

Health Complexity in Children – Clackamas County

February 2019

Introduction

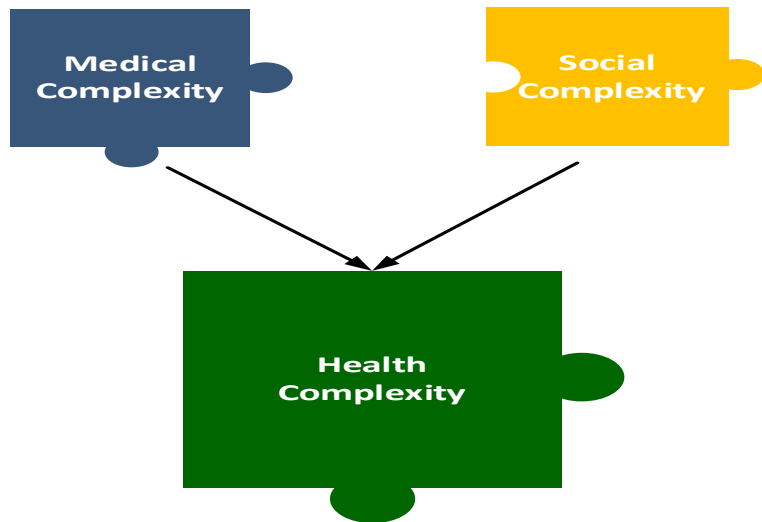
The goal of this project is to identify children with health complexity in the Medicaid population and share this information with CCOs and other partners. Health complexity is based on medical complexity and social complexity.

This report has data specific to this county's population.

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 26,725 publicly insured children in Clackamas county.

- 6.7% of children were placed into the PMCA complex chronic disease category
- 19.2% of children were placed into the PMCA non-complex chronic disease category
- 74.2% of children were placed into the PMCA no chronic disease or healthy category

Within counties in Oregon, there was a large range in the percent of children placed into each medical complexity category:

- For complex chronic children, there was a range of 3.1% (lowest) to 7.3% (highest) with a statewide average of 6.2%
- For non-complex chronic children, there was a range of 13.4% (lowest) to 25.3% (highest) with a statewide average of 18.5%
- For healthy children, there was a range of 69.2% (lowest) to 81.7% (highest) with a statewide average of 75.3%

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 identified 12 factors of social complexity that could be gathered for this population during this first phase of work. 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.

For most social complexity factors, a lookback period of the lifetime of the child + one year (including pre-natal period) was used. Due to data limitations for the factors with an asterisk, a different look back period was used. Please refer to the data dictionary for more details about the exact lookback periods and other specifics for these 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 interacted with foster care system	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 2.4 social complexity factors per child across the state. In other words, the average child had 2.4 social complexity factors. This varied by county with a range of 1.8 (low) and 3.1 (high) social complexity factors per child.

The table below shows the number of children and prevalence with that social complexity factor for this county.

