# Health Complexity in Children – Columbia Pacific

**March 2019**

## Introduction

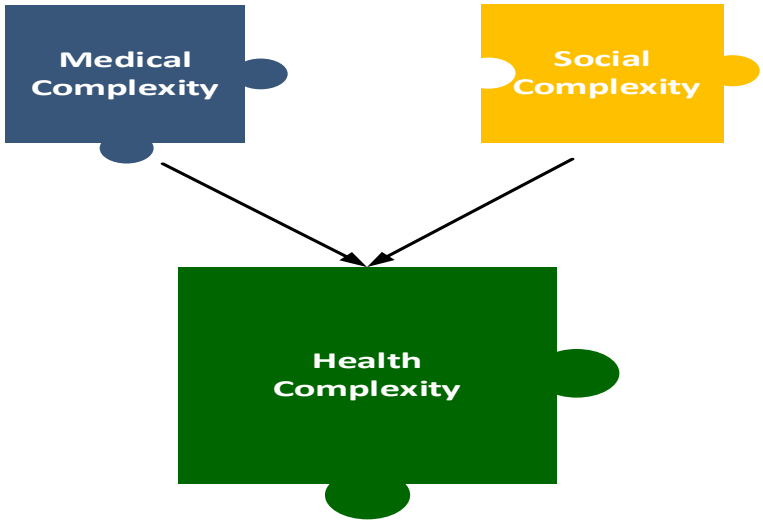
The goal of this project is to identify children with health complexity in the Medicaid population and share this information with CCOs and other partners. Health complexity is based on medical complexity and social complexity.

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@dhsoha.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 6,847 publicly insured children that were enrolled in your CCO as of September 2018.

- 6.9% of children were placed into the complex chronic disease category
- 20.1% of children were placed into the non-complex chronic disease
- 73.0% 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 |
|---|---|
| COLUMBIA PACIFIC CCO LLC | 6,847 |

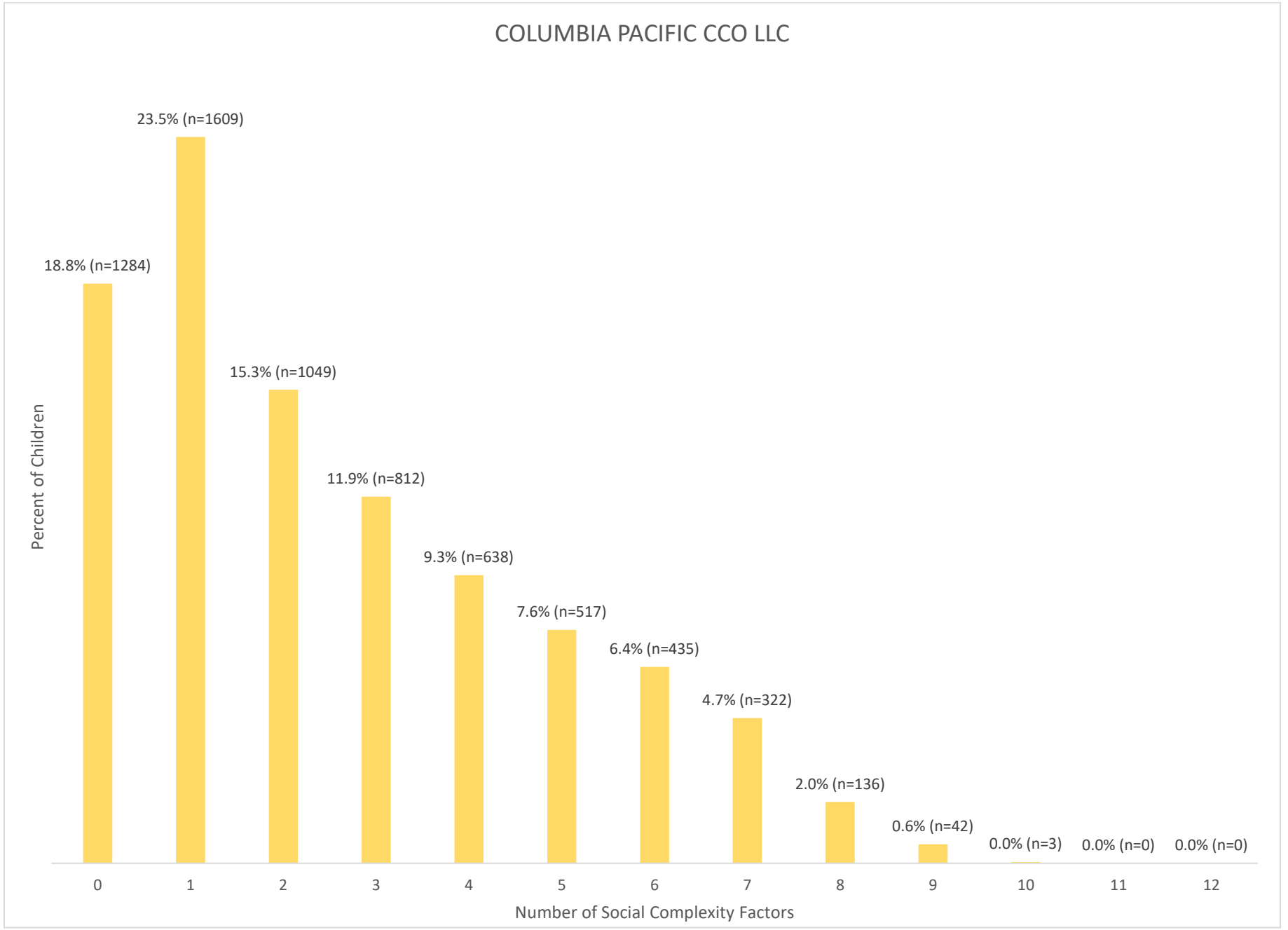
*Risk indicator prevalence for COLUMBIA PACIFIC CCO LLC*

