Rhode Island State Health Improvement Plan
(DRAFT – As of 4.06.2017)

Section One:
Health Assessment Report
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Preface

Rhode Island’s Integrated Population Health Plan (IPHP) was initially created to meet the needs of the Rhode Island State Innovation Model (SIM) Test Grant. An early version of the IPHP was included in the SIM Operational Plan, which was submitted to the Centers for Medicare and Medicaid Services (CMS) in June of 2016. Because the plan compiled a range of relevant information about the state’s health needs and priorities, SIM’s leadership recognized that this document would be a useful “living document” to inform ongoing state population health planning efforts.

“Living documents” can be updated and expanded over time to meet a variety of other ongoing requirements of the various stakeholders engaging in population health planning. This approach will allow Rhode Island to revise the document on an iterative basis to reflect changes in assessment data, the policy environment, emerging priorities, funded activities supporting population health (including those of SIM), ongoing surveillance recommendations, and agency-specific activities aligned with improving population health.

Moving forward, this plan will be referred to as the “Rhode Island State Health Improvement Plan” – a statewide centralized source document for population health planning. This conception of the plan is ideal because it can be updated and referenced, as needed, for multiple needs across State and local agencies. This approach further improves Rhode Island’s culture of collaboration and enhances the State’s ability to have a cross-sector impact on population health. For example, this Integrated Population Health Plan will serve as the Community Health Assessment and Health Improvement Plan requirements for the Public Health Accreditation Board and as components of Rhode Island’s legislatively mandated State Health Plan.

Organization of the Plan

The plan is made up of four distinct sections. Each section will exist as a stand-alone document that can more easily be updated, printed, and referenced over time. The four sections of this plan are:

- **Section One: Health Assessment Report;**

  This section is intended to determine baselines and continually assess the health of Rhode Islanders as well as inform Rhode Island’s population health planning activities related to key health focus areas and community indicators.

- **Section Two: Population Health Strategy;**

  This section details the State’s organizing framework for population health planning. It emphasizes the current and future states of Rhode Island’s approach to improving population health. It also clearly delineates the roles that health system transformation, social and environmental determinants of health, and integrated physical and behavioral health play in improving health and addressing disparities.

- **Section Three: Health Improvement Plan;** and
This section organizes and highlights key investments, initiatives, and activities (such as SIM interventions) that are essential to implementing Rhode Island’s Population Health Strategy to address the identified needs of the Rhode Island community. It also includes a robust set of tactics being used to address needs identified in the Health Assessment Report and other supporting documentation.

- **Section Four: Performance Monitoring Updates.**

This section provides updates on the implementation and evaluation of Health Improvement Plan investments and monitoring over time, using population health key metrics, intermediate measures, and qualitative reports (as applicable).

Together, these four sections represent the essential elements necessary for coordinated population health management in Rhode Island. By describing the health status of Rhode Islanders, outlining the State’s strategic priorities, depicting the vast landscape of current health improvement efforts, and maintaining accountability for implementation of improvement efforts, the *Rhode Island State Health Improvement Plan* furthers the State’s ability to have a positive impact on population health. This plan will demonstrate the integration of population health planning within healthcare transformation and ensure alignment and sustainability of current and planned efforts across Rhode Island’s institutions and with the broadest diversity of stakeholders.
Health Assessment Report Introduction

Overview

This document contains the information and data that have been collected, analyzed, and reported to inform Rhode Island’s population health priorities, referred to in this report as “Health Focus Areas.” Originally issued in Spring 2016, two iterations of the original IPHP have since been published. This newest publication represents only the Health Assessment Report portion from the original IPHP and includes several new features:

- Addition of a new health focus area entitled “Maternal and Child Health;”
- Expansion of the health focus area entitled “Tobacco” to include data beyond smoking;
- Inclusion of data for health focus areas that represent the life course, where available;
- Alignment of findings with those from other key reports and past assessments; and
- Representation of co-occurrence, and co-morbidity where applicable, across health focus areas.

Report Purpose

This Health Assessment Report recognizes and describes Rhode Island’s health needs and priorities, as identified by State officials and Rhode Island’s many stakeholders. The Report represents information collected by various population health efforts underway in Rhode Island, such as the State Innovation Model Test Grant (SIM), Health Equity Zone initiative, Accountable Care Organizations and Accountable Entities, and other local activities. This report and the convergence around eight specific health focus areas represents only one aspect of a larger effort to create and instill a culture of collaboration around improving population health.

Background

Rhode Island’s goal is to achieve the Triple Aim: improving the quality of care and patient satisfaction, enhancing the overall health of Rhode Island’s population, and spending healthcare dollars more wisely. Thus, the State is assessing and addressing the opportunities that can make measurable improvements in the health and productivity of all Rhode Islanders.

In order to achieve our goal, the healthcare delivery, public health, behavioral health, community development, and social service sectors must work together and collaborate with the state’s many academic, public, and private institutions to ensure that all Rhode Islanders may reach their highest health potential, regardless of who they are or where they live. To remove the systemic and structural barriers within the healthcare delivery system that can inhibit population health improvement, the state needs a multi-sector and multi-agency approach to help Rhode Island transition from an uncoordinated, provider- and payer-centric care environment into a well-coordinated and integrated health system. In this new
framework, public health, behavioral health, social service, and healthcare delivery systems are not only efficiently coordinating person-centric care, these systems are also continuously improving the quality of services, reducing the cost of care, and focusing on improved population health outcomes.

**Defining Population Health**

Rhode Island’s approach to improving population health includes efforts to address health needs across the lifespan, from birth to death. This approach views health from the perspective of the “whole-person,” including a focus on both the mind and the body. The term “population health” includes both physical and behavioral health; the term “physical health” includes oral health, and “behavioral health” includes both mental health and substance use. In Rhode Island, there is agreement that physical health and behavioral health are “everyone’s business.” There is a common understanding that behavioral health and well-being play a critical role in creating a healthy, resilient, and productive communities.

Health is not merely the absence of disease, but the state of complete physical, mental, and social well-being, including the “ability to adapt and to self-manage in the face of social, physical and emotional challenges.” Health is considered a resource for everyday life and is created where we live, learn, work, and play. Population health, specifically, refers to the aggregation of health outcomes of a group of individuals selected based on specific characteristics (e.g., geography, care setting, and health status) and includes the distribution of such outcomes within and across groups so as to address racial, ethnic, and other disparities so as to address racial, ethnic, and other disparities.

Many factors impede an individual’s ability to achieve optimal health or to obtain the healthcare he or she needs. Throughout the life course, these factors may gradually accumulate through exposures to adverse environmental and social conditions, behaviors that increase disease risk, or episodes of illness. Because of the inequitable nature of these exposures, Rhode Island’s ability to monitor and ensure health equity is essential to improving population health.
Measuring Population Health

When defining population health, we must focus on the role played by various health determinants across the lifespan. Population health planning must consider multi-factor, developmental, and life course perspectives that recognize the critical importance of early life and childhood experiences, the accumulation of exposures across the lifetime, and person-context interactions. The figure below depicts the conceptual model of population health using a determinant and life course framework.

**Figure 1: Proposed Model of Population Health**

![Proposed Model of Population Health](image)

Adapted from Bharmal, N. et al. (2015)

**SIM Health Focus Areas**

As Rhode Island developed the SIM Operational Plan and reviewed sources for the creation of the accompanying Integrated Population Health Plan, the state identified eight health focus areas across sectors, geographies, programs, and assessments around which to align the SIM Test Grant’s population health and system transformation activities. Contained within the rest of this Health Assessment Report is a deep dive into each of the eight health focus areas. This information is intended to determine baselines against which the state can continually assess the health of Rhode Islanders. This information will help to inform Rhode Island’s population health planning activities for these health focus areas by providing data
that are reflective of disparities, co-occurrence and co-morbidity, the life course, and attributed costs. The figure below illustrates the state’s aligned set of health focus areas:

Figure 2: SIM Health Focus Areas

<table>
<thead>
<tr>
<th>Obesity</th>
<th>Chronic Disease</th>
<th>Tobacco Use</th>
<th>Opioid Use Disorders</th>
<th>Maternal &amp; Child Health</th>
<th>Children with Social &amp; Emotional Disturbance</th>
<th>Depression</th>
<th>Serious Mental Illness (e.g. Schizophrenia)</th>
</tr>
</thead>
</table>

Health Focus Area Definitions

These eight health focus areas vary in size and scope. Because of this, the data and information presented within the Health Assessment Report also varies. For the purposes of SIM, some health focus areas have been pared down (i.e., maternal and child health) to target select issues or have been expanded (e.g., children with social and emotional disturbance) to include a broader definition to incorporate both physical and behavioral health aspects of a given health focus area. The report defines the state’s eight health focus areas in this way:

- **Obesity**: Obesity is defined by the ratio of an individual’s weight to their height, called the Body Mass Index (BMI). An individual is considered obese if they have a BMI above 30 kg/m².

- **Chronic Disease**: Chronic diseases are among the most common, costly, and preventable of all health problems. Chronic disease is limited to cardiovascular diseases and diabetes for the purposes of this document. Cardiovascular diseases include diseases of the heart and hypertension (high blood pressure), as well as cerebrovascular diseases, such as stroke. Diabetes is a chronic disease marked by high levels of blood sugar (also called blood glucose). Diabetes occurs when the body has problems either making insulin (Type 1) or using insulin (Type 2).

- **Tobacco Use**: Tobacco use encompasses the use of a range of products, from pipes to dipping tobacco to electronic cigarettes.

- **Opioid Use Disorders**: Opioid addiction (also called dependence) is a chronic brain disease that can develop with repeated daily exposure to opioids. It is characterized by the development of tolerance and withdrawal. The natural progression of this disease leads to using greater amounts
of drugs over time, which typically drives people to increasingly desperate and dangerous behaviors.

- **Maternal and Child Health**: Maternal and child health is an umbrella term that can cover a range of topics concerning the well-being of mothers and their children. This report is focused on a few selected measures, organized by the subcategories of pregnant mothers, infants, and children. Some of the selected measures are unintended pregnancy, prenatal dental care, preterm births, breastfeeding, and childhood lead poisoning. Maternal and child health measures related to other health focus areas appear within those respective health focus areas.

- **Children with Social and Emotional Disturbance**: For the purposes of this assessment, children with social and emotional disturbance are those persons under the age of 21 who have one or more emotional, behavioral, or developmental conditions including autism, developmental delay, depression, anxiety, attention deficit disorder/attention deficit with hyperactivity disorder, and behavioral/conduct disorders.

- **Depression**: Depression is a mood disorder that causes a persistent feeling of sadness and loss of interest. Major depression can lead to a complete sense of hopelessness as well.

- **Serious Mental Illness**: Serious mental illness is a severe and/or persistent mental or emotional disorder in a person aged 18 years or older that seriously impairs his/her functioning relative to primary aspects of daily living such as personal relations, living arrangements, or employment.

**Focus Area Alignment with State Priorities**

These health focus areas reflect the convergence of trends and needs identified in a range of state reports, assessments and guidance documents (e.g., Community Hospital Needs Assessments). The findings from those original reports are summarized in the *Convergence of Trends and Local Assessments* section of this report. SIM compiled a crosswalk of priorities to generate the health focus areas included in this Health Assessment Report. An example of the linkages between priorities is included in the figure below.
Integrating Physical and Behavioral Health within Focus Areas

Providing high quality healthcare is the primary goal for the healthcare delivery system. The Rhode Island SIM Test Grant has identified many ways to reach this goal, including the following objectives:

- Helping individuals connect to disease prevention resources;
- Increasing early intervention and referral to reduce late stage presentation of disease; and
- Improving outcomes through patient navigation and coordination of physical and behavioral healthcare.

These objectives all focus on the integration of physical and behavioral health across the care continuum and throughout the lifespan. SIM will progress toward these objectives by creating a common framework for this type of integration, coupled with the use of evidence-based practices along an expanded continuum of care.

A final note about SIM's Health Focus Areas: the process of defining the areas necessitated making choices based on available resources and the state's ability to have an impact in a short period of time. There are certainly additional health focus areas central to improving population health that SIM was not able to prioritize at this time.
Statewide Health Equity Indicators

When assessing population health outcomes, it is also important to assess health equity through a variety of indicators—even if only proxy measures exist. Therefore, within Rhode Island, the task of improving population health includes addressing determinants of health to reduce and prevent disparities. The relationship between health equity and population health outcomes is bi-directional, meaning that if improvements are made to health equity in a community, it will likely contribute to improved population health outcomes and vice versa. It is this health system transformation approach—focused on both population health and health equity—that is essential to and emphasized in SIM’s Theory of Change:

“Rhode Island’s payment system is changing to focus more on value and less on volume. IF Rhode Island SIM makes investments to support providers and empower patients to adapt to these changes, and we address the social and environmental determinants of health, THEN we will improve our population health and move toward our vision of the ‘Triple Aim.’”

The Community Health Assessment Group, convened by the RIDOH, has been working over the past year to develop a health equity model to identify, assess and monitor indicators over time in conjunction with population health measurements. While the indicators for each of the “health equity domains” and “key determinants” listed in the figure below have not been finalized, it is RIDOH’s intention to establish and begin data collection and monitoring of selected measures in the near future. These measures will be reflected in future iterations of this Community Health Assessment Report of the Rhode Island State Health Improvement Plan.
Defining Rhode Island’s Health Equity Domains and Key Determinants

Within this model, health equity has been categorized into five domains, each of which is comprised of three key determinants of health that influence that domain. In essence, it is these five domains that should be optimized in Rhode Island and within each and every local community throughout the State. To reach the Triple Aim and improve population health outcomes, Rhode Island must improve the critical indicators within each of these key determinants of health improvement. The list below provides a brief overview of the domains and related key determinants of health where measures will be selected and monitored moving forward:

1. **Integrated Healthcare Domain**: Focuses on the presence of quality systems for healthcare and social services, as well as healthy development. This includes affordability, utilization, and the integration of physical, oral, and behavioral health.

2. **Community Functioning Domain**: Focuses on factors that influence the operations of a community, affecting the overall health of all individuals. This includes social capital and cohesion, public engagement, neighborhood safety, criminal justice, and fair policies.

3. **Physical Environment Domain**: Focuses on the physical conditions of the environment in which people are born, live, learn, play, work, and age. This includes the natural environment, built environment, critical infrastructure, hazards, and risks.

4. **Socio-Economic Domain**: Focuses on the social and economic vitality of a community and its members with relationship to a combination of education, income, and occupational attainment. This includes key demographics contributing to issues such as homelessness, oppression, and inequalities.

5. **Health Promotion Domain**: Focuses on the individual behaviors, including risk behaviors, knowledge, and attitudes, as well as related disparities associated with groups pre-disposed to disease. This includes the role of other factors such as culture and spirituality.

The State of Rhode Island is pleased to present this Health Assessment Report as part of the overall State Health Improvement Plan and looks forward to feedback and engagement from stakeholders throughout the state’s healthcare community and beyond.
Assessment of Population Health Burden

This section uses a variety of data sources to describe the current overall health of Rhode Islanders and the overarching physical and behavioral health burdens. Also included, where applicable, are specific measures exploring the prevalence, social trends, and communities disproportionately affected by the eight health focus areas. These data are also supported by recent findings from related health assessments.

A Snapshot of Rhode Island’s Health

Ensuring better health at a lower cost for all residents continues to be the focus of Rhode Island’s population health efforts. It must be noted that Rhode Island performs well across many health outcomes. For example, in 2010 RI ranked 13th in the US for life expectancy at birth at 79.9 years. Data from 2014 suggest that 85% of Rhode Islanders generally rate their health as good, very good, or excellent. And due to effective tobacco control efforts, Rhode Island has the third lowest youth smoking rate in the US (4% in 2013). The state ranked number one for immunization rates among children and teens in 2014.

Life Expectancy and Potential Years Lost

However, there are still areas for improvement. In Rhode Island, cancer tops the list of leading causes of death that reduce life expectancy. On average, cancer reduces years of potential life by 22.7, more than two years over the national average. Adverse perinatal conditions reduce the lives of Rhode Islanders by 7.7 years, more than two years above the national average. In all of the other major leading causes of death, Rhode Island is close to or below the national average of years of potential life lost.

Figure 5: Life Expectancy at Birth
Figure 6: Years of Potential Life Lost by Leading Cause of Death

Health-Related Quality of Life

While descriptions of chronic conditions, health behaviors, and life expectancy provide useful data for population health planning, such measures are limited in their ability to describe the quality of the physical, mental, and social domains of life. Health-related quality of life (HRQoL) is a measure that considers these domains in the context of health and disease. Well-being, which refers to the “state where one maximizes his or her physical, mental, and social functioning in the context of supportive environments to live a full, satisfying, and productive life” is a related concept.

To highlight the importance of HRQoL and well-being, the U.S. Office of Disease Prevention and Health Promotion’s “Healthy People 2020” initiative includes a goal to “improve health-related quality of life and well-being for all individuals.” In Rhode Island, data from the 2014 Behavior Risk Factor Surveillance System (BRFSS) indicate that 12% of Rhode Islanders report 14 or more days out of the past 30 during which physical health was not good, and 13.3% during which mental health was not good. In addition, those experiencing cost barriers to care are more likely to report 14 or more days where physical and mental health was not good, compared to those not reporting cost barriers to care (see figures below).
Summary of Physical and Behavioral Health Burdens

Physical Health Morbidity

Chronic conditions affect a substantial number of Rhode Islanders. Hypertension, diabetes, and depression are the most common chronic conditions in Rhode Island, affecting roughly 165,000, 83,000, and 66,000 insured Rhode Islanders respectively. Prevalence rates for other chronic conditions for adult Rhode
Islanders include: obesity (27%), cardiovascular disease (6.4%), and depression (20.6%). Rates are all below the national averages for these conditions.