Prevalence by Social Complexity Factor

County	Total
Clackamas	26,723

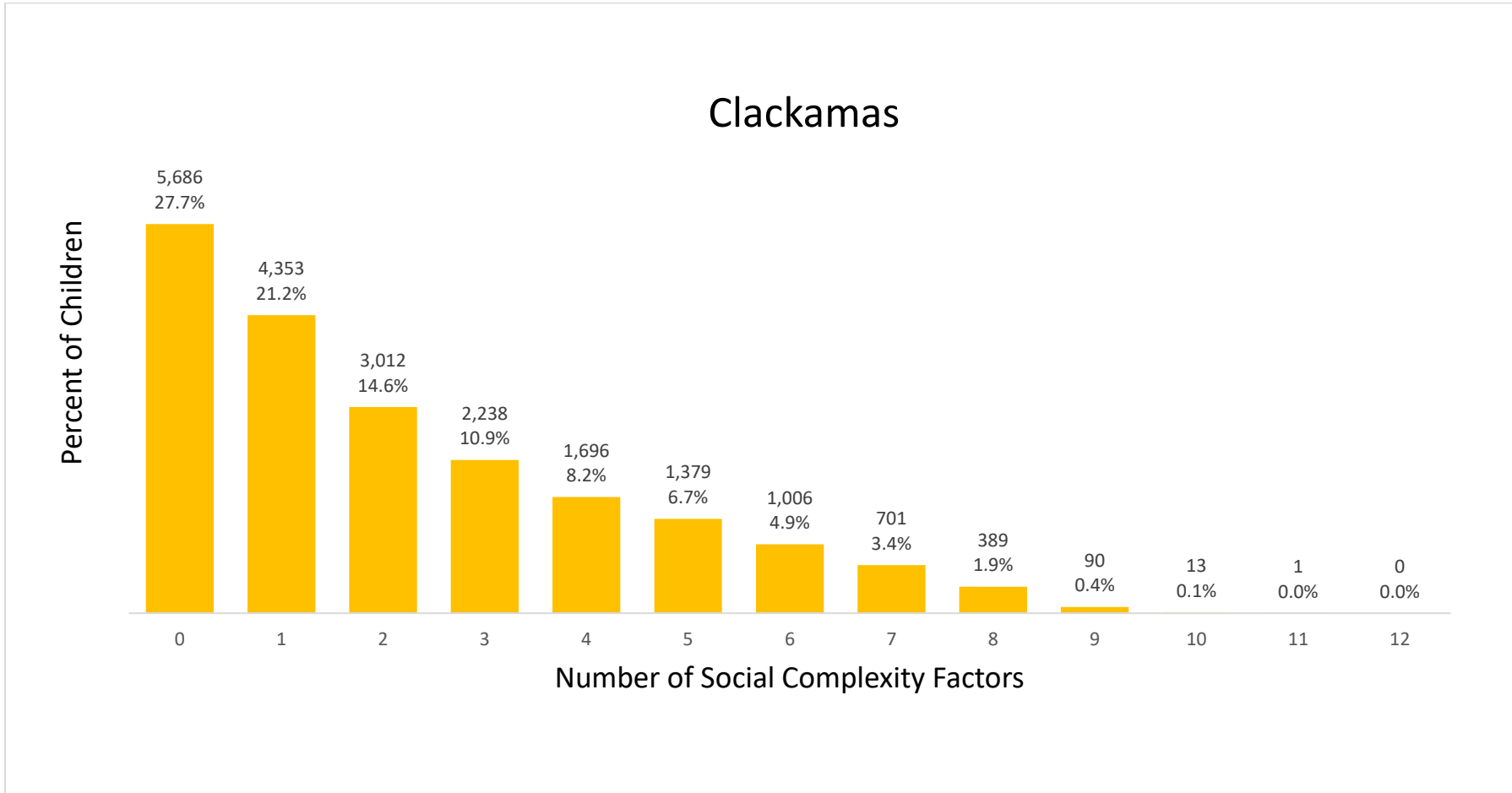
The county is the child's listed county of residence on 06-01-2016.

Indicator	n	Prevalence
Child abuse/neglect	1,730	6.47%
Foster care	3,508	13.13%
Limited English proficiency	5,226	19.56%
Mental Health - Child	9,247	34.6%
Mental Health - Family	10,638	39.81%
Parent death	403	1.51%
Parent disability	729	2.73%
Parental incarceration	5,339	19.98%
Poverty - Child	9,115	34.11%
Poverty - Family	7,514	28.12%
Substance Abuse - Child	1,150	4.3%
Substance Abuse - Family	7,434	27.82%

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 County.

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 from 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	3.2%	8	2.6%	7	0.8%
		858		694		227
Non-Complex Chronic	6	10.1%	5	7.4%	4	1.7%
		2,692		1,971		465
Non-Chronic/Healthy	3	24.0%	2	31.5%	1	18.7%
		6,403		8,421		4,994

