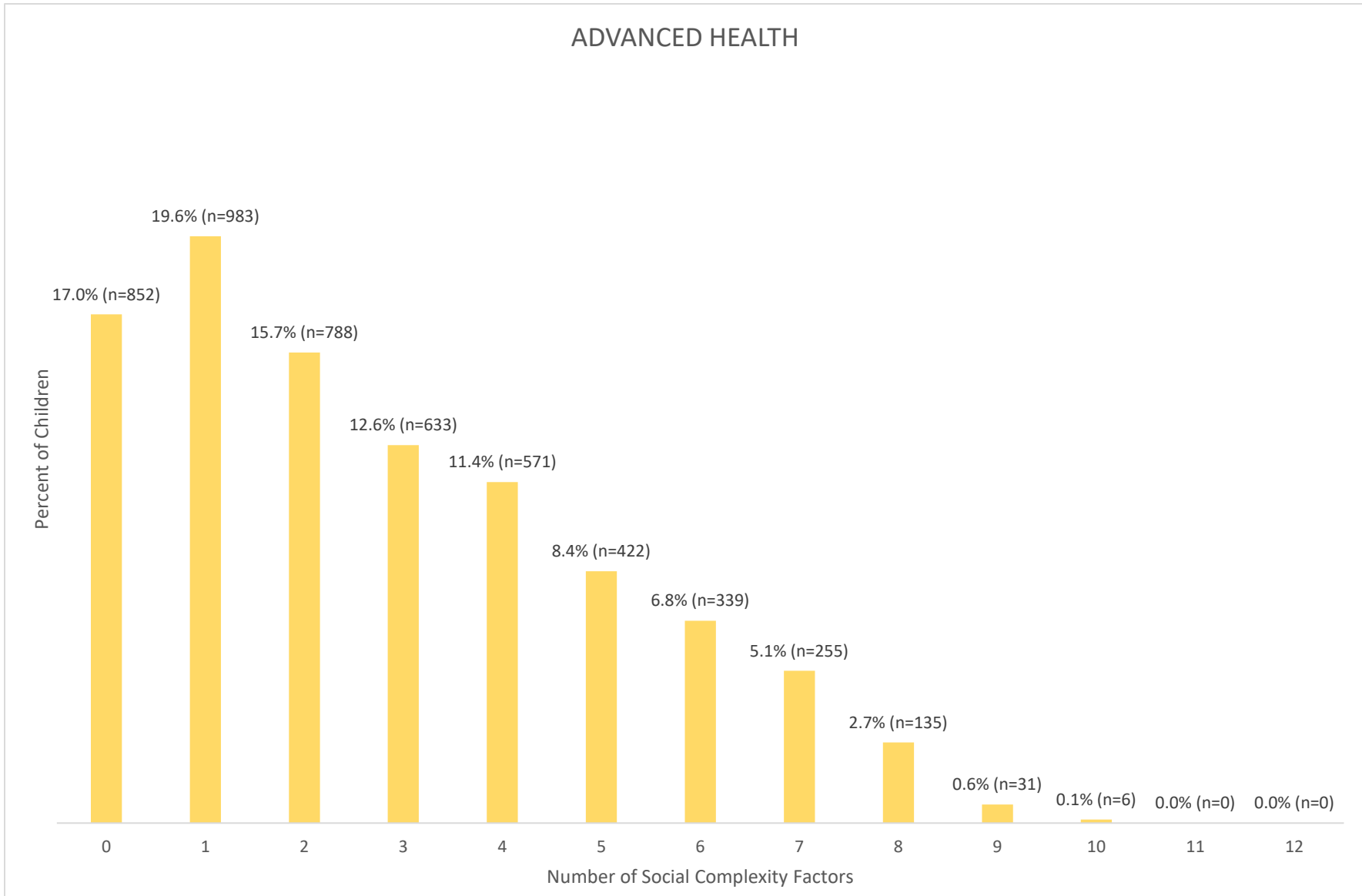
Risk indicator prevalence for ADVANCED HEALTH

Indicator	n	Prevalence
Child abuse/neglect	409	8.16%
Foster care	1,005	20.04%
Limited English proficiency	349	6.96%
Mental Health - Child	1,842	36.73%
Mental Health - Family	2,507	49.99%
Parent death	92	1.83%
Parent disability	254	5.06%
Parental incarceration	1,095	21.83%
Poverty - Child	2,465	49.15%
Poverty - Family	2,054	40.96%
Substance Abuse - Child	226	4.51%
Substance Abuse - Family	1,792	35.73%

Note: Due to reporting rules from DHS Integrated Client Services, populations with low counts (<= 10 people) are masked and reported as NA.

Prevalence %s are for that CCO.

Count of Social Complexity Indicators



Health Complexity

Background

Medical complexity and social complexity are then combined to create a metric of Health Complexity. The Health Complexity variable describes the degree to which the child has both medical and social complexity. This is important because the level and type of supports that are needed for children with high medical and social complexity is very different than the level and type of supports that would be useful for a child with low medical and low social complexity. The categories created combine the existing three categories for the PMCA with three categories based on the social complexity count variable: Children with 3 or more social risk factors, children with 1-2 risk factors, and children with no social risk factors. These categories were chosen because children with 1 or more social risk factors have been shown to have social complexity and children with more risk factors are shown to be at a greater risk. The goal is to identify the population with both levels of complexity.