Figure 9: Ten Most Prevalent Chronic Conditions among Insured Rhode Islanders

Chronic conditions are the leading cause of death and disability; and while Rhode Island overall is doing well compared to national rates for the chronic conditions listed above, some groups are faring worse than others. Rates of hypertension and diabetes increase with age and approximately 65% of older Rhode Island adults have hypertension. Additionally, Rhode Islanders (18-64) who are on Medicaid or Medicare have higher rates of chronic diseases, such as diabetes. In 2010, the rate of diabetes was 15% for Rhode Islanders on Medicaid or Medicare, compared to only 5% in the privately insured population. Obesity rates were 36% for Medicaid and 25% for the privately insured.

The prevalence in Rhode Island of diagnosed diabetes is highest among Black/African American adults (15.7%) and Hispanic adults (13%), compared to Non-Hispanic White adults (6.7%). Low-income adults aged 20 to 64 years are more likely to report two or more modifiable risk factors (e.g. smoking, high blood pressure, overweight/obesity, or physical inactivity) than adults in this age group with household incomes of $50,000 a year and higher (55.0% versus 35.9%).

Table 10: Rhode Island and US Chronic Condition/Health Behavior Prevalence Rates

<table>
<thead>
<tr>
<th>Condition/Health Behavior</th>
<th>RI Prevalence Rate</th>
<th>US Prevalence Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity</td>
<td>27% (2014)</td>
<td>28.9% (2014)</td>
</tr>
<tr>
<td>Cardiovascular disease</td>
<td>6.4% (2014)</td>
<td>6.7% (2014)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>8.3% (2014)</td>
<td>9.3% (2014)</td>
</tr>
<tr>
<td>Adult smoking rate</td>
<td>17.4% (2013)</td>
<td>19.0 (2013)</td>
</tr>
</tbody>
</table>
National research indicates that behavioral health issues have a significant impact on an individual’s lifespan and overall health. According to a study reported by the National Center for Biotechnology Information, adults with serious mental health disorders had a significantly higher rate of mortality than similar populations without mental health disorders. A total of 67.3% of deaths among those study participants were from medical causes. Studies also show that people with severe mental illness have a reduced lifespan of at least 10 years.

**Behavioral Health Morbidity**

The presence of behavioral health disorders among children in Rhode Island is a serious concern. More than one in five children had one or more “emotional/behavioral conditions.” Children are exposed to a number of risk factors that can lead to behavioral health disorders, including high rates of poverty, living with mothers and/or fathers with behavioral health disorders, living in less positive home environments, and exposure to trauma. Between 2011 and 2012, 9.3% of children in Rhode Island aged 6 to 11 years old were living with mothers in poor mental health, higher than any other New England state and above the national average of 7.9%.

The rates of Rhode Island children suffering from recurrent child abuse and neglect and abuse/neglect while in foster care placement exceed national standards. In addition, protective factors, such as enrollment in nursery school or preschool, are less prevalent among young children in Rhode Island than in the rest of the country. Children and adolescents in Rhode Island have high rates of depression, and the rates of ADHD diagnosis and use of marijuana and other illicit drugs exceed the national average. The need for substance use disorder treatment among children and adolescents in facility placement almost tripled between 2009 and 2011.

Behavioral health disorders are a concern for adult Rhode Islanders as well. The rate of adults diagnosed with depression is 20.6% and 4.9% of Rhode Islanders have experienced a serious mental illness in the past year, exceeding national averages. The rate of binge drinking among Rhode Islanders exceeds the national average. More than one in five adults, aged 18 to 24 years old, reported alcohol and/or drug abuse/dependence; this rate increased for Rhode Islanders during the same time that the national rate decreased. Reported drug use in the past month among 25 to 64 year old Rhode Islanders is almost double the national average.

**Co-morbidity and Co-occurrence**

As this report explores each individual health focus area, it will also examine data related to the presence of multiple chronic conditions. The terms “co-morbidity” and “co-occurrence” both describe patients with than one chronic condition. Although there is still some discrepancy in the correct use of these terms, co-morbidity is usually concerned with the order certain diseases emerge. It describes patients with a primary condition, also known as an “index health issue” who develop additional or “co-morbid” health issues. The term co-occurrence is centered around a patient’s experience. It does not assign causation or order; it just describes the presence of more than one chronic condition. In behavioral health, this is often referred to as “dual diagnosis” where patients may be diagnosed with behavioral health as well as substance use disorders.
Figure 11: Co-morbidity versus Co-occurrence

Whether one uses the terms co-morbidity, co-occurrence, or multi-morbidity (also used in the literature), patients with more than one chronic disease are more likely to use health care services, leading to higher costs. According to the Centers for Disease Control and Prevention (CDC), 21% of Americans between the ages of 45-64 have two or more chronic conditions. This percentage increases to 45% for those aged 65 and older. 24 Co-occurrence is also negatively associated with adult socioeconomic status and socioeconomic status in childhood.25,26,27

Co-occurrence and the Health Planning Process

None of the specific diseases, conditions, or behaviors outlined in this report exist in isolation. In many cases, it is the combined effect of the state’s eight health focus areas that have an especially detrimental effect on the wellbeing of Rhode Islanders. For example, smoking, commonly associated with physical health problems, is associated with mental health issues as well. Rhode Island’s 2014 BRFSS indicates that being a current smoker is associated with poorer physical and mental health. These data further make the case for integrated care for multiple health issues.
Co-occurrence data provides important information for health planning and thus has been included in this report, where applicable. To illustrate the interconnectedness of the physical and behavioral health spheres, the Centers for Disease Control and Prevention (CDC) developed a framework for the life course effects of Adverse Childhood Experiences. In this framework, noted in the figure below, one can see the progression of potential care needs throughout the care continuum as impairments can lead to behaviors which can lead to disease (i.e., both physical and behavioral). A serious emotional disturbance within childhood can carry across the life course and lead to early death.
Costs of Healthcare in Rhode Island

The costs of navigating healthcare and managing one's health can be costly to one's family and to the healthcare delivery system. In the community sample used in the RIDOH 2015 Statewide Health Inventory, 31% reported delaying or putting off medical care because of cost, and almost half (47%) of those who delayed care reported that they became sicker before they received care. Reported cost barriers to care included high deductibles and co-pays.

In 2013, Rhode Island spent $853 million on direct costs for behavioral health treatment; this represented 1.6% of the gross domestic product, greater than the national average of 1.2%. The average medical cost per person with a behavioral health disorder in Rhode Island was higher than any other state in New England. People with diabetes accounted for $1.4 billion in health care spending annually, while people with hypertension accounted for nearly $1.3 billion.

Figure 14: Ten Most Expensive Chronic Conditions in Rhode Island

Spending per enrollee or per population on behavioral health treatment among Rhode Island residents with Medicaid, private insurance, and Medicare coverage is generally higher than spending in any other New England state. The high utilization of inpatient hospitalizations and greater spending on prescription drugs is consistent across payer types and likely contributes to the higher Rhode Island spending levels.
In addition to the direct costs, an estimated $789 million, or 9.5% of the state’s 2015 budget, was attributed to indirect costs associated with behavioral health disorders. These estimates included criminal justice, child welfare, disability, and public safety costs attributed to the Department of Children, Youth, and Families, the Department of Human Services, and the Department of Corrections.29
Convergence of Trends and Local Assessments

Statewide Alignment

Rhode Island has made a deep commitment to improving the health of its residents through informed decision-making. A variety of initiatives led by various State Agencies have a focus on improving population health, many of which address the health focus areas outlined in this report. In the past several years, the state and various partners have embarked on a range of efforts to collect in-depth information about the needs of Rhode Islanders and the effectiveness of these initiatives in meeting those needs. The resulting reports and the alignment of their findings within the State Innovation Model helps to ensure that the right stakeholders (both internal and external) helped to guide this Assessment Report.

Of the reports reviewed (i.e., made available from the respective initiatives), relevant highlights are provided in this Health Assessment Report. Each report contains slightly different, but related, information about the needs of Rhode Islanders. Read in isolation, the documents offer important information about a select population or a particular governmental approach. Arranged together, they form a more comprehensive and complex picture of state needs and efforts moving forward. The top-level findings of those efforts are summarized here in an effort to maximize their potential and illustrate how a myriad of state approaches have coalesced to inform the state’s eight health focus areas and its health planning process.

Local Community Assessments

The reports summarized below take a community approach to identifying the health needs of Rhode Islanders. They include:

- **Community Health Needs Assessments (CHNAs)** which capture the health gaps and priorities in the areas served by Rhode Island’s local hospitals.
- **Health Equity Zone (HEZ) Assessments** which focus on specific communities with identified health disparities.

Combined, the findings from these reports paint a comprehensive picture of the health needs of Rhode Islanders across the state and in geographic areas with socioeconomic disadvantages.

Both the HEZ assessments and the Community Health Needs Assessments identified issues that align with the health focus areas in this Health Assessment Report. The figure below illustrates where this alignment exists.
Every three years, Rhode Island’s hospitals complete an extensive report on the health needs of the communities they serve in what are called Community Health Needs Assessments (CHNAs). The most recent assessments were completed in 2016 and built off the efforts and infrastructure created for the 2013 assessments. In both 2013 and 2016, Hospital Association of Rhode Island (HARI) members worked together to conduct a statewide CHNA. As a non-HARI member, Lifespan hospitals conducted a separate process for conducting their CHNAs. Both HARI and Lifespan needs assessments drew on community partner and consumer engagement as well as secondary data sources to compare statewide data to local hospital service area data, identify and prioritize local health issues, monitor and measure success, and improve population health.

The 2013 data sources were later compiled on a HARI-sponsored website, RIhealthcarematters.org, to make the information easily available to the public. The website features not only data measures but also data maps, resources, and tools for generating reports on a range of topics, from access to health insurance to the rate of violent crime. When available, data can be broken down by census tract, county, and zip code. The site also compares Rhode Island-specific data with Healthy People 2020 benchmarks to show the state’s current status on selected health issues.
HARI CHNA Methodology (2016)

The first data collection process for the 2016 CHNA was a community partner engagement effort in which nearly 200 community leaders provided insight and feedback regarding health and socioeconomic needs in their locale, community assets, gaps in existing services, and opportunities for partnership and collaboration with other community and state stakeholders. Community citizens were also engaged to provide information about community level experiences and perceptions. Focus groups were conducted with 40 health consumers, or those who purchase health insurance and use health care services, who discussed experiences central to two distinct topics: accessing behavioral health services among residents in Washington County and diabetes among the Latino population in the Central Falls/Pawtucket area.

Secondary data collection efforts for the 2016 CHNA consisted of demographic and socio-economic data, public health statistics including BRFSS and CDC data, and hospital utilization data. Regional and local assessment reports such as the RihealthcareMatters.org web portal, 2013 CHNA and CHIP reports, the Rhode Island Behavioral Health Project (a report published by the Executive Office of Health and Human Services, EOHHS), and the Rhode Island KIDS COUNT Factbook were also used in the analysis. Based on this analysis, 2016 CHNA priorities were shifted to focus on the following priority areas:

- Behavioral Health;
- Chronic Disease: Diabetes and Heart Disease; and
- Maternal and Child Health.

Notably, the 2016 CHNA included indicators of social determinants of health, including poverty, employment, and education, as well as regional health disparities within each of these health priority areas. The table below shows a sample of selected measures taken from the 2016 CHNA Research Overview that are relevant to the Health Focus Areas contained in this report:
Table 17: Selected CHNA Measures Relevant to SIM Health Focus Areas

<table>
<thead>
<tr>
<th>Measure</th>
<th>State-wide</th>
<th>Data Source</th>
<th>Disparity Data Available?</th>
<th>Measure Period</th>
<th>Healthy People 2020 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio-Economic Indicators</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Families in Poverty</td>
<td>10.4%</td>
<td>Nielsen</td>
<td>County</td>
<td>2016</td>
<td>NA</td>
</tr>
<tr>
<td>Families with Children in Poverty</td>
<td>8.1%</td>
<td>Nielsen</td>
<td>County</td>
<td>2016</td>
<td>NA</td>
</tr>
<tr>
<td>Unemployment</td>
<td>6.2%</td>
<td>Nielsen</td>
<td>County</td>
<td>2016</td>
<td>NA</td>
</tr>
<tr>
<td>Less than High School Education</td>
<td>14.2%</td>
<td>Nielsen</td>
<td>County</td>
<td>2016</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Behavioral Health</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent of Driving Deaths due to DUI per 100,000</td>
<td>41.4%</td>
<td>CDC, Fatality Analysis Reporting System</td>
<td>County, zip code</td>
<td>2012-2014</td>
<td>NA</td>
</tr>
<tr>
<td>Drug Overdose Deaths</td>
<td>21.7%</td>
<td>CDC, Fatality Analysis Reporting System</td>
<td>County</td>
<td>2009-2014</td>
<td>NA</td>
</tr>
<tr>
<td>Mental Health Condition among ED Patients</td>
<td>14%</td>
<td>Hospital Utilization Data</td>
<td>Hospital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substance Abuse among ED Patients</td>
<td>13%</td>
<td>Hospital Utilization Data</td>
<td>Hospital</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Chronic Conditions: Diabetes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult Diabetes Prevalence</td>
<td>9.8%</td>
<td>CDC, BRFSS</td>
<td>Age, gender, race/ethnicity</td>
<td>2010-2014</td>
<td>NA but “good” compared to other U.S. states</td>
</tr>
<tr>
<td><strong>Chronic Conditions: Heart Disease</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Blood Pressure</td>
<td>32.9%</td>
<td>CDC, BRFSS</td>
<td>County, age, gender, race/ethnicity</td>
<td>2011, 2013</td>
<td>Not met (26.9%)</td>
</tr>
<tr>
<td>High Cholesterol</td>
<td>39.8%</td>
<td>CDC</td>
<td>County</td>
<td>2011</td>
<td>Not met (13.5%)</td>
</tr>
<tr>
<td><strong>Maternal and Child Health</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Birth Weight</td>
<td>7.7%</td>
<td>Health Indicators Warehouse</td>
<td>Race/ethnicity</td>
<td>2007-2013</td>
<td>Met (7.8%)</td>
</tr>
<tr>
<td>Preterm Births</td>
<td>11.0%</td>
<td>Health Indicators Warehouse</td>
<td>Race/ethnicity</td>
<td>2007-2013</td>
<td>Met (11.4%)</td>
</tr>
</tbody>
</table>
HARI Informant Interviews and Community Health Forum

Through feedback from the community partner engagement process, HARI’s 2016 CHNA identified several barriers to accessing services as well as needed services that are missing from Rhode Island’s delivery system. The most cited issues included:

- Eligibility Criteria/Social Determinants of Health;
- Lack of Care Coordination;
- Lack of Health Education and Literacy;
- Lack of Providers (especially home-based, multilingual, and psychiatrists);
- Limited Funding for Free or Reduced Cost Services;
- Stigma; and
- Transportation.

It should be noted that similar issues regarding access to care, particularly insurance coverage, cost of care, and transportation, were highlighted as a concern in the 2013 CHNA.

Community engagement efforts involving consumers in Washington County were focused on experiences using behavioral health services. Focus groups identified the following key issues:

- Prevalence of Behavioral Health Conditions and Recognition of Symptoms;
- Lack of Inpatient and Outpatient Resources and Providers; and
- Gaps in Services and Lack of Coordination between Services and Care Providers.

Community engagement efforts involving consumers in Central Falls/Pawtucket were focused on Diabetes among Latino populations. Focus groups identified the following issues:

- Recognition of the Prevalence of Diabetes among Latinos;
- Barriers in Accessing Care;
- Lack of Community Education; and
- Limited Opportunities for Healthy Eating and Exercise.

Summary of HARI CHNA Findings

When HARI combined this qualitative data with its other data sources about the health of Rhode Islanders, it uncovered a number of “overlapping health issues” at the intersection between community health needs and delivery system gaps. The CHNA report highlights these issues as the most prominent concerns for Rhode Island:

- Behavioral Health
  Stakeholders raised specific concerns about the prevalence of mental health and substance use disorders in Rhode Island compared to other states. Data analyzed in the CHNA indicated that adolescents in Rhode Island experience major depressive episodes at higher rates than other
New England states, and 14% of high school students report attempting suicide. Rhode Island adults have the highest rate of death due to narcotics compared to other states, and often have unmet mental health needs, due in part to a low behavioral health provider ratio.

- **Chronic Disease: Diabetes**
  Diabetes prevalence and death attributable to diabetes have been on the rise in recent years. Further, approximately one-third of adults with diabetes in Rhode Island have not been diagnosed, with non-Hispanic black residents having the lowest rates of diabetes testing. Stakeholders in Central Falls/Pawtucket worked to identify barriers that contribute to racial/ethnic disparities among the Latino population in particular.

- **Chronic Disease: Heart Disease**
  High blood pressure and high cholesterol, two risk factors for heart disease, are more prevalent in Rhode Island than in other states. Racial/ethnic disparities also persist, as black and Hispanic Rhode Islanders are more likely than their white counterparts to delay medical treatment due to cost.

- **Maternal and Child Health**
  The rate of Neonatal Abstinence Syndrome (NAS) in babies in Rhode Island nearly doubled between 2006 and 2013. While rates of low birth weight and preterm births are lower compared to the rest of the country, significant racial/ethnic disparities exist with regard to these measures, with the highest prevalence among black and American Indian infants.

HARI published preliminary findings in a presentation, titled *2016 Community Health Needs Assessment Research Overview*, to offer a statewide perspective on the health of the state. Each member hospital also generated individual reports focusing on data specific to the needs of each hospital’s service area.

**Lifespan Community Health Needs Assessments**

As noted above, Lifespan Hospitals (Rhode Island Hospital, Bradley Hospital, The Miriam Hospital, Hasbro Children’s Hospital and Newport Hospital) carried out their own CHNA process, focused on data specific to the service areas and priorities of their hospitals.