| Indicator | n | Prevalence |
|---|---|---|
| Child abuse/neglect | 506 | 7.39% |
| Foster care | 1,184 | 17.29% |
| Limited English proficiency | 892 | 13.03% |
| Mental Health - Child | 2,457 | 35.88% |
| Mental Health - Family | 3,155 | 46.08% |
| Parent death | 108 | 1.58% |
| Parent disability | 255 | 3.72% |
| Parental incarceration | 1,626 | 23.75% |
| Poverty - Child | 2,599 | 37.96% |
| Poverty - Family | 2,123 | 31.01% |
| Substance Abuse - Child | 341 | 4.98% |
| Substance Abuse - Family | 2,394 | 34.96% |

**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.

Social Complexity – Total 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 then 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% 255 | **8** 2.4% 164 | **7** 0.8% 54 |
| Non – Complex Chronic | **6** 10.6% 726 | **5** 7.5% 512 | **4** 2.0% 137 |
| Non – Chronic / Healthy | **3** 28.1% 1,924 | **2** 28.9% 1,982 | **1** 16.0% 1,093 |

## APPENDIX 1: COMPLEXITY BY AGE GROUP

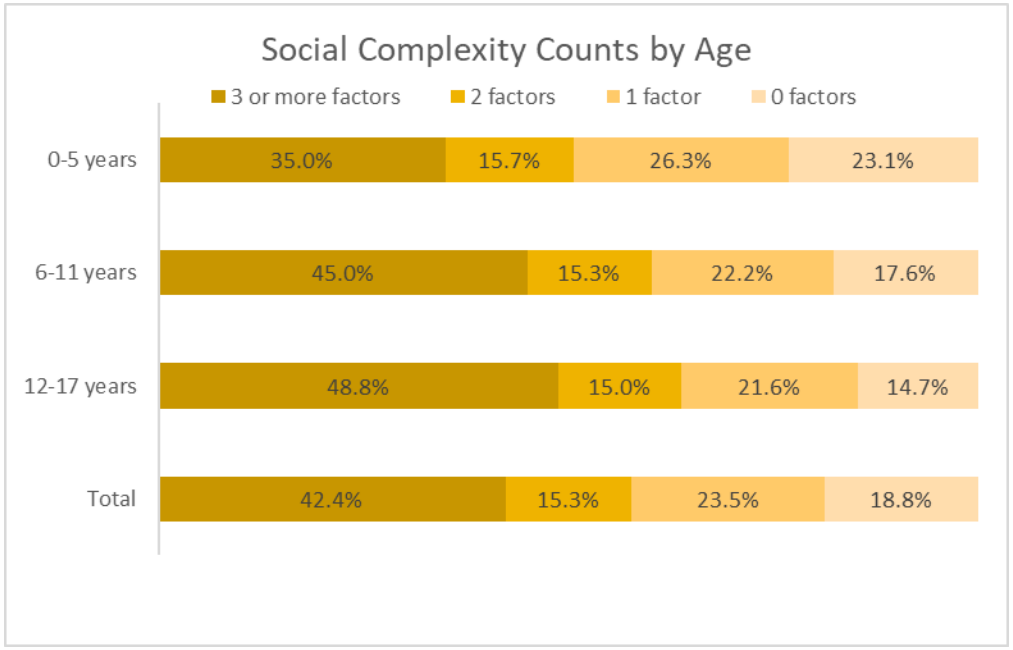
| Medical Complexity by Age Group | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 0 - 5 yrs | | 6 - 11 yrs | | 12 - 17 yrs | | Total | |
| **COLUMBIA PACIFIC CCO LLC** | | | | | | | | |
| Complex Chronic | 110 | 4.4% | 151 | 6.6% | 212 | 10.5% | 473 | 6.9% |
| Healthy | 2102 | 83.1% | 1632 | 70.9% | 1265 | 62.7% | 4999 | 73.0% |
| Non-complex Chronic | 316 | 12.5% | 518 | 22.5% | 541 | 26.8% | 1375 | 20.1% |
| Total | 2528 | 100.0% | 2301 | 100.0% | 2018 | 100.0% | 6847 | 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 | 192 | 7.59% | 176 | 7.65% | 138 | 6.84% |
| Foster care | 274 | 10.84% | 432 | 18.77% | 478 | 23.69% |