Summary of Data and Key Findings

The nine boxes are the components of the nine-part categorical variable for health complexity

1. Healthy / 0 social factors	4. Non-complex chronic / 0 social factors	7. Complex chronic / 0 social factors
2. Healthy / 1-2 social factors	5. Non-complex chronic / 1-2 social factors	8. Complex chronic / 1-2 social factors
3. Healthy / 3+ social factors	6. Non-complex chronic / 3+ social factors	9. Complex chronic / 3+ social factors

Medical COMPLEXITY (3 Categories)	SOCIAL COMPLEXITY (12 Factors Total)		
	3 or More Factors	1-2 Factors	None in System-Level Data
Complex Chronic	9 3.7% 187	8 1.8% 89	7 0.7% 33
Non – Complex Chronic	6 13.6% 681	5 8.4% 420	4 2.1% 106
Non – Chronic / Healthy	3 30.4% 1,524	2 25.2% 1,262	1 14.2% 713

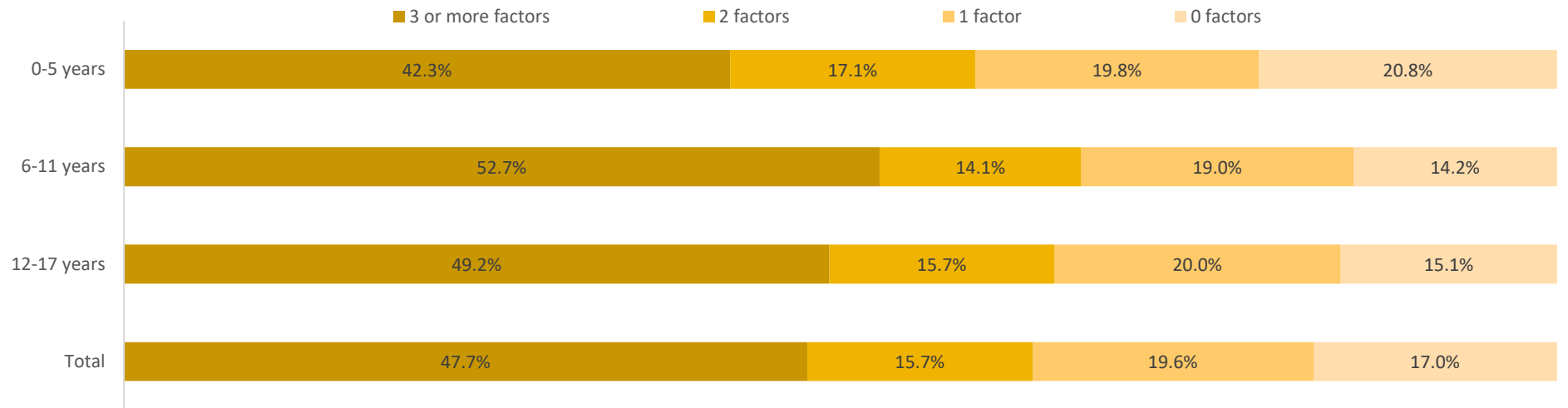
APPENDIX 1: COMPLEXITY BY AGE GROUP

Medical Complexity by Age Group								
	0 - 5 yrs		6 - 11 yrs		12 - 17 yrs		Total	
	n	%	n	%	n	%	n	%
ADVANCED HEALTH								
Complex Chronic	80	4.2%	89	5.6%	140	9.3%	309	6.2%
Healthy	1524	79.4%	1043	65.8%	932	61.7%	3499	69.8%
Non-complex Chronic	315	16.4%	453	28.6%	439	29.1%	1207	24.1%
Total	1919	100.0%	1585	100.0%	1511	100.0%	5015	100.0%

Prevalence by Social Complexity Factor by Age Group

	0-5 years		6-11 years		12-17 years	
Social Complexity Factor	n	Prevalence	n	Prevalence	n	Prevalence
Child abuse/neglect	172	8.96%	127	8.01%	110	7.28%
Foster care	251	13.08%	361	22.78%	393	26.01%
Limited English proficiency	139	7.24%	120	7.57%	90	5.96%
Mental Health - Child	274	14.28%	683	43.09%	885	58.57%
Mental Health - Family	1,073	55.91%	824	51.99%	610	40.37%
Parent death	11	0.57%	26	1.64%	55	3.64%
Parent disability	75	3.91%	79	4.98%	100	6.62%
Parental incarceration	383	19.96%	383	24.16%	329	21.77%
Poverty - Child	784	40.85%	877	55.33%	804	53.21%
Poverty - Family	772	40.23%	725	45.74%	557	36.86%
Substance Abuse - Child	NA	NA	24	1.51%	195	12.91%
Substance Abuse - Family	725	37.78%	603	38.04%	464	30.71%

Social Complexity Counts by Age



Health Complexity Categories by Age Group

Advanced Health	0-5 years		6-11 years		12-17 years		Total	
Health Complexity Category	n	%	n	%	n	%	n	%
1	357	18.6%	176	11.1%	180	11.9%	713	14.2%
2	561	29.2%	355	22.4%	346	22.9%	1262	25.2%
3	606	31.6%	512	32.3%	406	26.9%	1524	30.4%
4	35	1.8%	39	2.5%	32	2.1%	106	2.1%
5	120	6.3%	144	9.1%	156	10.3%	420	8.4%
6	160	8.3%	270	17.0%	251	16.6%	681	13.6%
7	7	0.4%	10	0.6%	16	1.1%	33	0.7%
8	27	1.4%	25	1.6%	37	2.4%	89	1.8%
9	46	2.4%	54	3.4%	87	5.8%	187	3.7%
All	1919	100.0%	1585	100.0%	1511	100.0%	5015	100.0%