**Lifespan CHNA Methodology (2016)**

Similar to HARI’s CHNA process, Lifespan hospitals assessed their respective communities’ health needs by conducting analyses on primary and secondary data, conducting interviews with community partners and key informants, and facilitating community forums. Between October 2013 and September 2016, the Lifespan Community Health Institute (LCHI) identified key stakeholders and conducted unstructured discussions on a variety of health topics. Each Lifespan hospital conducted a series of community health forums that were facilitated by diverse and intensively trained community liaisons. Altogether, 24 forums were held in a variety of community locations, with a total of 427 participants. Themes from these conversations are reflected in each hospital’s implementation plan.
Lifespan hospitals also conducted an analysis of patient data through FY 2015 to understand trends in utilization of services and the underlying distribution of patient characteristics. These analyses were complemented by secondary data sources including BRFSS, Kaiser Family Foundation State Health Facts, County Health Rankings, Commonwealth Fund Report Cards, Rhode Island KIDS COUNT Factbook, 2015 Statewide Health Inventory, and Rhode Island’s Strategic Plan on Addiction and Overdose. The CHNAs also incorporated RIDOH’s strategic priorities around population health and health needs identified through RIDOH’s HEZ initiative.

Summary of Lifespan CHNA Findings

The significant needs described below reflect community feedback obtained through the community health forums, key stakeholder interviews, and national, local, and hospital level data. While needs varied by hospital and community, a number of common issues arose across regions, several of which align with the state’s health focus areas. The most significant needs that align with the state’s health focus areas are:

- **Healthy Weight and Nutrition**
  Food access emerged as a specific area of need. Although Rhode Island’s rate of obesity is the 12th lowest in the nation, diet-related diseases such as diabetes, hypertension, and heart disease affect more than half of Rhode Islanders. The Lifespan CHNAs recognize that upstream determinants of health, specifically food insecurity caused by physical and structural barriers to accessing food, prevent many Rhode Islanders from making healthy choices.

- **Cardiac Health**
  Cardiovascular Disease, including heart disease and stroke, is the leading cause of death and disability in Rhode Island and the country. Health systems and hospitals can support good cardiac health by providing diagnostics, surgery, intervention, and rehabilitation, as well as expanding access to more preventive programs that focus on nutrition and physical activity.

- **Behavioral Health**
  Substance use disorders and children’s behavioral health emerged as two specific areas of need in Lifespan’s communities. Over the past decade, opioid use disorder has been on the rise. In 2015, 259 people in Rhode Island died of drug overdose. In providing early diagnosis and treatment, and adhering to the recommendations of the Rhode Island Strategic Plan on Addiction and Overdose, hospitals are critical players in addressing this epidemic. Among children in Rhode Island, mental health care has become one of the most pressing issues. Access to behavioral health services, which includes insurance, transportation, and availability of providers and services, has been identified as an area of need in the CHNAs.

RIDOH Health Equity Zone Community Needs Assessments

In 2015, RIDOH launched the Health Equity Zone (HEZ) initiative in communities across Rhode Island. A HEZ is a contiguous geographic area that has measurable and documented health disparities, poor health outcomes, and identifiable social and environmental conditions that can be improved. The initiative is designed to achieve health equity by eliminating health disparities using place-based strategies that
promote healthy communities. The 10 HEZ Collaboratives are funded with State and Federal dollars to support innovative approaches to prevent chronic diseases, improve birth outcomes, and improve the social and environmental conditions of neighborhoods across five counties statewide. The HEZ Collaborative is built on meaningful engagement and coordination between multi-sector key stakeholders including municipal leaders, residents, businesses, transportation entities, faith leaders, community planners and partners, law enforcement, education systems and health systems, among others.

HEZ funded interventions will be implemented over a three or four year period. As a first step, HEZ grantees were directed to conduct in depth needs assessments to aid in developing a work plan that focuses on serving each respective community, investing in local resources, and improving population health. The coming years will be spent implementing HEZ interventions.

Table 18: HEZ Regions and Lead Agencies

<table>
<thead>
<tr>
<th>HEZ Region</th>
<th>Regional Scope</th>
<th>Lead Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Providence</td>
<td>Citywide</td>
<td>Healthy Communities Office, City of Providence</td>
</tr>
<tr>
<td>Pawtucket and Central Falls</td>
<td>Citywide</td>
<td>Local Initiatives Support Corporation (LISC)</td>
</tr>
<tr>
<td>North Providence</td>
<td>Neighborhood</td>
<td>North Providence School Department</td>
</tr>
<tr>
<td>Olneyville</td>
<td>Neighborhood</td>
<td>ONE Neighborhood Builders</td>
</tr>
<tr>
<td>Providence</td>
<td>Neighborhoods</td>
<td>Providence Children and Youth Cabinet</td>
</tr>
<tr>
<td>(Southside, Elmwood, West End)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South County</td>
<td>Countywide</td>
<td>South County Health</td>
</tr>
<tr>
<td>West Warwick</td>
<td>Citywide</td>
<td>Thundermist Health Center</td>
</tr>
<tr>
<td>Woonsocket</td>
<td>Citywide</td>
<td>Thundermist Health Center</td>
</tr>
<tr>
<td>Bristol</td>
<td>Citywide</td>
<td>Town of Bristol</td>
</tr>
<tr>
<td>Newport</td>
<td>Citywide</td>
<td>Women’s Resource Center</td>
</tr>
</tbody>
</table>

HEZ Community Needs Assessments (2015)

For the majority of the 10 HEZs, year one was dedicated to conducting community needs assessments. The Olneyville, South County, and Woonsocket HEZs, however, were able to begin in the action phase, since each of these regions were able to tap into recently conducted assessments and studies of health needs, including the Community Hospital Needs Assessments (CHNAs), leveraging collaborative resources to engage services providers, educators, community leaders, and residents to collect information about the communities’ unique health burdens and needs. While methods varied across HEZs, each region completed extensive data collection efforts through surveys administered to residents and stakeholders, focus groups with specific populations or groups of professionals, and one-on-one, targeted interviews.
Results of these needs assessments were summarized in reports that HEZ Collaboratives submitted to RIDOH at the end of year one.

Collectively, the 10 HEZ Collaboratives identified a total of 134 community needs spanning seven distinct health topic areas, including healthy eating, physical activity, general health and wellbeing, social determinants of health, substance use, mental health, and child and family health. Despite wide variation in identified needs across HEZs, there were several specific health needs that were articulated by many of the 10 regions. The most commonly cited needs, each identified by at least five HEZs, were:

- Access to Affordable Healthy Foods;
- Transportation to Obtain Healthy Foods;
- Access to Affordable Organized Exercise/Recreational Opportunities;
- Maintained and Safe Sidewalks/Paths for Walking/Biking;
- Transportation to Medical Appointments;
- High Prevalence of Chronic Disease;
- Improved Public Transportation; and
- Employment/Economic Supports and Opportunities.

Many of the health concerns highlighted in this assessment process align with the state's population health priorities. Table 19 below displays a selection of HEZ identified needs that overlap with the state's health focus areas and the respective HEZ regions that identified each need.

### Table 19: HEZ Health Needs Relevant to SIM Health Focus Areas

<table>
<thead>
<tr>
<th>SIM Health Priority Area</th>
<th>HEZ Need</th>
<th>HEZ Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco Use</td>
<td>Address High Prevalence of Tobacco Use</td>
<td>Olneyville, S. County</td>
</tr>
<tr>
<td></td>
<td>Provide overall Access to Affordable Healthy Foods</td>
<td>Bristol, Newport, Olneyville, Pawtucket, W. Warwick, Woonsocket</td>
</tr>
<tr>
<td></td>
<td>Assure Transportation to Obtain Healthy Foods</td>
<td>Bristol, Newport, Olneyville, W. Warwick, Woonsocket</td>
</tr>
<tr>
<td></td>
<td>Address Low Consumption of Fruits and Vegetables</td>
<td>Newport, Olneyville, W. Warwick, Woonsocket</td>
</tr>
<tr>
<td></td>
<td>Create Access to Affordable Organized Exercise/Recreational Opportunities</td>
<td>Bristol, Newport, Olneyville, Providence, W. Warwick, Woonsocket</td>
</tr>
<tr>
<td></td>
<td>Maintain Safe Outdoor Spaces for Physical Activity</td>
<td>Bristol, Newport, Providence, W. Warwick, Woonsocket</td>
</tr>
<tr>
<td></td>
<td>Address High Prevalence of Obesity</td>
<td>N. Providence, Olneyville, S. County</td>
</tr>
</tbody>
</table>
**Obesity, Physical Activity, and Nutrition**

HEZ investments across regions are largely funding activities that align with the state health focus areas. Nine of the 10 HEZs are using funds to expand access to healthy foods with activities such as encouraging retail venues to offer and promote healthy foods and to accept WIC and SNAP benefits, increasing the capacity and patronage of new and existing farmer's markets, and developing and implementing healthy eating policies. Eight of these HEZs are complementing their healthy food and nutrition activities with efforts to increase physical activity among residents. Some of these activities call for improvements in neighborhood infrastructure, such as the development of bike paths and green spaces, while some are focused on providing recreational and fitness programming in existing facilities and outreaching to members of the community to encourage participation.

**Chronic Disease**

HEZ funds are also being allocated across eight HEZs to support diabetes prevention and self-management, largely through promoting and providing evidence-based programs targeted at individuals who have been diagnosed or identified as being at high risk for diabetes.
Maternal and Child Health
With regard to maternal and child health, all 10 HEZs are investing in projects to promote and integrate physical and behavioral health for pregnant women, infants, children, and teens. Specific interventions focus on supporting children’s readiness for school by building social-behavioral capacities and strengthening parenting skills, promoting healthy homes and neighborhoods to improve developmental outcomes, reinforcing community programming that empowers young people and encourages healthy lifestyle choices, and making reproductive and prenatal healthcare services more accessible. Included in these activities are interventions aimed at prevention of youth initiation of tobacco use, which is a priority in the Olneyville and City of Providence regions.

Behavioral Health
Behavioral health strategies are an important aspect of seven HEZs’ work plans as well, with interventions focused across the lifespan. Interventions include training modules for parents and teachers to support development and social emotional learning, school-based substance use prevention and mental health counseling, Mental Health First Aid and suicide prevention programming for teens, toxic stress screening and mitigation services, and opioid overdose prevention and recovery supports. These investments align closely with three of the four SIM behavioral health focus areas: depression, children with social and emotional disturbance, and opioid use disorders.

Findings from Other State Plans and Key Reports
The reports summarized below examine Rhode Island’s health care system, identifying gaps and setting action steps for improvement. They include:

- The Rhode Island Coordinated Chronic Disease Prevention and Health Promotion Plan which took an integrated approach to addressing chronic diseases;
- The State Health Assessment and Improvement Plan (HAHIP) which embarked on a comprehensive a coordinated approach to gathering and maintaining accurate data about disease and injury in Rhode Island;
- The 2015 State Health Inventory: the state's most extensive collection of data on healthcare utilization and capacity in Rhode Island;
- The Reinventing Medicaid Report: a multi-year plan for reimagining the way Rhode Island delivers publicly financed health care;
- The Truven Report: a comprehensive report that quantified the demand, spending, and supply for the full continuum of behavioral health services in the state; and
- The Combined Substance Abuse/Mental Health Assessment Plan which includes the results of a two-year assessment to identify the strengths and needs of Rhode Island’s behavioral health system.
Rhode Island Coordinated Chronic Disease Prevention and Health Promotion Plan (2013)

In 2013, the Rhode Island Department of Health (RIDOH) released the *Rhode Island Coordinated Chronic Disease Prevention and Health Promotion State Plan (RI CCDPHP)*. The RI CCDPHP identified heart disease, stroke, diabetes, and arthritis as some of the most common and costly illnesses in Rhode Island, yet preventable by addressing risk factors such as smoking, high blood pressure, overweight/obesity, and the lack of physical activity. While these conditions were being addressed individually within categorical programs in the Department, there was no interface across program areas. RIDOH determined that an integrated approach to surveillance and evaluation would be needed to improve population health outcomes.

The RI CCDPHP included cross-cutting, statewide goals, and objectives. Its recommendations included strategies that support healthy behaviors population-wide. It included policies at the state and community levels that are related to tobacco-free living, healthy environments, healthy development, social equity and social cohesion, and chronic diseases and their associated risk factors. The RI CCDPHP was guided by a vision that aligned with U.S. Public Health Services and *Healthy People 2020* strategic directions and long-term objectives for community transformation, chronic disease prevention, and health promotion. The RI CCDPHP incorporated the Health Equity Framework, referenced earlier in this report, which addresses the social determinants of health, policy integration, environmental, programmatic, and infrastructure strategies, and strategy implementation for populations across the lifespan.

The RI CCDPHP was a concerted effort of the Division of Community, Family Health, and Equity within RIDOH. The internal collaborative process occurred in coordination with the work of an external group of more than 35 partners who comprised the Rhode Island Collaborative for Health Equity. This partnership was established to help Rhode Island significantly reduce and control chronic diseases and risk factors population-wide by implementing crosscutting strategies in multiple settings that connect healthcare, workplaces, child and adult care settings, and schools, among other places. These strategies relate to the five goals of the RI CCDPHP:

- Enhance capacity in leadership, management, advocacy, communication, surveillance, evaluation, and community mobilization to promote a culture of collaboration and advance disease prevention and health promotion;
- Create an integrated surveillance system that provides information on health-related risk and protective factors across the lifespan;
- Advance environmental strategies to improve individual-level health behaviors;
- Enhance services and systems in place that expand access to and utilization of coordinated healthcare services and reduce morbidity and mortality of preventable chronic diseases and risk factors; and
- Expand access to community-based preventive services and strengthen their linkages with clinical care.
Rhode Island Health Assessment and Health Improvement Plan (2014)

In 2014, RIDOH released the Rhode Island’s Health Assessment and Health Improvement Plan (HAHIP). The Department determined that gathering and maintaining accurate data about disease and injury was one of the most important aspects of its mission, to assist in identifying both health focus areas and opportunities for improvement in addressing those concerns. Data were also viewed as essential for determining how indicators of health for Rhode Island compared with other states in order to identify opportunities to improve health for all Rhode Islanders. Finally, the Department determined that a health improvement plan should reflect the views and perspectives of the individuals that make up Rhode Island’s communities and the partners that work to support them. The HAHIP is the product of a statewide collaboration and includes selected qualitative and quantitative data from a variety of sources and partners identifying needs and collaborative strategies to make Rhode Island’s cities, towns and neighborhoods healthier places to live, work, and learn.

HAHIP Findings

The Department gathered and analyzed a variety of data sources. The first source of data involved snapshots of the 39 cities and towns in Rhode Island, which included the median family income of residents; rates of low birth weight babies, infant mortality, teen births, high school graduations and attainment of a college degree; and the percent of the population born outside of the United States. A second source of data was a report of Rhode Island’s performance related to America’s Health Ranking indicators. Though, as of 2013, Rhode Island ranked 19th overall as healthy compared to other states in the nation, the state ranked lowest of all New England states suggesting areas of needed improvement. A third source of Assessment data were Minority Health Facts reports.

Produced in partnership with the Rhode Island Public Health Institute, the reports assessed disparities in rates of mortality, chronic health conditions and access to health care among racial and ethnic populations. Finally, the Assessment included input from communities throughout the state. Information was gathered from the State Health Assessment Group, the Maternal Child Health Community Input Process, needs assessments conducted by the Hospital Association of Rhode Island and Community Health Reports also produced by the Public Health Institute.

Table 20 below summarizes selected HAHIP needs that overlap with the State health focus areas.
Table 20: Selected HAHIP Needs Relevant to Health Focus Areas

<table>
<thead>
<tr>
<th>Health Focus Area</th>
<th>Health Assessment Need</th>
<th>Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco Use</td>
<td>Reduce Tobacco Use</td>
<td>Southside Providence, Central Falls, Constitution Hill – Woonsocket, Olneyville</td>
</tr>
<tr>
<td></td>
<td>Increase Coverage for Cessation Products</td>
<td>Olneyville</td>
</tr>
<tr>
<td>Obesity</td>
<td>Address Low Consumption of Fruits and Vegetables</td>
<td>Southside Providence, Central Falls, Constitution Hill – Woonsocket, Olneyville</td>
</tr>
<tr>
<td></td>
<td>Offer Transportation to Obtain Healthy Foods</td>
<td>Olneyville</td>
</tr>
<tr>
<td></td>
<td>Increase Affordability of Healthy Foods</td>
<td>Olneyville</td>
</tr>
<tr>
<td></td>
<td>Increase Access to Affordable Organized Exercise/Recreational Opportunities</td>
<td>Southside Providence, Central Falls, Constitution Hill – Woonsocket, Olneyville</td>
</tr>
<tr>
<td>Chronic Disease</td>
<td>Address High Rates of High Blood Pressure, Diabetes and Heart Disease</td>
<td>Southside Providence, Central Falls, Constitution Hill – Woonsocket, Olneyville</td>
</tr>
<tr>
<td></td>
<td>Increase Screening for Diabetes</td>
<td>Southside Providence</td>
</tr>
<tr>
<td></td>
<td>Reduce Risks of Chronic Diseases Associated with Second-Hand Smoke</td>
<td>Constitution Hill–Woonsocket</td>
</tr>
<tr>
<td></td>
<td>Improve Access to Preventative Care</td>
<td>Constitution Hill–Woonsocket</td>
</tr>
<tr>
<td>Behavioral Health</td>
<td>Reduce High Rates of Reported Impairment in Daily Activities Due to Poor Mental Health</td>
<td>Southside Providence, Constitution Hill–Woonsocket</td>
</tr>
</tbody>
</table>

HAHIP Interventions
RIDOH developed the Rhode Island 2013-18 Health Assessment and Health Improvement Plan to create an ongoing process to address the numerous identified needs. The HAHIP recognized and took into consideration social determinants of health, such as safe and stable housing, safe and clean neighborhoods and access to healthy food and water. In addition, the HAHIP focused on building collaborations among healthcare providers and partners in order to improve the health of Rhode Islanders while containing costs. Several key activities outlined in this document relate to the Health Focus Areas contained within this report.