| Limited English proficiency | 334 | 13.21% | 319 | 13.86% | 239 | 11.84% |
| Mental Health - Child | 373 | 14.75% | 930 | 40.42% | 1,154 | 57.19% |
| Mental Health - Family | 1,258 | 49.76% | 1,084 | 47.11% | 813 | 40.29% |
| Parent death | 17 | 0.67% | 33 | 1.43% | 58 | 2.87% |
| Parent disability | 57 | 2.25% | 96 | 4.17% | 102 | 5.05% |
| Parental incarceration | 522 | 20.65% | 591 | 25.68% | 513 | 25.42% |
| Poverty - Child | 772 | 30.54% | 957 | 41.59% | 870 | 43.11% |
| Poverty - Family | 710 | 28.09% | 762 | 33.12% | 651 | 32.26% |
| Substance Abuse - Child | 11 | 0.44% | 38 | 1.65% | 292 | 14.47% |
| Substance Abuse - Family | 869 | 34.38% | 867 | 37.68% | 658 | 32.61% |

**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 for all children ages 0 through 17.




**Health Complexity Categories by Age Group**

| Columbia Pacific | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 0-5 years | | 6-11 years | | 12-17 years | | Total | |
| Health Complexity Category | n | % | n | % | n | % | n | % |
| 1 | 517 | 20.5% | 333 | 14.5% | 243 | 12.0% | 1093 | 16.0% |
| 2 | 890 | 35.2% | 616 | 26.8% | 476 | 23.6% | 1982 | 28.9% |
| 3 | 695 | 27.5% | 683 | 29.7% | 546 | 27.1% | 1924 | 28.1% |
| 4 | 53 | 2.1% | 55 | 2.4% | 29 | 1.4% | 137 | 2.0% |
| 5 | 130 | 5.1% | 190 | 8.3% | 192 | 9.5% | 512 | 7.5% |
| 6 | 133 | 5.3% | 273 | 11.9% | 320 | 15.9% | 726 | 10.6% |
| 7 | 13 | 0.5% | 17 | 0.7% | 24 | 1.2% | 54 | 0.8% |
| 8 | 40 | 1.6% | 55 | 2.4% | 69 | 3.4% | 164 | 2.4% |
| 9 | 57 | 2.3% | 79 | 3.4% | 119 | 5.9% | 255 | 3.7% |
| All | 2528 | 100.0% | 2301 | 100.0% | 2018 | 100.0% | 6847 | 100.0% |