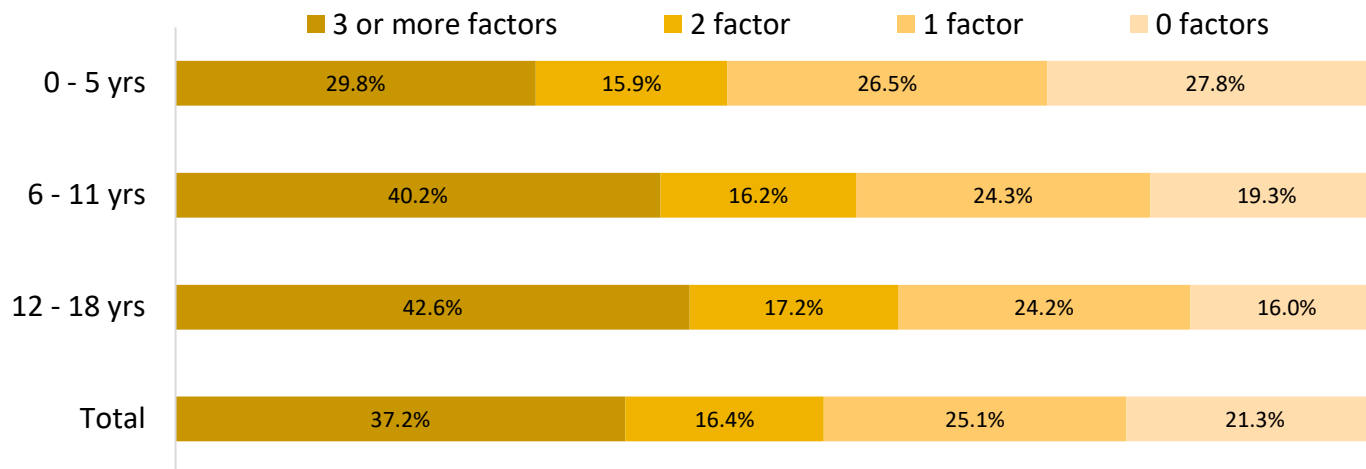
APPENDIX 1: COMPLEXITY BY AGE GROUP

County	Clackamas							
	0 - 5 yrs		6 - 11 yrs		12 - 18 yrs		Total n	Total %
	n	%	n	%	n	%		
Complex Chronic	485	5.0%	575	7.1%	719	8.0%	1779	6.7%
Non-complex Chronic	1139	11.8%	1758	21.8%	2231	24.7%	5128	19.2%
Healthy	8018	83.2%	5733	71.1%	6067	67.3%	19818	74.2%
Grand Total	9642	100.0%	8066	100.0%	9017	100.0%	26725	100.0%

Prevalence by Social Complexity Factor by Age Group

Social Complexity Factor	0-5 years		6-11 years		12-18 years	
	n	Prevalence	n	Prevalence	n	Prevalence
Child abuse/neglect	527	5.47%	591	7.33%	612	6.79%
Foster care	635	6.59%	1125	13.95%	1748	19.39%
Limited English proficiency	1555	16.13%	1733	21.49%	1938	21.49%
Mental Health - Child	1426	14.79%	3106	38.51%	4715	52.29%
Mental Health - Family	4153	43.07%	3248	40.27%	3237	35.90%
Parent death	48	0.50%	118	1.46%	237	2.63%
Parent disability	197	2.04%	213	2.64%	319	3.54%
Parental incarceration	1744	18.09%	1725	21.39%	1870	20.74%
Poverty - Child	2614	27.11%	3066	38.01%	3435	38.09%
Poverty - Family	2471	25.63%	2502	31.02%	2541	28.18%
Substance Abuse - Child	27	0.28%	112	1.39%	1011	11.21%
Substance Abuse - Family	2588	26.84%	2339	29.00%	2507	27.80%

Social Complexity Counts by Age (Clackamas)



Health Complexity Categories by Age Group

County	Clackamas									
	0 - 5 yrs		6 - 11 yrs		12 - 18 yrs		Total n	Total %		
	n	%	n	%	n	%				
1	2403	24.9%	1339	16.6%	1252	13.9%	4994	18.7%		
2	3393	35.2%	2396	29.7%	2632	29.2%	8421	31.5%		
3	2222	23.0%	1998	24.8%	2183	24.2%	6403	24.0%		
4	185	1.9%	147	1.8%	133	1.5%	465	1.7%		
5	487	5.1%	667	8.3%	817	9.1%	1971	7.4%		
6	467	4.8%	944	11.7%	1281	14.2%	2692	10.1%		
7	97	1.0%	72	0.9%	58	0.6%	227	0.8%		
8	201	2.1%	206	2.6%	287	3.2%	694	2.6%		
9	187	1.9%	297	3.7%	374	4.1%	858	3.2%		
Total	9642	100.0%	8066	100.0%	9017	100.0%	26725	100.0%		