Obesity
- Provide adult healthcare providers with tools and training to better address obesity prevention;
- Increase the percent of older adults who exercise on most days of the week;
Tobacco and Chronic Disease

- Advocate for insurers to improve access to low and no-cost, face-to-face smoking cessation programs;
- Conduct a joint campaign regarding the impact of smoking and second-hand smoke on asthma, targeting high school students and adults;
- Expand the use of the Chronic Care Model with emphasis on racial/ethnic minorities;
- Disseminate *American Diabetes Association (ADA) Guidelines* to providers for diabetes screening recommendations;

Behavioral Health

- Reduce years of potential life lost and days of lost work, school, and leisure in Rhode Island as measured by reduced Opioid overdose related deaths;
- Enhance access to mental health and substance abuse services; and
- Prevent violence and injuries in Rhode Island as measured by a decrease in the number of suicide deaths among 15-24 year olds.

Statewide Health Inventory (2015)

In 2015, RIDOH conducted an extensive healthcare utilization and capacity study. The inventory surveyed primary care facilities, outpatient specialty practices, behavioral health providers, hospitals, nursing facilities, assisted living centers, adult day care programs, home health providers, MRI imagining centers, ambulatory surgery centers and dialysis centers to gather data on:

- Number of patients served;
- Services and treatments provided;
- Number of visits;
- Insurance accepted;
- Patient demographics;
- Languages spoken;
- Interpreter services;
- Transportation services; and
- Hours of operation.

The inventory also conducted a patient and community study to understand how community members access care. An extensive outreach effort led to a more than 90% response rate for nearly all surveys. As a result, the State Inventory reflects Rhode Island's most detailed and accurate picture of healthcare utilization and capacity to date. These findings will play an important role in healthcare planning as the state seeks to address unmet needs, reduce duplication, and prioritize less expensive, community based services. Major findings of the inventory include:
Primary Care Shortages and Disparities
The 2015 Inventory uncovered a significant gap in the availability of primary care providers. On average, there is only one full-time primary care provider for every 1,718 Rhode Islanders. Earlier studies had over-estimated the size of this workforce by 40%. The updated data show that Rhode Island must increase its pool of primary care doctors by at least 10% to meet national standards.

This scarcity has led to waiting lists among 20% of the state’s primary care practices, with an average number of 62 patients per waiting list and an average wait time of about 8 months. When patients struggle to find a primary care doctor, they are less likely to access care and screenings that can improve health outcomes and prevent more expensive treatments in the future. Addressing this gap will play an important role in improving the health of all Rhode Islanders, especially given that having a primary care medical home is key to preventing, diagnosing, treating, and recovering from many, if not all, of the health focus areas within this report.

Although the physical location of primary care providers is not enough to accurately assess sufficient or insufficient access to primary care by geography, the initial data does indicate significant disparities, especially in communities where residents might rely on public transportation to get to the doctor. Notably, the Providence neighborhoods of South Elmwood, Silver Lake, Reservoir, Manton, Hartford, Fox Point, Federal Hill and Downtown had no primary care providers at the time of the survey.

During the calendar year 2014, nearly 20% of all primary care practices saw no Medicaid patients. Overall, less than 20% of practices had a patient mix that included at least 30% Medicaid patients.

Behavioral Health Segmentation and Disparities
In the surveys conducted by the Department of Health, Rhode Island’s Licensed Behavioral Health Clinics reported low levels of integration with physical health providers. Only 32% reported some type of integration with primary care practices and 75% did not have the same electronic medical record system as primary care providers. Despite efforts in the state to develop Patient Centered Medical Homes (PCMHs) that use a team approach to treat the whole person, less than 9% of Behavioral Health Clinics were connected to a PCMH. Private psychiatrists and psychologists reported similar low levels of integration with primary care providers.

While more than 45% of patients at Behavioral Health Clinics are Medicaid recipients, rates of Medicaid patients seen by private psychiatrist and psychologists are in the single digits. On average, fewer than 6% of patients at these practices have Medicaid coverage and at the time of the survey, less than 17% of private practices were accepting new Medicaid patients. Rates of Medicare patients were also low- only 3.9% for psychiatrists and 5.1% for psychologists. Of the psychiatrists and psychologists surveyed; less than 27% provided both mental health and substance abuse treatment and none focused primarily on substance abuse services.

Other Systemic Issues
Other systemic issues relevant to population health included the following:
• **Race, Ethnicity, and Language Gaps**
  The Statewide Health Inventory uncovered a lack of information regarding patient race ethnicity, and language needs across the health care industry. In many outpatient settings, that data were not collected at all or data were very limited. At almost all types of healthcare facilities across the state, interpreter services were either not available or very limited. Family members or staff who spoke a patient’s language often stood in as ad-hoc interpreters.

• **Electronic Medical Records Variation**
  There is still a wide variation in the use of Electronic Medical Records in practices across the state. Although about 85% of primary care practices use EMRs, only 60% of behavioral health clinics and 55% of outpatient specialty clinics report substantial use. There is also a lack of integration between EMRs for behavioral health and physical health. A majority of behavioral health providers indicate that they do not use the same EMR platform as primary care practices, creating compatibility issues and challenges in continuity of care.

• **Lack of Medicaid Options for Community Based Long Term Care**
  Rhode Island’s Medicaid program aims to transition its elderly and disabled recipients away from institutional care and towards community settings whenever possible. However, that goal is difficult to meet when such community placements are unavailable. More than 50% of the state’s assisted living facilities were not accepting new Medicaid patients when the state conducted its 2015 inventory. More than 50% of both long-term care and nursing facilities also lacked dementia care units.


In 2015, Governor Raimondo established the Working Group for Reinventing Medicaid to review the current Medicaid program and recommend specific quality improvement and cost containment measures. An initial report focused on immediate actions to create “short term cost savings measures” without cutting Medicaid eligibility or benefits, but the state recognized that Medicaid also required a total transformation to address what had become an inefficient and expensive system. So the Working Group released a second report, detailing a multi-year plan for reimagining the way Rhode Island delivers publicly financed health care.

**Reinventing Medicaid Assessment**

Before the Working Group released its steps for transforming the Medicaid program, it offered an analysis of the factors contributing to the program’s rising costs. Medicaid serves a diverse population of Rhode Islanders: low income adults included in the Affordable Care Act’s “Medicaid Expansion,” low income children and families, children with special health care needs, adults with disabilities, and elders. Although all of these populations receive Medicaid benefits, the cost of providing those benefits varies widely.

In Fiscal Year 2014, the per member per month cost for Rhode Island elders on Medicaid was more than seven times the cost for covering low income children and families. In fact, a small percentage of Medicaid patients, those with medically complex health needs, account for the biggest portion of the program’s costs. The Working Group recognized that the best opportunity for reducing costs existed in finding
better and less costly methods to meet the needs of these medically complex patients while also reducing the unnecessary utilization of the most expensive health care settings: hospitals and long term care facilities. The Working Group also identified behavioral health and substance abuse as key areas of focus for cost and quality improvement because there is a high prevalence of those disorders among Medicaid recipients.

The report also identified key systematic issues that are both related to the health focus areas contained in this report and that contribute to rising Medicaid costs including:

- **Fragmented, duplicative and poorly coordinated care management**
  Care management for Medicaid recipients currently takes place in a range of settings and under a variety of different programs. These care managers do important work, but are poorly coordinated. Medicaid recipients often work with multiple care managers who don't share information with each other. This siloed approach can result in duplication of efforts and confusion for patients. For example, this can pose significant challenges for people who receive behavioral healthcare and physical healthcare from different provider organizations.

- **Low health literacy and distrust of health care system**
  Many Medicaid recipients lack the language skills, social supports and educational levels to navigate our complex health care system. Patients might be labeled as “non-compliant” when in reality they face very real challenges getting the care they need.

- **Inability to address social determinants of health not covered by health insurance**
  When Medicaid recipients struggle to receive food, clothing, shelter, and employment, health interventions are more likely to fail, leading to poor outcomes and expensive treatments for medical issues that could have been prevented.
Table 21: Reinventing Medicaid Findings and Goals Relevant to Health Focus Areas

<table>
<thead>
<tr>
<th>Health Focus Area</th>
<th>Finding/Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic Disease</td>
<td>• Goal: Use core quality, utilization and outcome measures to track progress of reinventing Medicaid, focused on high cost/high need patients</td>
</tr>
<tr>
<td>Behavioral Health</td>
<td>• Finding: A high prevalence of behavioral health and substance abuse disorders among Medicaid recipients, contributing to rising costs</td>
</tr>
<tr>
<td></td>
<td>• Finding: Lack of integration between the funding and delivery of physical and behavioral health</td>
</tr>
<tr>
<td></td>
<td>• Finding: High rates of trips to the emergency room among recipients with Serious Mental Illness</td>
</tr>
<tr>
<td></td>
<td>• Goal: Design a system that treats the whole person, not just one condition or characteristic</td>
</tr>
<tr>
<td></td>
<td>• Goal: All Medicaid beneficiaries with a Severe and Persistent Mental Illness (SPMI) should be enrolled in an accountable health home by 2018</td>
</tr>
<tr>
<td>Maternal and Child Health</td>
<td>• Goal: Continue RIte Care’s “legacy of success” and aim to maintain a “top five” ranking in any future national assessment.</td>
</tr>
</tbody>
</table>

**Truven Report (2015)**

In Rhode Island, an important priority is to ensure that all of its residents have the opportunity to achieve the best possible behavioral health and well-being within healthy local communities that promote empowerment, inclusion, and shared responsibility. In its continuing efforts to fulfill this vision, in 2015 the Rhode Island Executive Office of Health and Human Services (EOHHS), the Department of Behavioral Healthcare, Developmental Disabilities, and Hospitals (BHDDH), the Department of Health and the Office of the Insurance Commissioner (OHIC) contracted with Truven Health Analytics to develop a series of reports that quantified the demand, spending, and supply for the full continuum of behavioral health services in the state. Subsequent to these analyses, Truven Health was asked to develop a summary report recommending practices, policies, and system structures to further the goal of providing accessible, high quality, and affordable behavioral health care.

A keystone of the analyses was a population health approach, organizing population groups across the lifespan to provide an effective conceptual framework for addressing behavioral healthcare issues. Since the population health approach identifies need, prevention, and treatment services by age group, Rhode Island requested that all data be evaluated by lifespan stage (e.g., infants, children, adolescents, adults, older adults). This framework grounded data analysis, interpretation, and subsequent policy recommendations in the knowledge that behavioral health disorders may be preventable developmental conditions, and that different age groups require different types of interventions and services.
Behavioral Health Assessments
Data analysis focused on assessments of the demand for behavioral services across the lifespan, the supply of behavioral health services and providers in Rhode Island and the direct and indirect cost of behavioral health disorders to the state. Table 22 below summarizes selected findings from this analysis.

Table 22: Selected Truven Report Findings Relevant to Health Focus Areas

<table>
<thead>
<tr>
<th>Health Focus Area</th>
<th>Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>• Adolescents aged 12 – 17 were more likely to have major depressive episodes than other New England states and the national average.</td>
</tr>
<tr>
<td>Social and Emotional Disturbance</td>
<td>• Children in Rhode Island face greater economic, social, and familial risks for developing mental health and substance use disorders than children in other New England states and the nation.</td>
</tr>
<tr>
<td></td>
<td>• Young Adults aged 18-24: In Rhode Island 18 – 24 year-olds were more likely to have serious psychological distress (19.8%) than young adults in other New England states (range 17.5% - 19.0%) and nationally (17.9%).</td>
</tr>
<tr>
<td>Serious Mental Illness</td>
<td>• Individuals in Rhode Island are more likely to report unmet need for behavioral healthcare services than adults in any other New England state.</td>
</tr>
<tr>
<td></td>
<td>• Rhode Island is spending more in total on behavioral healthcare services primarily because of relatively greater expenditures on inpatient care and prescription medications.</td>
</tr>
<tr>
<td></td>
<td>• For older adults in RI (65 years or more), behavioral health issues can contribute to increased functional impairment, inappropriate usage of health care services, cognitive disability, risk of unnecessary institutionalization such as nursing homes, and slower or lack of recovery from medical illness and early death.</td>
</tr>
<tr>
<td>Opioid Use Disorders</td>
<td>• Adolescents in Rhode Island had higher rates of illicit drug use than the other New England states and the national average.</td>
</tr>
<tr>
<td></td>
<td>• Adults ages 25 – 64 in Rhode Island are more likely to have illicit drug dependence or abuse in the past year than adults in other New England States or nationally.</td>
</tr>
<tr>
<td></td>
<td>• In 2013, Rhode Island (per 100,000) had a higher age-adjusted death rate from narcotics and hallucinogens than any other New England State or the national average.</td>
</tr>
</tbody>
</table>
Recommended Interventions
Based on these analyses, Truven Health developed a summary report recommending practices, policies, and system structures to further the state’s goal of providing accessible, high quality, and affordable behavioral healthcare across the lifespan in all RI communities.

- **Prevention and Early Intervention**
  Although Rhode Island has an innovative vision and system for addressing the needs of children and adolescents, the state may see significant benefits from greater investment in primary and secondary preventive services for these individuals and their family supports. Since most mental health disorders have their roots in childhood, mental health prevention in Rhode Island should be a priority for agencies serving at-risk children and their families. The types of preventative programs that Rhode Island provides today crosses an array of settings, state agencies, and payers. Services to expand or enhance include evidence-based home visiting, Early Intervention services and early childhood programs (e.g., Early Head Start).

- **State and local infrastructure to promote a population-based approach to behavioral healthcare**
  Rhode Island incurs significant costs from the consequences of mental health and substance use disorders. The state spends nearly 10% of its total state budget on the costs of providing services such as housing prisoners who are incarcerated because of addiction and serious mental illnesses; caring for children whose families are disrupted by substance use disorders and mental illness; and providing social services such as disability insurance to individuals who are unable to work because of serious mental illness or addictions. The lack of a cross-systems’ interface between data collection and information reporting prevents the ability to assess and analyze the full impact of the lack of appropriate behavioral healthcare services on individuals and families and on the system as a whole.

- **A common vision and shared priorities that focus on outcomes**
  State agencies must continue to develop a coordination process between their leadership and management structure, building on new innovations and individual agency successes in order to generate a comprehensive population-based system for the provision of behavioral healthcare services. Though not awarded a Certified Community Behavioral Health Clinic demonstration grant, the planning and application process laid the foundation for data informed system improvements with performance-based expectations.

**Combined Substance Abuse/Mental Health Assessment Plan (2015)**

In 2015, Rhode Island received a Mental Health Block Grant and Substance Abuse Block Grant from the Substance Abuse and Mental Health Services Administration (SAMHSA) to address the behavioral health needs of its population. The grant required the state to conduct a two-year assessment to identify the strengths and needs of Rhode Island’s behavioral health system and serve as the basis for a plan for system improvement.

The Assessment was to include activities in response to new federal legislation, initiatives and changes in technology, and advances in research and knowledge describing the totality of the state’s efforts and how
the block grant funding fit into the states’ overall goals and constraints. Since Block Grant funds awarded were intended to plan, carry out, and evaluate activities and services, including for children with SED, BHDDH partnered with DCYF in completing the combined Assessment and Plan.

The Assessment identified a number of strengths in the systems that serve and support children and adults with behavioral health needs in Rhode Island:

- The state’s commitment to the comprehensive reform effort intended to develop a behavioral system continuum of care embedded in the state’s healthcare system.

- The close collaboration between the EOHHS departments, which allows for an interdepartmental approach to the changes in the behavioral healthcare system. Examples of these collaborations include the joint BHDDH/DCYF administration of the “Healthy Transitions” grant, the BHDDH/DOH response to the overdose epidemic, the joint BHDDH/Department of Corrections re-entry grant application and pilot programs and the ongoing consultation between BHDDH and the Medicaid Authority as behavioral healthcare services move into managed care.

- The integration within BHDDH between substance abuse treatment, prevention and mental health services.

- The integration within the peer and clinical training programs that address Mental Health, Substance use and prevention by all.

- The integration of the recovery model and recovery services into BHDDH’s system.

- The use of federal discretionary grants to advance the goals of BHDDH and DCYF.

The Assessment also identified needs within the behavioral healthcare system. Selected needs that overlap with SIM health focus areas are summarized in the table below.

Table 23: Selected Block Grant Needs Relevant to Health Focus Areas

<table>
<thead>
<tr>
<th>Health Focus Area</th>
<th>Combined Block Grant Assessed Need</th>
<th>Proposed Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>• Reduce adolescent suicides</td>
<td>• Increase suicide prevention programs</td>
</tr>
<tr>
<td></td>
<td>• Lack of suicide prevention for adults</td>
<td>• Procure for a vendor(s) to provide 24/7 mobile crisis response</td>
</tr>
</tbody>
</table>
## Rhode Island State Health Improvement Plan

### Section One: Health Assessment Report

<table>
<thead>
<tr>
<th>Serious Emotional Disturbance</th>
<th>Serious Mental Illness</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Strengthen collaborations and data analysis among state departments, community agencies and health plans serving youth struggling with SED</td>
<td>• The states spends most of its dollars on inpatient services with no follow up upon release, and prescription drugs.</td>
</tr>
<tr>
<td>• Reduce the number of children and youth in out of home placement</td>
<td>• The lack of community services capacity results in high rates of hospitalization and use of other intensive residential treatment for older adults</td>
</tr>
<tr>
<td>• Coordinate data collection, reporting of outcome measures and analysis across departments.</td>
<td>• Shift financing from high cost reactive inpatient services towards person centered, community based, and recovery oriented, coordinated care such as ACT Teams.</td>
</tr>
<tr>
<td>• Increase emphasis on prevention-focused services</td>
<td>• Increase access to Peer Recovery supports</td>
</tr>
<tr>
<td>• Explore the use of team decision making, Differential Response, expedited permanency meetings, coaching for child welfare supervisors</td>
<td>• Increase access to supportive housing</td>
</tr>
<tr>
<td>• Reduce the number of admissions, readmissions and length of stay in children’s psychiatric facilities</td>
<td>• Increase access to home-based specialized geriatric behavioral healthcare and case management</td>
</tr>
<tr>
<td>• Increase access to intensive, home-based treatment services for children and adolescents and community-based supports</td>
<td>• Increase residential care options for seniors who do not require nursing home level of care</td>
</tr>
<tr>
<td>• Increase parent support programs</td>
<td>• Increase geriatric expertise in the CMHCs</td>
</tr>
</tbody>
</table>
### Opioid Related Overdose
- Rhode Island has the 7th highest rate in the nation for illicit substance use by young adults
- Rhode Island continues to be among the states with the highest overdose death rates in the nation.

### Workforce
- Shortage of behavioral health practitioners
- EBPs require highly qualified staff

### Continued focus on prevention, early intervention
- Healthy Transitions Grant and State Youth Treatment Planning Grant
- Restore access to adolescent residential treatment beds
- Increase access to MAT
- Increase access to Recovery Coaches for persons admitted to EDs for drug overdose

### Workforce
- Work with colleges and universities to attract graduates
- Target training and skills development for existing workforce
- Enhance provider rates to make salaries more competitive
State Health Improvement Plan Health Focus Areas

This report used Rhode Island’s extensive examination of the state’s health needs and priorities to identify eight health focus areas to monitor, assess and improve over time. These health focus areas, briefly described above on page 10 of this report, form a starting point for coordinated efforts across state agencies and will grow and evolve over time. This report offers a snapshot of each focus area, defining terms, setting a prevalence baseline, looking to historic trends and identifying important disparities. Where possible, this assessment describes the presence of each health focus area across the life course.

**Obesity: Health Focus Area 1**

**Definition**

Obesity is defined by the ratio of an individual’s weight to their height, called the Body Mass Index (BMI). An individual is considered obese if they have a BMI above 30 kg/m². To determine the prevalence of obese Rhode Islanders, this report combines the results of two questions from the Rhode Island Behavioral Risk Factor Surveillance System (BRFSS): ‘About how much do you weigh without shoes?’ and ‘About how tall are you without shoes?’ The answers to these questions form the variables needed to calculate BMI. All Rhode Islanders with a resulting BMI score of 30 or higher are classified as obese, while those with a BMI in the range of 25 to 29.9 are considered overweight.

**Prevalence across the Life Course**

Overweight and obesity have been increasing at alarming rates in the United States. In 2015, every state had an adult obesity prevalence rate above 20%. Research suggests that overweight and obesity increase the risk for chronic conditions such as diabetes, heart disease, stroke, and specific cancers across the life course. The rate of obese Rhode Islanders has steadily increased over time: between 2011 and 2014, obesity rates increased from 25.4% to 27%.

![Figure 24: Obesity Prevalence over Time](image)
Children and Adolescents
The rate of obesity among adolescents in Rhode Island increased slightly since 2009. Among children in Rhode Island, Hispanic children and children from the core cities are more likely to be overweight or obese compared to non-Hispanic white children and children living outside of core cities.  

![Figure 25: Obesity among Adolescents](image)

Adults
The rate of obesity among adults in Rhode Island increases as adults reach middle age, with the prevalence increasing as adults enter their mid-to-late thirties. Based on BRFSS population estimates, prevalence of obesity is highest among those without a college degree, lower household incomes in age groups 35 to 44 and 45 to 64. Furthermore, the highest density of prevalence can be found in Black non-Hispanic Rhode Islanders aged 45 to 64.

![Figure 26: Obesity Prevalence across the Life Course](image)
At-Risk Populations and Disparities
Based on the available data, Black non-Hispanic Rhode Islanders have the highest rates of obesity at 34.7%. Men are slightly more likely than women to be obese (28.2% of males are obese compared to 25.8% of females). Disparities by income and educational levels exist, but are not as dramatic as the data seen for smoking rates; however, it is still true that as educational levels and incomes increase, obesity rates decrease.

Figure 27: Obesity Prevalence among Subgroups

Co-morbidities
As with smoking rates, national data show that people with behavioral health issues are also more likely to struggle with maintaining a healthy weight. According to Mental Health America:

- People with Depression are 1.2 to 1.8 times more likely than the general public to be obese.
- People with Bipolar Disorder are 1.5 to 2.3 times more likely than the general public to be obese.
- People with Schizophrenia are 3.5 times more likely than the general public to be obese.

Using BRFSS data in the years 2012 to 2014, it appears that a variety of conditions co-occur with obesity. For example, according to these data:

- Approximately 18.2% of respondents with obesity report being told by a physician that they have diabetes.
- About 17.3% of respondents with obesity also were identified as ‘current smokers’
- Approximately 29.4% of respondents with obesity also report having depression.
Chronic Diseases: Health Focus Area 2

Definition
Chronic diseases such as heart disease, stroke and diabetes are among the most common, costly, and preventable of all health problems. Four modifiable risk factors—smoking, high blood pressure, overweight/obesity, and the lack of physical activity—are responsible for much of the illness and premature deaths related to these chronic diseases.

Diabetes

Diabetes is a chronic disease marked by high levels of blood sugar (also called blood glucose). Diabetes occurs when the body has problems either making insulin (Type 1) or using insulin (Type 2). Appropriate interventions can prevent and/or delay the onset of diabetes. Over the past five decades, the prevalence of diagnosed diabetes increased four- to eight-fold, and is projected to continue rising. According to available data, there was a jump in the diabetes rate in Rhode Island from 8.4% in 2011 to 9.8% in 2012. In 2013, the rate of diabetes dropped slightly and then leveled off in 2014.

Figure 28: Diabetes Prevalence over Time

This report uses data from the Rhode Island BRFSS to calculate the prevalence of diabetes. Rhode Islanders are classified as diabetic if they answer “yes” to the question: “Have you ever been told by a doctor that you have diabetes?”

Prevalence across the Life Course
According to the most recent results from the 2014 BRFSS, 9.4% of Rhode Islanders have been diagnosed with diabetes. Given that approximately one third of people with diabetes remain undiagnosed, the actual prevalence of diabetes in Rhode Island could be much higher. Based on a life course assessment of BRFSS data, diabetes increase as Rhode Islanders age, with the highest prevalence of diabetes being found...
among adults 65 years or older. Across all Rhode Island adults aged 65 or older, 19.9% of adults reported being told they had diabetes. Among adults aged 45 to 64, Black non-Hispanic adults (23.3%) and those with household incomes less than $25,000 per year (22.5%) have the highest rates of diabetes. Among adults older than 65, Black non-Hispanic adults were observed as having the highest rate of diabetes overall, with more than 26% of these individuals self-reporting a diagnosis of diabetes.

Figure 29: Diabetes Prevalence across the Life Course

**Pregnant Women—Gestational Diabetes**

Gestational diabetes is diabetes that is first seen or diagnosed while a woman is pregnant. Although many women with gestational diabetes are overweight or obese before getting pregnant, women with healthy weights can also develop gestational diabetes. Other known potential causes of gestational diabetes include family history of gestational diabetes, having twins, and being over the age of 25. Women with gestational diabetes are at higher risk of high blood pressure, cesarean delivery, and giving birth to babies that are large for their gestational age. Babies born to women with gestational diabetes are at higher risk for stillbirth, injury during birth, low blood sugar, and developing type 2 diabetes later in life.

According to data from the Pregnancy Risk Assessment Monitoring System (PRAMS) survey, between 2012 and 2014 11.4% of pregnant mothers in Rhode Island were diagnosed with gestational diabetes. That’s higher than the most recent national estimates that put the rate of gestational diabetes at 9.2% for mothers across the country. However, other factors might be contributing to Rhode Island’s high rate. Researchers from the Rhode Island Department of Health note that the state might have a “more complete assessment of gestational diabetes compared to other states.” It’s also difficult to determine whether mothers have gestational diabetes, or just undiagnosed type 2 diabetes, especially because women of childbearing age are not usually screen for diabetes before they become pregnant.
As the age of Rhode Island mothers increase, so does their risk of developing gestational diabetes. Mothers over the age of 35 had an 18.6% rate of gestational diabetes compared to a rate of 5.4% for mothers between the ages of 20 and 24.

**Diabetes among Older Adults**

The prevalence of diabetes increases concomitantly with the increase in the overall age of the group. For example, the prevalence of diabetes in adults aged 65 or older is almost 20% (19.9%). This prevalence estimate is higher than the estimate for adults aged 35 to 44 (5.0%) and those aged 45 to 64 (12.3%). These age differences persist across all subgroup differences, maintaining the same socioeconomic differences across groups. For example, Hispanics aged 65 or older have a higher prevalence of diabetes than White (30.2% vs. 19.1%) and Black, Non-Hispanic respondents (30.2% vs. 26.1%). Similarly, older adults with household incomes less than 25 thousand dollars a year report a higher prevalence of diabetes than those with household incomes more than 50 thousand dollars a year (24.9% vs. 14.7%).

**At-Risk-Populations and Disparities**

Black, Non-Hispanic Rhode Islanders show the highest prevalence in this health focus area. However, the difference between racial/ethnic communities is not especially dramatic. In fact, the rate of Black, Non-Hispanic Rhode Islanders with diabetes is statistically the same as the rate of male Rhode Islanders with diabetes47. The more dramatic differences exist when the data are stratified by income and educational levels. As income and educational levels increase, rates of diabetes decrease.
Heart Disease and Stroke (Cardiovascular Diseases)

Cardiovascular diseases include diseases of the heart and hypertension (high blood pressure), as well as cerebrovascular diseases, such as stroke. Modifiable risk factors that increase the risk of developing and dying from cardiovascular diseases include tobacco use, physical inactivity, an unhealthy diet, high blood pressure, high cholesterol, overweight or obesity, and type 2 diabetes.48

Heart disease and stroke are major causes of disability and cardiovascular diseases remain the leading cause of death in the United States.49 The rates of heart disease, heart attacks and stroke have all held fairly steady between 2011 and 2014.

Prevalence across the Life Course

This plan measures the prevalence of heart disease and stroke in this section using self-reported data from the Rhode Island BRFSS which asks, “Has a nurse, doctor, or other healthcare professional ever told you that you had the following...” and allows respondents to select among a series of health conditions. Three of those conditions are heart disease/angina, heart attack/myocardial infarction, and stroke.

In 2014, 4.2% of Rhode Islanders reported being told they had Heart Disease/Angina, 4.2% reported being told they had a heart attack/myocardial infarction and 2.5% reported being told they had a stroke50. These rates vary when assessing these outcomes across the lifespan, with higher rates being observed in Rhode Island adults aged 65 or older.

Older Adults

In Rhode Islanders aged 65 years or older, 12.2% report being told they had Heart Disease/Angina, 12.1% report being told they have had a heart attack, and nearly 7% report being told they’ve had a stroke. In the 65+ age group, males report higher rates of Heart Attack (17.4% vs. 8.5%) and Heart Disease (17.7% vs.
8.2%) than their female counterparts. Across income groups in adults aged 65 or older, we find that the prevalence of all three aforementioned outcomes decreases as income increases.

**Figure 32: Heart Disease Prevalence over Time**

![Heart Disease Prevalence, Rhode Island 2011-2014](image)

**At-Risk Populations and Disparities**

BRFSS data for heart disease, heart attacks and stroke all show an increased prevalence among males as compared to females. The rates of these conditions all continue to decrease as income and education levels increase. However, White, Non-Hispanic Rhode Islanders have the highest rate of coronary heart disease, while Black, Non-Hispanic Rhode Islanders have the highest rates of heart attacks and strokes\(^5\).

**Figures 33: Coronary Heart Disease Prevalence among Subgroups**

![Coronary Heart Disease Prevalence, Rhode Island 2014](image)
Co-morbidities
Chronic medical conditions, including high blood pressure, heart disease, stroke and liver disease can result from heavy drinking over time.\textsuperscript{32} In addition, excessive alcohol use can lead to the development of cancer of the breast, mouth, throat, esophagus, liver, and colon.\textsuperscript{53} The cost of treating diabetes is as much as four times higher for individuals with an untreated co-occurring condition such as depression or alcohol addiction.\textsuperscript{34}
Tobacco Use: Health Focus Area 3

Definition
Tobacco use encompasses the use of a range of products, from pipes to dipping tobacco to electronic cigarettes. For Rhode Island adults, the IPHP focuses primarily on rates of smoking cigarettes and rates of smokeless tobacco use drawn from self-reported data from the Rhode Island BRFSS. Respondents are considered smokers if they answer “every day” or “some days” to the question: “Do you now smoke cigarettes every day, some days, or not at all?” For smokeless tobacco use, Rhode Islanders are considered users if they answer “yes” to the question: “Do you currently use chewing tobacco, snuff, or snus?”

For pregnant women, the report uses responses from the Pregnancy Risk Assessment Monitoring System (PRAMS) survey, which asks new mothers several questions about smoking. The rate of smoking during pregnancy reflects the percentage of mothers who indicated that they smoked in response to the question “In the last 3 months of your pregnancy, how many cigarettes did you smoke on an average day?”

For Rhode Island high school students the IPHP also examines the use of “electronic vapor products” (including e-cigarettes, e-cigars, e-pipes, vape pipes, vaping pens, e-hookahs, and hookah pens), and cigars using self-reported data from the Rhode Island Youth Risk Behavior Surveillance System (YRBSS). High School students are considered current users of these tobacco products if they indicate they used them at least once during the 30 days before the survey was conducted.

Prevalence across the Life Course

Children and Adolescents
In keeping with the national trend, cigarette use among Rhode Island high school students is down dramatically. In 2015, only 4.8% of students reported using at least one cigarette in the 30 days before the survey, down from 15.9% in 2005. However, the use of electronic vapor products is much higher. In the same survey, more than 40% of students reported trying electronic vapor products at least once and more than 19% of students reported using them within the past month.

Figure 36: Cigarette Smoking Prevalence among Teen Subgroups
High school students also report smoking cigars at a higher rate than they smoke cigarettes. In 2015, more than 8% used a cigar at least once during the past month. Smokeless tobacco is also more popular than cigarettes, but only slightly. Just over 5% of high school students reported using “chewing tobacco, snuff or dip” in the past month.

As previously noted, cigarette use among high school students has dramatically declined over the past 10 years. Cigar use follows a similar downward trend, while use of smokeless tobacco products has varied year by year, perhaps due to a low sample size of users. The YRBSS has no historic data regarding e-cigarettes, the 2015 survey asked about these products for the first time, so subsequent surveys will provide important trending data about the use of these products.

**Pregnant Women**

The rate of Rhode Island mothers who smoked in their last trimester has decreased over the years, dropping from a high of 13.4% in 2006 to a low of 7.4% in 2013. However, this rate is above the Healthy People 2020 target of only 1.4% of mothers smoking during pregnancy (or conversely, 98.6% of females reporting that they abstained from cigarettes while pregnant). In 2011, Rhode Island had the 11th lowest rate of mothers who smoked during pregnancy.
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Figure 38: Smoking During Pregnancy Among Subgroups

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Smoking Rate 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>8.6%</td>
</tr>
<tr>
<td>&lt;20 Years</td>
<td>9.9%</td>
</tr>
<tr>
<td>20-24 Years</td>
<td>6.3%</td>
</tr>
<tr>
<td>25-34 Years</td>
<td>6.1%</td>
</tr>
<tr>
<td>35+ Years</td>
<td>9.9%</td>
</tr>
<tr>
<td>White, Non-Hispanic</td>
<td>7.5%</td>
</tr>
<tr>
<td>Black, Non-Hispanic</td>
<td>8%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>14.4%</td>
</tr>
<tr>
<td>Other, Non-Hispanic</td>
<td>22.7%</td>
</tr>
<tr>
<td>&lt;12 Years Education</td>
<td>2.9%</td>
</tr>
<tr>
<td>12 Years Education</td>
<td>12.4%</td>
</tr>
<tr>
<td>&gt;12 Years Education</td>
<td></td>
</tr>
</tbody>
</table>

**Adults**

According to the most recent results from the 2014 Rhode Island BRFSS, 16.3% of Rhode Island adults self-reported that they are smokers. Use of smokeless tobacco is significantly lower. In 2014, only 1.4% of Rhode Islanders reported using “chewing tobacco, snuff, or snus” on “some days” during the month. Although smoking rates vary among Rhode Island’s sub-populations, all experienced a decline in smoking over the past 10 years. In the short time span between 2011 and 2014, smoking prevalence dropped from 20% down to 16.3%.

Figure 39: Smoking Prevalence over Time

<table>
<thead>
<tr>
<th>Year</th>
<th>Smoking Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>20%</td>
</tr>
<tr>
<td>2012</td>
<td>17.4%</td>
</tr>
<tr>
<td>2013</td>
<td>17.4%</td>
</tr>
<tr>
<td>2014</td>
<td>16.3%</td>
</tr>
</tbody>
</table>
**Older Adults**

The prevalence of smoking trends downwards as Rhode Island adults age, with 7.7% of Rhode Islanders older than 65 being current smokers. Furthermore, across all BRFSS adult respondents, the prevalence of current smokers aged 65 or older was smaller than every younger age group category. Among those older than 65, Black, non-Hispanic Rhode Islanders and those with household incomes less than $25,000 a year report the highest prevalence of smoking (12.5% and 11.87%, respectively).

**At-Risk Populations and Disparities**

*Children and Adolescents*

Regardless of the type of product, male high school students are more likely to be users of tobacco than female students. As with the data for adults, our information about tobacco use among ethnic/racial groups is limited. What data exists indicates that disparities vary by type of tobacco product. At a rate of 21%, white, non-Hispanic students are the most likely to report using e-cigarettes, far ahead of Hispanic (16.7%) and Black non-Hispanic (15.2%) students. However, Black non-Hispanic students have the highest rate of smokeless tobacco use (7.7%) and cigar use is fairly uniform across ethnic/racial groups. As students age, they are more likely to report using tobacco. Rates for all types of tobacco products are highest among high school seniors.

*Pregnant Women*

A Department of Health analysis of data collected between 2009 and 2011 found that Rhode Island women who were under the age of 20, white, non-Hispanic, unmarried, or had just 12 years of education had a higher prevalence of smoking during pregnancy.\(^\text{61}\) In 2008, national data indicated that the prevalence of smoking during pregnancy was highest among women who were between the ages of 20-24, were Alaskan Natives, had less than 12 years of education or received Medicaid during their prenatal care.\(^\text{62}\)

*Adults*

Black, non-Hispanic Rhode Islanders are more likely to be smokers than any other racial/ethnic group in the state with a smoking rate of 21.9%. Our analysis of disparities is limited. Small sample sizes among other groups, such as Multi-racial, non-Hispanic Rhode Islanders, prevent us from drawing any conclusions about racial/ethnic communities other than White, non-Hispanic, Black non-Hispanic and Hispanic Rhode Islanders.
Stratifying the data by income and educational levels shows a more dramatic picture of smoking disparities than stratifying the data by race/ethnicity. Rhode Islanders with an annual household income of less than $25,000 a year self-reported a smoking rate (24.3%) that is more than double the self-reported rate of smokers among Rhode Islanders that have an annual household income of more than $50,000. In general, Rhode Island smoking rates decrease as income increases.
The same is true of educational levels. Rhode Islanders without a high school diploma have the highest rate of smoking, at 26.1%. That rate drops dramatically to 11.8% among Rhode Islanders with at least some college education.

Co-morbidities
There are significant data that indicate people with behavioral health needs have higher rates of smoking than the general public. A Position Statement on Health and Wellness for People with Serious Mental Illness issued by Mental Health America identified that nationally:

- 44% of all cigarettes smoked in the U.S. are consumed by people with a mental illness.
- 56% to 88% of people with schizophrenia smoke compared to 25% of the general public.
- People with schizophrenia who smoke have a higher toxic exposure than other smokers: they smoke more cigarettes and consume more of each cigarette.

According to the National Institutes of Health, people who smoke are much more likely to drink, and people who drink are much more likely to smoke. Dependence on alcohol and tobacco also is correlated: People who are dependent on alcohol are three times more likely than those in the general population to be smokers, and people who are dependent on tobacco are four times more likely than the general population to be dependent on alcohol.

- People who drink and smoke are at higher risk for certain types of cancer, particularly those of the mouth and throat. Alcohol and tobacco cause approximately 80% of cases of cancer of the mouth and throat in men and about 65% in women.
- Tobacco use and alcohol consumption both are major risk factors for various forms of cardiovascular disease. While there is little evidence to suggest that drinking and smoking together raise the risk more than the sum of their independent effects, the negative effects from excessive tobacco use and excessive drinking and the high rates of co-occurrence are cause for concern.

Opioid Use Disorders: Health Focus Area 4

Definition
Opioid addiction (also called dependence) is a chronic brain disease that can develop with repeated daily exposure to opioids. It is characterized by the development of tolerance (the need for an increasingly higher dose to achieve the same effect) and withdrawal (an extremely painful condition that occurs when people try to stop usage abruptly). The natural progression of this disease leads to using greater amounts of drugs over time, which typically drives people to increasingly desperate and dangerous behaviors. In this analysis, we measure the prevalence of Neonatal abstinence syndrome; Past-Year Illicit Drug Dependence or Abuse Among Individuals Aged 12 or Older in Rhode Island, based on National Survey on Drug Use and Health (NSDUH) data (2009–2013), and Overdose-related death rates as reported by the Rhode Island Office of State Medical Examiner.
Prevalence across the Life Course

Neonates

Neonatal abstinence syndrome (NAS) is a postnatal drug withdrawal syndrome that occurs in infants shortly after birth. NAS is most likely to occur as the result of in utero exposure to opioids. This exposure can result from maternal prescription opioid use/abuse, illicit opioid use, or medication-assisted treatment for an opioid use disorder. Newborns with NAS experience symptoms that include central nervous system irritability (e.g., tremors, increased muscle tone, high-pitched crying, and seizures), gastrointestinal dysfunction (e.g., feeding difficulties), and temperature instability.

According to a study published by the CDC in 2016, the incidence of NAS in twenty-eight states with retrievable data from the Healthcare Cost and Utilization Project had increased almost 300% during 1999–2013, from 1.5 to 6.0 cases per 1,000 hospital births. The 2013 incidence of NAS per 1,000 births in Rhode Island was 7.2. While the rate of NAS in Rhode Island is not the highest reported nationally, the rate more than doubled between 2005 and the first three quarters of 2015, from 44 cases per 10,000 live births to 95 cases per 10,000 live births.

Figure 42: NAS over Time

While the increase in the number of infants born with NAS is a concern, the national impact on health care is alarming:

- In some hospitals, infants with NAS comprise 50% of admissions to their Neonatal Intensive Care Units.
- Mean length of hospital stay - 23 days.
- Mean hospital charge - $93,400 per infant.
- Total NAS Inpatient cost in 2012 - $1.5 billion.
Individuals Ages 12 and Older

According to data collected in the National Survey on Drug Use and Health (NSDUH), between 2009 and 2013, rates of illicit drug abuse or dependence among Rhode Islanders over the age of 12 exceeded the national average. In 2013, Rhode Island had one of the highest rates of illicit drug use in the nation, as well as the highest rate of drug overdose in New England. The 2013-2014 Rhode Island YRBSS reveals that 12% of high school students and 3% of middle school students have used prescriptions drugs not prescribed to them. The state ranks 35th highest for youth dependence on or abuse of illicit drugs or alcohol with a prevalence of 6.89%, or 5,000, youths reporting drug or alcohol dependence or abuse. Among adults, Rhode Island ranked second highest nationally for adult dependence on or abuse of illicit drugs or alcohol with a prevalence of 10.91% or 89,000 adults.

Figure 43: Illicit Drug Dependence or Use among Individuals Aged 12 or Older

Opiate drug addiction in Rhode Island, similar to many states throughout the country, is described as an “epidemic.” According to a report issued by The Rhode Island Opiate Task Force, this recent increase in opiate abuse is directly related to a dramatic increase in the amount of opioids prescribed. The accessibility of opioid pain medications—such as Vicodin, Percocet, or OxyContin—often leads to the use of heroin, which has become much cheaper. Since 2002, rates of heroin addiction doubled.

The epidemic has grave consequences for Rhode Islanders. There was an 80% increase from 2012 to 2013 in the number of emergency department visits with a primary diagnosis of opioid overdose for youth/young adults age 0-19, and a 32% increase in 20-24 year-olds. Since 2002, the rate of heroin-related overdose deaths nearly quadrupled. The death rate for all ages attributed to narcotics and hallucinogens more than doubled between 2011 and 2013. Two-hundred, thirty-nine Rhode Islanders died as a result of a drug overdose in 2014. Eighty percent of overdose deaths in 2015 involved illicit drug use, up from 67-70% in prior years. Overdoses related to fentanyl-laced illicit drugs increased dramatically.

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According to the Rhode Island State Medical Examiner’s office, the highest rates of drug-related deaths in Rhode Island are (in order): Kent County, Providence County, Washington County, Newport, and Bristol. According to the Opiate Task Force Report, reported death rates for 2014-2015 were high in Providence and in many surrounding towns and cities (e.g. in Warren, Central Falls, and southwestern Rhode Island).

Figure 44: Overdose-Related Death Rates Per Capita by RI City

![Overdose-Related Death Rates Per Capita by RI City](image)

**Older Adults**

While the incidence of illicit drug use is not as prevalent with older adults, age-related physiological changes, co-existing chronic health conditions, and social issues, such as isolation, make older adults a unique at-risk population with regards to prescription opioid use and misuse. The increased rate of opioid abuse has resulted in increased medical emergencies, as evidenced by increased Emergency Department visits, among older adults. From 2005 to 2011 the national rate of Emergency Department visits involving nonmedical use of narcotic pain relievers for patients aged 55 and older increased 121%. In a recently published pilot study of older adult patients, ages 65+, in a Rhode Island Hospital Emergency Department:

- Over two-thirds of the sample of 88 patients had current or prior experience with prescription opioid use.
- Nearly one in five were actively using opioids.
- Five out of the seventeen active opioid users surveyed met criteria for opioid misuse.

**Access to Treatment**

In spite of the escalation of the problem and growing need for treatment, State funding for substance abuse services dropped from about $15.5 million to $5 million between 2007 and 2014. As depicted in the table
below, during this time, Rhode Island exceeded the national average in all age groups for the percent of individuals in need of, but not receiving, treatment for drug use.\(^89\)

<table>
<thead>
<tr>
<th></th>
<th>2011-2012</th>
<th>2012-2013</th>
<th>2013-2014</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12-17</td>
<td>18-25</td>
<td>26+</td>
</tr>
<tr>
<td>US</td>
<td>3.97%</td>
<td>7.03%</td>
<td>1.38%</td>
</tr>
<tr>
<td>RI</td>
<td>4.05%</td>
<td>7.06%</td>
<td>1.52%</td>
</tr>
</tbody>
</table>

Medication-assisted treatment (MAT), a combination of psychosocial therapy and U.S. Food and Drug Administration-approved medication, is the most effective intervention to treat opioid use disorder. Research has found MAT to be more effective than either behavioral interventions or medication alone. MAT significantly reduces illicit opioid use compared with nondrug approaches, and can reduce overdose fatalities.\(^90\) Yet, the Rhode Island Governor’s Overdose Prevention and Intervention Task Force estimated that in 2015 there were over 20,000 individuals in Rhode Island with opioid use disorder not on medication assisted treatment who could benefit from it.\(^91\)

The use of Recovery Coaches in hospital Emergency Departments originated in Rhode Island and is being viewed as a national model for combatting opioid use disorders, replicated in several states. A recent study found that individuals are even more likely to participate in addiction treatment and reduce opioid use long-term if they are started on medication assisted treatment while in the Emergency Department.\(^92\)

Co-morbidities
Illicit drug users are at particular risk for developing one or more primary conditions or chronic diseases, including HIV, AIDS and viral hepatitis.\(^93\) Similarly, individuals diagnosed with drug abuse disorders are roughly twice as likely to also have a diagnosed mood and/or anxiety disorder.\(^94\) Some of the most common co-occurring mental health disorders found in individuals receiving Medication Assisted Therapy include:

- Anxiety and mood disorders.
- Schizophrenia.
- Bipolar disorder.
- Major depressive disorder.
- Conduct disorders.
- Post-traumatic stress disorder.
- Attention deficit hyperactivity disorder.
In addition to the development of addiction to prescription painkillers, older adults who misuse these drugs may be at increased risk for adverse events often associated with opioid use, such as delirium, falls, fractures, pneumonia, and increased all-cause mortality.  

Using alcohol while taking prescription painkillers like hydrocodone, oxycodone, and morphine can be very dangerous. Consuming alcohol even when taking a painkiller as prescribed, can lead to increased intoxication and possible overdose. Both alcohol and opioid medications are central nervous system depressants and can slow down a person’s breathing rate. The combination can significantly repress organ functioning, causing the body to stop breathing which can lead to brain damage or death. Older adults who mix alcohol and prescriptions opioids are at greater risk of falls resulting from loss of balance, serious memory loss and increased effects of dementia.

**Maternal Child Health: Health Focus Area 5**

Maternal and Child Health is an umbrella term that can cover a range of topics concerning the well being of mothers and their children. This report focuses on a few selected measures, organized by the subcategories of pregnant mothers, infants and children.

The metrics in this assessment report were selected based on priorities identified in other MCH related state reports including: The Maternal and Child Health MCH Title V Plan; Children’s Cabinet Strategic Plan; and Rhode Island Department of Health’s Infant Mortality work plan. When possible, data that were already analyzed for those reports are reflected in this population health plan.

This section also utilizes data from the the Pregnancy Risk Assessment Monitoring System (PRAMS). PRAMS captures numerous indicators, including unintended pregnancies, smoking during pregnancy, preterm births and low birth weight. PRAMS data are collected annually using mail questionaires and telephone surveys with a sample of Rhode Island women who have recently had a live birth. The most recent PRAMS data available for this report was collected in 2014.

**Pregnant Mothers**

This section takes an initial look at the health of pregnant mothers by examining rates of Unintended Pregnancy, Teen Pregnancy, Delayed Prenatal Care and Pregnant Women lacking dental care.

**Definitions**

**Unintended Pregnancy**

Unintended pregnancies are defined as pregnancies that are either mistimed or unwanted at the time of conception. Mistimed pregnancies are when the pregnancy occurred earlier than it was intended. Unwanted pregnancies are when the parents did not desire children or additional children. Unintended pregnancies can serve as an indicator of the fertility of a population and the level of a community's unmet birth control and family planning resources. Unintended pregnancies also raise the risk of potential health problems for mothers and their babies. When babies are mistimed or unwanted, mothers are less likely to be physically and emotionally prepared for childbirth. Unintended pregnancies are also associated with a range of risk behaviors including delayed or no prenatal care, smoking during pregnancy and skipping
prenatal vitamins. Unwanted or mistimed births also raise the risk of longer term social, economic and health issues for mothers and their babies.  

**Teen Pregnancy**

Pregnancies to women under the age of 20 are closely linked to rates of unintended pregnancies. In fact, between 2009 and 2011, 77% of all teen pregnancies in Rhode Island were either mistimed or unwanted. Whether teen pregnancies are intended or not, they often create a negative ripple effect, impacting the health, economic stability and educational attainment of both parents and their children. Only 50% of teen mothers in Rhode Island had a high school diploma by the time they turned 22, compared to 90% of women who didn’t give birth in their teens. Babies born to teenagers are more likely to struggle academically, be incarcerated, and become teen parents themselves.  

**Delayed Prenatal Care**

When a birth is unintended or unexpected, pregnant mothers are less likely to initiate the prenatal care they need, in some cases because they are unaware of the pregnancy in its early stages. Delayed Prenatal Care is technically defined as any time a pregnant women starts receiving pregnancy related care in her second or third trimester or not at all. Early prenatal care allows health professionals to screen for and provide the healthy supports pregnant women may need including nutritional advice, mental health counseling, smoking cessation, and help leaving violent domestic situations. Prenatal care in the first trimester is also particularly important for pregnant mothers with chronic diseases who might require additional monitoring or treatment. Babies who received delayed prenatal care are at greater risk for a range of poor health outcomes, including low birth weight and death within the first year of life.  

**Lack of Prenatal Dental Care**

Dental care is also especially important for pregnant women. Changes in a woman’s hormones and immune system during pregnancy lead to greater risk of oral health problems. Half of women develop gingivitis during pregnancy, which can lead to more serious health problems. That is why the American Academy of Pediatric Dentistry recommends that all women receive a dentist exam during pregnancy.  

**Prevalence**

In 2014, 40% of Rhode Island pregnancies were unintended. That rate is better than the Healthy People 2020 target rate of 44% (described as a target of 56% intended pregnancies). Unintended pregnancies in Rhode Island have successfully stayed below the Healthy People 2020 target since 2002, when the state first started collecting PRAMS data. In 2011, Rhode Island had the 13th lowest rate of unintended pregnancies in the country.
In keeping with national trends, rates of teen pregnancies in Rhode Island are decreasing, down from a rate of 42.4 per 1,000 female adolescents in 2009 to 25.5 per female adolescents in 2013.\textsuperscript{105} In contrast, the rate of unintended pregnancies in Rhode Island has not improved. Since 2004, the rate of unintended pregnancies has hovered around 40%, with a low of 37.2% in 2005 and a high of 42.8% in 2013.\textsuperscript{106}

Between 2009 and 2011, 22% of Rhode Island mothers with unintended pregnancies had delayed or no prenatal care, while only 7.9% mothers with intended pregnancies delayed or skipped prenatal care. Between 2010 and 2014, the overall rate of delayed prenatal care to all pregnant women was 12.4%, down from 12.8% in the span between 2009 and 2013.\textsuperscript{107}

A Rhode Island Department of Health analysis of PRAMS data from 2009 found that only 52.7\% of women went to a dentist or a dental clinic during their pregnancy.\textsuperscript{108} Since then, the state has initiated a series of programs and outreach efforts aimed at increasing dental visits during pregnancy. The state aims to increase the rate of prenatal dental care to 67\% in 2020.\textsuperscript{109}

**At-Risk Populations and Disparities**

While the overall rates of teen pregnancy and teen births in Rhode Island are low, rates are much higher among Rhode Island’s minority and urban communities.

- Hispanic/Latina teen pregnancy rates are 3x the rate for white teenagers;
- Black/African American teen pregnancy rates are 2x the rate for white teenagers;
- The teen births Central Falls are more than triple the state's overall rate;
- Pawtucket, Providence and Woonsocket also have elevated rates of teen births.
There is also a higher prevalence of unintended pregnancy among black and Hispanic women, women with less than twelve years of education, and women with public health insurance.\textsuperscript{110}

Because teen pregnancy and unintended pregnancy are closely linked with delayed prenatal care, the populations that are most at risk for skipping a visit to the dentists or missing health care services in the first trimester fit a similar profile. Pregnant women who are younger, less educated, lower income and live in urban areas have higher rates of missing the health care services they need during pregnancy.\textsuperscript{111,112}

**Infants**

This section examines the health of Rhode Island's infants during birth and the first year of life. The initial health topics for those two subcategories are rates of pre-term births, low birth weight, infant mortality, Cesarian sections (C-sections), and breast feeding.

**Definitions**

**Preterm Births**

Preterm births describe any birth that occurs before 37 weeks of gestation. However, the length of the gestation period plays a significant role in a baby's potential health outcomes. Babies born before 32 weeks gestation are at the highest risk of death, high hospitalization costs and serious long-term disabilities. So called “late preterm” infants born between 34-36 weeks gestation are at lower risk of severe health issues but can also experience immediate and long term health complications.\textsuperscript{113}

The causes of preterm births are not entirely understood, but have been associated with a collection of inter-related factors. Mothers with a history of pre-term births, who are carrying more than one fetus and have abnormalities in their cervix or uterus appear to be at higher risk of having pre-term births. Other
health factors are also associated with preterm births, including maternal depression and the use of alcohol, tobacco or drugs during pregnancy.\textsuperscript{114}

**Low Birth Weight**
Low birth weight often occurs among babies that are born prematurely, but even some infants brought to term are born at a weight that is below a healthy threshold. Babies with low birth weight are defined as those that weigh “less than or equal to 2,500 grams” at birth. That’s the equivalent to less than 5 pounds, 8 ounces. Risk factors associated with low birth weight are similar to those for pre-term babies. The smallest babies—under 3 pounds, 4 ounces—are 100 times more likely to die in their first year of life when compared to babies with a normal birth weight. Potential long-term health issues include severe physical and developmental difficulties.\textsuperscript{115}

**Infant Mortality**
Low birth weight, often because of preterm birth, is one of the top five causes of infant mortality. Infant mortality describes the number of infant deaths that occur per 1,000 live births. Deaths are considered “infant deaths” until a child turns one. In addition to low birth weight, birth defects, maternal complications, Sudden Infant Death Syndrome (SIDS), and unintentional injuries make up 57% of the causes of infant deaths in the United States.\textsuperscript{116}

**Cesarean Section**
While C-sections are often medically necessary to protect the mother or her baby, they can also increase the risk of health issues later in the life of the mother. Women with C-sections have significantly higher rates of ICU admissions, unplanned hysterectomies, and ruptured uteruses than women who deliver their babies through vaginal birth.\textsuperscript{117}

Across the country, the rate of C-section deliveries have increased by 60% between 1996 and 2009, from 20.7% to 32.9%.\textsuperscript{118} These rising rates and the associated negative health outcomes have led to efforts by the American Congress of Obstetricians and Gynecologists, The U.S. Department of Health and Human Services, and The Joint Commission to recommend activities to reduce the rate of low-risk C-sections. Low risk C-sections are defined as C-sections that occur when there is only one baby in the womb, it has reached full gestational age and is positioned headfirst.\textsuperscript{119}

**Breastfeeding**
Breast milk is the ideal source of nutrition for infants in their first year of life. Experts recommend that mothers exclusively breastfeed their babies until the age of six months, breastfeed alongside solid foods until their babies turn one, and continue to breastfeed as long as both the baby and the mother want to continue. Breastfeeding is associated with reduced risks of childhood obesity, Type 1 and Type 2 diabetes and Sudden Infant Death Syndrome, among other health issues. Breastfeeding also encourages bonding between mothers and babies and is less expensive than purchasing formula.\textsuperscript{120}

**Prevalence**

**Preterm Births**
In 2014, 8.0% of Rhode Island births occurred at least 3 weeks before their due date. This rate is better than the Healthy People 2020 target of 11.4% preterm births.\textsuperscript{121} Rhode Island has bested the Healthy People 2020
The percentage of preterm births in Rhode Island held steady at 10.1% from 2004-2006, decreasing to a low of 8.0% in 2014.

Figure 48: Preterm Births by Subgroup

Low Birthweight
In 2014, 6.4% of all Rhode Island babies had a birth weight at or under 2500 grams. That rate is already better than the Healthy People 2020 goal of 7.8% of babies with low birth weight. Rhode Island's rate has been better than this goal since it started collecting PRAMS data in 2002. The rate of Rhode Island babies with low birth weight has slowly decreased over the years, from a high of 7.4% in 2004 to 6.4% in 2014.

Figure 49: Low Birthweight by Subgroup
Infant Mortality

In 2014, Rhode Island tied at 3rd in the nation and 2nd in New England (alongside Massachusetts) for the lowest infant mortality rate. Rates of infant mortality in the state and the nation have followed a downward trend for decades, due to increased access to care, medical improvements and economic growth.

However, extreme disparities exist, especially in Rhode Island’s black/African American community. Between 2010 and 2014, the mortality rate among non-Hispanic Black infants in Rhode Island was 7.9 per 1,000 live births, compared to 4.8 for non-Hispanic White infants and 6.2 for the state overall. Rhode Island Department of Health’s Infant Mortality Task Force is committed to reducing those disparities and has launched a goal of reaching a non-Hispanic Black infant mortality rate of 4.3 per 1,000 live births by 2020.

Cesarean Section

C-section rates in the state have followed a similar upward trend, increasing from 26.3% in 2002 to 31.7% in 2013. In 2013, Newport Hospital had the highest overall C-section rate, at 38.4%, while the rest of the state’s birthing hospitals had very similar rates, hovering just below or above 30%. Memorial Hospital had the lowest rate of repeat C-sections at 75% and South County Hospital had the lowest rate of first time C-sections at 16.1%. Memorial Hospital’s birthing center is now closed.

Breastfeeding

Data from the Centers for Disease Control and Prevention National Immunization Survey (NIS) of 2011 births show that in Rhode Island, 79.7% of infants were breastfed at some point during their first year of life and 19.3% were breastfed exclusively for the first six months. These rates are below the Healthy People 2020 goals of 81.9% of infants ever breastfeeding and 60.6% breastfeeding exclusively for six months. Rhode Island’s Department of Health aims to increase the state’s breastfeeding rates to 82% and 26% respectively by 2020.
At-Risk Populations and Disparities
The populations that are most at risk for infant health conditions are similar to those most at risk for maternal health conditions. While much is unknown about the causes of pre-term births, women who are younger, lower-income, less educated and live in urban communities have higher rates of pre-term births and babies with low birth weight. As mentioned above, non-Hispanic Black infants have higher rates of mortality, and so do babies born to mothers with a high school degree or less. While Cesarean Section rates are fairly uniform across Rhode Island, breastfeeding rates go up as a mother’s education, income and age increase.\(^{133}\)

Figure 51: Low Birthweight by Race

![Low Birth Weight by Race, 2012-2014](chart1)

Figure 52 Preterm Births by Years of Education

![Preterm Births by Years of Education, 2012-2014](chart2)

PRAMS data collected between 2009-2011 show that Rhode Island mothers with less than 12 years of education, those with public health insurance and those that participate in the WIC (Women, Infants and Children) food assistance program all have a statistically significant higher prevalence of babies born preterm and at lower birth weight.\(^{134}\)
Comorbidities

Fetal Alcohol Spectrum Disorders (FASD) are a group of conditions that can occur to a person whose mother consumed alcohol during pregnancy. Effects include irreversible physical, behavioral and/or learning impairments. Children with FASD typically have at least one or more of the following characteristics and behaviors:

- Low body weight;
- Hyperactive behavior;
- Difficulty with attention;
- Poor memory;
- Difficulty in school (especially with math);
- Learning disabilities;
- Speech and language delays;
- Intellectual disability or low IQ;
- Poor reasoning and judgment skills;
- Vision or hearing problems;
- Problems with the heart, kidney, or bones.

Children and adults with FASD often have a hard time in school, have trouble getting along with others, and as a result of poor judgment and poor impulse control, are often involved with the criminal justice system. The life expectancy at birth of people with FAS, the most severe disorder on the spectrum, is greatly reduced. A recently published NIH study found that FAS life expectancy was 34 years, about 42% of that of the general population. The leading causes of death for people with FAS were 'external causes' (44%), including suicide (15%), accidents (14%), and poisoning by illegal drugs or alcohol (7%).

The tragedy of these results is that FASD is 100% preventable. While in the past medical professionals warned against consuming alcohol in the third trimester of pregnancy, emerging research has determined that there is no safe time during pregnancy to drink. In addition, any amount or type of alcohol, including wine and beer, used during pregnancy or while trying to get pregnant increases the risk of FASD.

Children

Children’s health can cover a wide range of topics. For this initial examination, this section focuses on rates of childhood lead poisoning and childhood asthma. Future versions of this report will include data on children with special health care needs.

Definitions

Childhood Lead Poisoning

Many homes in Rhode Island were built before 1978, when manufacturers discontinued the production of lead based paint. Those older homes are likely to contain layers of lead based paint, putting local children at increased risk for lead poisoning. Even small amounts of lead exposure can have negative and long term effects on a child’s health. Lead poisoning can cause learning disabilities, reduced attention spans and
lower IQ. The Rhode Island Department of Health recommends that children be screened for lead poisoning at least twice between the ages of 9 months and three years old, though some children might be screened more frequently if their results are not normal and may continue after the age of 3 if a child lives in a house built before 1978.

The definition of lead poisoning has changed over the years. Currently, the Centers for Disease Control and Prevention (CDC) says lead poisoning exists in any blood lead level equal to or over five micrograms per deciliter (mcg/dL). Prior to 2012, the CDC used 10 micrograms per deciliter as the reference level for lead poisoning. Rhode Island’s Department of Health collects data on the number of children under the age of 6 with a blood lead level equal to or over 5 mcg/dL as well those with a blood lead level equal to or over 10 mcg/dL.

Prevalence of Childhood Lead Poisoning
In 2015, 6% of all Rhode Island children under the age of 6 who were tested for lead poisoning had a blood lead level equal to or over 5 mcg/dL and only 1% of children tested had a blood lead level equal to or over 10 mcg/dL. As a result of targeted interventions, stable funding, and long-term commitment by the state, these rates have drastically improved since 2002, when 34% of children tested had blood lead levels equal to or over 5 mcg/dL and 5% were at or over 10 mcg/dL.

Childhood Asthma
Asthma is a disease that affects the lungs and can cause continued episodes of wheezing, breathlessness, chest tightness and coughing. It can be controlled through medicine and changes in environmental triggers. Common asthma triggers include respiratory infections, cigarette smoke, air pollution, exposure to cold air and sudden temperature change. Asthma is the most common chronic condition for children across the country and ranks third among the reasons for hospitalizations of children under the age of 15.

Prevalence of Childhood Asthma
In Rhode Island, childhood asthma is measured using a variety of data sources. The BRFSS collects self-reported rates of childhood asthma using the “Childhood Asthma Prevalence Module” which randomly selects a child in the household and determines his or her asthma status. Using that measurement, data from 2012 shows that 13.1% of children in Rhode Island had experienced asthma at some point during their lifetime, a significant drop from the rate of 18.9% in 2011. The percentage of children currently experiencing asthma also declined, from 12.9% in 2011 to 9.1% in 2012.

The National Survey for Children’s Health also collects data on the prevalence of asthma in Rhode Island. The telephone survey, which is conducted in Spanish and English, selects households at random and asks questions about a randomly selected child in each household. According to data collected in 2011/2012, an estimated 10.9% of Rhode Island children have asthma.

The YRBSS is given to high school and middle school students every other year and includes two questions about asthma: “Have you ever been told by a doctor, nurse, or other health professional that you have asthma?” and “Do you still have asthma?” According to the 2011 results of that survey, 13.9% of Rhode
Island high school students and 13.1% of Rhode Island middle school students have asthma. The rate of asthma among Rhode Island high school students is higher than the national rate of 11.9%. National data on asthma among middle school students is not available.

Rhode Island also measures asthma prevalence by looking at asthma related hospitalization rates, broken down by age. In 2012, the rate of children between the ages of 0-4 with an asthma hospitalization was 31.6 per 10,000 and the rate for children 5-17 was 11.5 per 10,000. Over the past decade, the rate of children with asthma related hospitalizations between the ages of 0-4 has climbed and then dropped back down again. The rates of asthma related hospitalizations among 5-17 year olds has held fairly constant between 2000 and 2012.

At-Risk Populations and Disparities
As with the other health focus areas in this Maternal Child Health section, children are at greater risk of lead poisoning and asthma if they are low-income minorities living in an urban area. In 2015, children living in the core cities of Providence, Central Falls, Pawtucket and Woonsocket were more than twice as likely to have a blood lead level at or over 5 mcg/dL than children living in the rest of the state. The rate of Black children between the ages of 0-4 who visited the emergency room for an asthma attack is more than triple the rate of White children of the same ages who went to the ER for asthma problems. Rhode Island boys under the age of 18 have higher rates of asthma hospitalization than girls and younger children 0-4 have higher rates of asthma related trips to the hospital than older children.

Co-morbidities
The health topics here are by no means an exhaustive look at Maternal and Child Health. Future versions of the assessment will include other topics, including maternal education, vaccinations and partner
violence. Also, additional data related to children and mothers can be found in other sections of this assessment, offering life course data for other health focus areas. The figure below references the co-morbidities mentioned elsewhere in this report.

Table 54: Maternal and Child Health Co-morbidities

<table>
<thead>
<tr>
<th>Health Focus Area</th>
<th>Maternal and Child Health Co-morbidities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity</td>
<td>• Childhood obesity</td>
</tr>
<tr>
<td>Chronic Diseases</td>
<td>• Gestational diabetes</td>
</tr>
<tr>
<td>Tobacco</td>
<td>• Tobacco use during regnancy</td>
</tr>
<tr>
<td></td>
<td>• Youth tobacco use</td>
</tr>
<tr>
<td>Opioid Use Disorders</td>
<td>• Neonatal Abstinence Syndrome</td>
</tr>
<tr>
<td>Children with SED</td>
<td>• Fetal Alcohol Spectrum Disorders</td>
</tr>
<tr>
<td>Depression</td>
<td>• Perinatal depression</td>
</tr>
<tr>
<td>Serious Mental Illness</td>
<td>• Inadequate access to medical care</td>
</tr>
</tbody>
</table>

Adolescents

Future versions of this report will include health areas specific to the needs of Rhode Island adolescents.

Children with Social and Emotional Disturbance: Health Focus Area 6

Definition

For the purpose of this assessment, Rhode Island defines children with Social and Emotional Disturbance as persons under the age of 21 who have one or more emotional, behavioral, or developmental conditions including autism, developmental delay, depression, anxiety, attention deficit disorder/attention deficit with hyperactivity disorder, and behavioral/conduct disorders.

Children with Serious Emotional Disturbance (SED) represent a sub-set of the population of children with Social and Emotional Disturbance. Children with SED have been diagnosed as having an emotional, behavioral or mental disorder under the current edition of the Diagnostic and Statistical Manual (DSM-5) or the Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood (DC: 0-3.) Furthermore, this definition reflects that: (1) the disability has been ongoing for one year or more or has the potential of being ongoing for one year or more; (2) the child is in need of multi-agency intervention; and (3) the child is in an out-of-home placement or is at risk of placement because of the disability.154

Prevalence across the Life Course

Using the broader definition of Social and Emotional Disturbance, 43,000 children ages two to seventeen living in Rhode Island have an emotional, behavioral, or developmental condition.155 According to the
Rhode Island Executive Office of Health and Human Services claims data, in State Fiscal Year (SFY) 2015, 22% (26,930) of children under age 19 enrolled in Medicaid/Rite Care had a mental health diagnosis, including but not limited to anxiety, alcohol/drug dependence, psychoses, as well as depressive, mood, and personality disorders. Of those children with a mental health diagnosis, 29% were ages six and under, 34% were ages seven to twelve, and 37% were ages thirteen to eighteen.  

The RI Department of Children, Youth and Families serves 4,514 children and youth; 1,166 (26%) of whom are ages 16 to 21. Of these, 417 (36%) meet the criteria for SED. Rhode Island ranked sixth highest among all states for the prevalence of SED among school students with an Individual Educational Program: 15.48/1,000 students, well above the national average of 8.08 students/1,000.

**Adverse Childhood Experiences**

Adverse childhood experiences (ACEs), such as abuse, neglect, household presence of mental health problems, domestic violence, substance use, divorce, or incarceration of relatives, can increase the risk for health problems and diseases throughout the life-course. The number, severity, chronicity, and individual response to adversities ultimately determine whether the experiences result in toxic stress. Toxic stress describes the physical changes in the brain and other organ systems that result from prolonged and significant ACEs. Absent protective factors, early identification of these stressors and the provision of evidence-based interventions, a significant number of children living in Rhode Island are at risk for adopting maladaptive behaviors (e.g., substance use) and developing chronic health and behavioral health conditions in adulthood.

Research studies have shown that 48% of children in Rhode Island report experiencing at least 1 ACE and 23% report experiencing at least 2 ACEs. The Truven Study concluded that children living in Rhode Island are at risk of experiencing toxic stress through ACEs. This exposure may explain the findings of high rates of behavioral health disorders among children and adolescents, as shown in the figures below.

**Figure 55: ACEs by Subgroup**
Table 56: 2011 Rates of Attention Deficit Hyperactivity Disorder in Children Ages 4 – 17

<table>
<thead>
<tr>
<th>State</th>
<th>Rate of ADHD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhode Island</td>
<td>9.4%</td>
</tr>
<tr>
<td>Connecticut</td>
<td>5.5%</td>
</tr>
<tr>
<td>Maine</td>
<td>7.3%</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>8.0%</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>7.2%</td>
</tr>
<tr>
<td>Vermont</td>
<td>7.8%</td>
</tr>
</tbody>
</table>

Table 57: 2012-13 Rates of Behavioral Health Disorders in Adolescents Ages 12 – 17

<table>
<thead>
<tr>
<th>State</th>
<th>Moderate to Severe ADD or ADHD</th>
<th>Major Depressive Episode</th>
<th>Illicit Drug Use or Dependence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhode Island</td>
<td>7.2%</td>
<td>11.3%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Connecticut</td>
<td>5.2%</td>
<td>9.4%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Maine</td>
<td>6.2%</td>
<td>11.2%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>7.1%</td>
<td>8.6%</td>
<td>3.6%</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>7.2%</td>
<td>10.3%</td>
<td>4.4%</td>
</tr>
<tr>
<td>Vermont</td>
<td>5.6%</td>
<td>9.5%</td>
<td>3.8%</td>
</tr>
<tr>
<td>National Average</td>
<td>5.6%</td>
<td>9.86%</td>
<td>3.8%</td>
</tr>
</tbody>
</table>

Children Experiencing Bullying

According to national data collected from the 2015 national Youth Risk Behavior Surveillance System (YRBSS) which represents grades 9-12, 20% of high school students reported experiencing school-based bullying. In addition, 15% of students reported being a victim of cyber-bullying. According to the 2015 YRBSS, Rhode Island students reported bullying at a rate of 12.4%, which is below the national average.) Vulnerable sub-populations of students reported even higher rates of bullying:

- LGBT Youth: 25.6 – 43.6%.
- Youth with Disabilities: 1.5 times higher than the general population of high school students.

Not only are those who experience bullying impacted, but the entire student population can also be affected in negative ways.
Being bullied during childhood and adolescence has been linked to depression, anxiety and substance abuse in adulthood. In a longitudinal study on Adult Health Outcomes of Childhood Bullying Victimization, Takigawa et al.\textsuperscript{163} studied victims who had been exposed to bullying between the ages of 7 and 11 years old. Follow-up at ages 23 years old and 50 years old found these victims experienced higher rates of depression, anxiety disorders and suicidality than their counterparts who had not been bullied. In addition, the childhood bullying was associated with the victims' lack of social relationships, economic hardship and a poor perception of quality of life at 50 years of age.\textsuperscript{164}

Data from the Rhode Island Department of Education’s SurveyWorks indicate that Rhode Island students in elementary, middle, and high school report experiences of bullying well above the national average. The table below identifies the statewide average of students reporting experiences of bullying by school type, and the Community Mental Health Catchment Areas identified as having the highest rates of bullying experiences reported by students for each indicator.

Table 58: Effects of Bullying

<table>
<thead>
<tr>
<th>Students Who are Bullied</th>
<th>Observers of Bullying</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-term effects of being bullied:</td>
<td>Effects on students who witness bullying:</td>
</tr>
<tr>
<td>- Depression</td>
<td>- Fearful</td>
</tr>
<tr>
<td>- Suicidal thoughts</td>
<td>- Powerless to act</td>
</tr>
<tr>
<td>- Low self-esteem</td>
<td>- Guilty for not acting</td>
</tr>
<tr>
<td>- Health problems</td>
<td></td>
</tr>
<tr>
<td>- Poor grades</td>
<td></td>
</tr>
<tr>
<td>Students Who Bully Others</td>
<td>Schools with Bullying Issues</td>
</tr>
<tr>
<td>Students who bully are also more likely to:</td>
<td>Effects on climate when school does not act:</td>
</tr>
<tr>
<td>- Get into frequent fights</td>
<td>- Environment of fear and disrespect</td>
</tr>
<tr>
<td>- Drink alcohol and smoke</td>
<td>- Students have difficulty learning</td>
</tr>
<tr>
<td>- Steal and vandalize property</td>
<td>- Students feel insecure</td>
</tr>
<tr>
<td>- Report poor grades</td>
<td>- Students dislike school</td>
</tr>
</tbody>
</table>

...
Table 59: Experiences of Bullying

<table>
<thead>
<tr>
<th></th>
<th>Elementary School</th>
<th>Middle School</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>One or more types of bullying</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statewide rate</td>
<td>47.28%</td>
<td>56.86%</td>
<td>47.45%</td>
</tr>
<tr>
<td>Catchment Area with highest reported rate</td>
<td>Providence 53.66%</td>
<td>Warwick 59.82%</td>
<td>Woonsocket 52.73%</td>
</tr>
<tr>
<td>Two or more types of bullying</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statewide rate</td>
<td>28.34%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Catchment Area with highest reported rate</td>
<td>Providence 33.42%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Three or more types of bullying</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statewide rate</td>
<td>N/A</td>
<td>31.93%</td>
<td>24.93%</td>
</tr>
<tr>
<td>Catchment Area with highest reported rate</td>
<td>N/A</td>
<td>Warwick 35.13%</td>
<td>Woonsocket 29.03%</td>
</tr>
</tbody>
</table>

More than half of Rhode Island middle school students, statewide, reported experiencing one or more types of bullying, and almost half of elementary and high school students reported experiencing at least one type of bullying.

This concern is further heightened by the rates of exposure to multiple types of bullying. More than one in four elementary school students in Rhode Island reported experiencing two or more types of bullying. Almost one in three middle school students, and one in four high school students, reported experiencing three or more types of bullying.

Given the behavioral health, physical health and social consequences of exposure to bullying by recipients, perpetrators and observers, without increasing protective factors, prevention programs, early identification and treatment options, Rhode Island children and youth are at high risk for poor behavioral health, physical health and social outcomes as adults.

Access to Treatment

The availability of, and access to, behavioral health treatment varies for children in Rhode Island. Currently, early childhood evidence-based practices, which can reduce the emergence of Social and Emotional Disturbance in children, are funded through a federal grant and are predominantly available in targeted geographic areas. Only 8% of children/families served by the Maternal, Infant, and Early Childhood Home Visiting Program resided outside of Rhode Island’s four Core Cities.166
There is evidence of disparate access to care for mental health treatment. The Truven Health Analytics Report found that 34% of children in Rhode Island were not able to access mental health services when needed. There were significant disparities between populations of children who were unable to access mental health services: 75% of African American and 74% of Hispanic children did not receive treatment when needed, as opposed to 17.2% of White children.

In 2014, there were 2,744 hospitalizations of children with a primary diagnosis of mental disorder at Bradley, Butler, Hasbro Children’s Hospital, Newport, and Memorial Hospitals, a 53% increase from 2005. Of the Rhode Island children hospitalized in 2014, 74% were between the ages of 13-17, 50% had Medicaid/RiTe Care coverage and 47% had commercial coverage, and 39% lived in one of the four core cities (i.e., Central Falls, Pawtucket, Providence and Woonsocket) where 33% of the child population lives.  

Co-morbidities
There is a high degree of comorbidity in young children with mental disorders; of those with one disorder, approximately 25% have a second disorder. The proportion of children with comorbidity increases about 1.6 times for each additional year from age 2 (18.2%) to 5 (49.7%).

A number of studies further support co-morbidities in children:

- The results of the ACE Study found a dose-response relationship between ACEs and numerous health problems: the more ACEs a child has, the higher the risk of developing chronic illnesses such as heart disease, chronic obstructive pulmonary disease (COPD) and cancer.
- Bullying is associated with both physical and emotional disorders among children and youth who are victims, as well as perpetrators, of acts of bullying. Both are likely to report headaches and stomachaches, having difficulty falling asleep, depression and significant anxiety. These symptoms tend to appear in a cluster, requiring an integrated treatment approach.
- Some SEDs are found to occur at higher rates in adolescents with serious health conditions. One study found a significant association between the adolescent-onset diagnosis of Bipolar Disorder (age ≥13 years) and the diagnosis of preexisting obesity, hypertension, migraine headaches, intellectual disability, endocrine disorders, and substance abuse disorders.

Young children with behavior problems, such as lack of impulse control, restlessness, and poor attention are twice as likely to be diagnosed with alcohol dependence at age 21. Aggressiveness in children as young as ages 5-10 has been found to predict substance use in adolescence. Childhood antisocial behavior is associated with alcohol-related problems in adolescence and alcohol abuse or dependence in adulthood.

Adolescents with conduct disorders, ADHD, anxiety and depression were found to have higher levels of alcohol abuse than their counterparts in the general population. Excessive drinking in teens can result in physical, social and legal consequences. Physical impairments include:

- Delayed puberty and/or negative effects on the reproductive system.
- Lower bone mineral density.
• Higher levels of liver enzymes that indicate liver damage.

In addition, impaired judgement and thinking can lead to harmful consequences including:

• Criminal records that cannot be expunged.
• Car accidents.
• Physical and sexual assaults.
• Sexually transmitted diseases.
• Unplanned pregnancies.
• Lost academic opportunities.

**Depression: Health Focus Area 7**

**Definition**

Depression is a mood disorder that causes a persistent feeling of sadness and loss of interest. Major depression can lead to a complete sense of hopelessness as well. Depression impacts how individuals feel, think, and behave, including impacting their overall well-being and participation in their healthcare.

Rhode Island’s BRFSS measures for depression in multiple ways including: self-report of depression, if an individual was ever told he/she had a depressive disorder, dis-satisfaction with life, and the number of days in the past month in which mental health was not good. In addition, suicide rates and attempts are considered as proxy indicators of depression.

**Prevalence across the Life Course**

**Perinatal**

Depression during or after pregnancy (postpartum depression) may affect a woman’s ability to perform daily activities or to take care of her infant. This in turn can present a risk to the physical, social and emotional development of the child. According to the CDC’s PRAMS On-line Data for Epidemiologic Research report:

• The proportion of Rhode Island mothers diagnosed with depression during pregnancy ranged from 6.8% to 10.0% during 2004-2011.174 (refresh with DOH’s 2014 PRAMS data)
• The proportion of Rhode Island mothers with postpartum depressive symptoms (PDS) ranged from 10.3% to 11.9% during 2009-2011.175

Mothers diagnosed with depression during pregnancy and postpartum were significantly more likely than non-diagnosed mothers to report certain risk behaviors, as shown in Figure 62.
Other factors associated with postpartum depression included low birth weight baby (10%), fussy babies (12.3%) and never breastfeeding (24.8%).

*Children and Adolescents*

Children and adolescents exposed to stressful life events are at greater risk of developing depression, especially children and adolescents who have multiple negative life events. Negative family relationships, peer victimization through bullying, and maltreatment are common risks for depression.

Based on 12-month prevalence data for a major depressive episode as reported from the National Survey on Drug Use and Health (NSDUH), in 2015:

- 12.5% of U.S. adolescents aged 12 to 17 had at least one major depressive episode in the past year.  
- Of those reporting an episode, 70.7% reported the depression at a level of Severe Impairment, resulting in disruption in their lives for at least a period of two weeks.  
- 39.3% of those reporting an episode reported receiving treatment for their depression.

In Rhode Island, one source of data on child and adolescent depression is the SurveyWorks! annual survey of middle and high school students. Respondents are asked if they have depression, and those students who indicate experiencing depression are then asked additional questions about recent suicidal thoughts and attempts. Key findings from 2010-2014 are shown in the table below.
Table 61: Rhode Island Middle and High School Students Reporting Depression

<table>
<thead>
<tr>
<th></th>
<th>Middle School</th>
<th></th>
<th></th>
<th>High School</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>n</td>
<td>%</td>
<td>#</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Students with Depression</td>
<td>7,231</td>
<td>26,122</td>
<td>27.68%</td>
<td>8,266</td>
<td>29,056</td>
<td>28.45%</td>
</tr>
<tr>
<td>Among Students with Depression</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students with Recent Suicide Ideation</td>
<td>2,568</td>
<td>7,231</td>
<td>35.51%</td>
<td>3,412</td>
<td>8,266</td>
<td>41.28%</td>
</tr>
<tr>
<td>Students with Recent Suicide Attempt</td>
<td>1,059</td>
<td>7,231</td>
<td>14.6%</td>
<td>1,650</td>
<td>8,266</td>
<td>19.96%</td>
</tr>
</tbody>
</table>

Comparing RI students to the national prevalence data, self-reports of depression among RI students are well above the national average. The level of depression among Rhode Island students is so severe that:

- More than one in three middle school students with depression reported recent thoughts of suicide.
- Two out of five high school students with depression reported recent thoughts of suicide.
- One in five high school students reported a recent suicide attempt.

**Adults**
There are a number of reports that indicate that older adults in Rhode Island experience poor mental health. In 2013, the Center for Disease Control and Prevention reported Rhode Island scored in the top 25 states (worst scores) in the country for the number of days seniors reported mental distress (7.2 days). The America’s Health Senior Report ranked Rhode Island 42nd highest in the country for rate of depression. Isolation can lead to depression in older adults. Older adults in Rhode Island rank high in indicators of Social Isolation, include living alone, having few social network ties, and having infrequent social contact. Thirty percent of Rhode Islanders aged 65 and older reported living alone, higher than the national average (25%). Older adults in Rhode Island report having little to no leisure time/activity and little participation in physical activity, limiting their time spent with others.

Depression in Rhode Island adults is measured based on whether BRFSS respondents were ever told they had a depressive disorder by a medical professional. In 2014, 20.6% of Rhode Islanders reported that they had been diagnosed with depression. Depression is the third most highly reported chronic condition among Rhode Islanders across the lifespan and rates of depression in Rhode Island exceed the national average. Rates of depression in RI have remained consistent from 2010 through 2014.

According to the Truven Report, young adults in Rhode Island ages 18 – 24 years old were more likely to have serious psychological distress than young adults in other New England states and nationally. Specific to Depression, adults ages 18 -64 living in Rhode Island reported rates of depression above the national
average; the rate of depression among 25-64 year olds in Rhode Island was highest of all New England states.184

Table 62: Reports of At Least One Major Depressive Episode  
Within the Past Twelve Months (2012-2013)

<table>
<thead>
<tr>
<th></th>
<th>18-24 Year Olds</th>
<th>25-64 Year Olds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhode Island</td>
<td>9.7%</td>
<td>8.2%</td>
</tr>
<tr>
<td>Connecticut</td>
<td>8.4%</td>
<td>6.0%</td>
</tr>
<tr>
<td>Maine</td>
<td>9.9%</td>
<td>7.8%</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>8.5%</td>
<td>6.3%</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>9.8%</td>
<td>6.4%</td>
</tr>
<tr>
<td>Vermont</td>
<td>10.7%</td>
<td>7.1%</td>
</tr>
<tr>
<td>National</td>
<td>8.8%</td>
<td>6.4%</td>
</tr>
</tbody>
</table>

The rate of suicidal thoughts is not as dramatic among adults ages 18-64 years old as among adolescents or older adults in Rhode Island. Nonetheless, the rate of suicidal thoughts among 18-24 year olds is consistent with the national average, while the rate for 25-64 year olds is above the national average.185

Figure 63: Suicidal Thoughts among RI Adults

Older Adults
The Rhode Island Healthy Aging Data Report 2016, re-affirmed the high rates of depression among older adults age 65 and older in Rhode Island. Of all New England states, only older adults in Maine experienced a higher rate of depression (31.9%) than in RI (30%).186
Access to Treatment

Children

The Truven Health Analytics Report found that 34% of children in Rhode Island were not able to access mental health services when needed. There were significant disparities between populations of children who were unable to access mental health services: 75% of African American and 74% of Hispanic children did not receive treatment when needed, as opposed to 17.2% of White children.

Adults

In SFY 2015, 38,061 adults ages 18 - 64 living in Rhode Island, with a diagnosis of Major Depressive Disorder or Other Depressive Disorder had claims submitted for treatment captured in BHOLD.

According to 2010 U.S. Census data, Rhode Island has a total population of 1,052,567. Adults ages 18-64 comprise 64.3% of the population (676,730). Using prevalence rates for depression cited above, an estimated 60,567 adults ages 18 – 64 have a depressive disorder. Based on the above BHOLD claims data, 62.8% of adults ages 18 -64 with a major depressive or other depressive disorder living in Rhode Island are receiving treatment for depression through the formal behavioral healthcare system. A recent study determined that in the United States only 28.7% of adults identified with depression receive treatment for the disorder.\textsuperscript{187} The percent of adults ages 18-64 receiving treatment for depression in Rhode Island's formal behavioral healthcare system far exceeds this national picture.

Older Adults

In SFY 2015, 1,699 adults ages 65 years plus living in Rhode Island, with a diagnosis of Major Depressive Disorder or Other Depressive Disorder, had claims submitted for treatment captured in BHOLD.
Older adults age 65 plus comprise 14.4% of Rhode Island’s population (151,881). Using prevalence rates for depression cited above, an estimated 45,564 adults ages 65 plus have a depressive disorder. Based on the BHOLD claims data and applying 2010 U.S. Census data as the denominator, 3.7% of adults ages 65 plus with a major depressive or other depressive disorder living in Rhode Island are receiving treatment for depression through the formal behavioral healthcare system. This rate of treatment for older adults within the formal behavioral health system is consistent with findings from across the country. Mental Health America reports that more than 55% of older persons treated for mental health services receive care from primary care physicians and less than 3% aged 65 and older receive treatment from mental health professionals.\textsuperscript{188}

**At-Risk Populations and Disparities**

According to BRFFS data:

- Adult females were more likely to report being diagnosed with depression than adult males (24.8% and 16%, respectively).
- At 22.1%, non-Hispanic Black Rhode Islanders reported slightly higher rates of being diagnosed with depression than non-Hispanic White (20.3%) and Hispanic (20.3%) residents.\textsuperscript{189}
- According to the Rhode Island PRAMS data, mothers who were unmarried (11.9%), had less than 12 years of education (14.5%), had public health insurance (12.8%), and participated in the WIC program (12.9%) had a higher prevalence of being diagnosed with depression during pregnancy, compared with their counterparts.\textsuperscript{190}
- Similarly, mothers who were Hispanic (14.5%), unmarried (15.1%), had 12 years of education (15.0%), had public health insurance (13.1%), and participated in the WIC program (13.7%) had a higher prevalence of postpartum depressive symptoms compared with their counterparts.\textsuperscript{191}

In addition to statewide information, the Healthy Aging Data Report provides community-specific data on depression among RI’s older adults. Data from the cities of Providence, Pawtucket, Central Falls, Woonsocket, Warwick, East Providence, and Cranston (focusing on 20 city zip codes) were analyzed across multiple health indicators. Table 69 below identifies the communities with the lowest and highest rates of older adults with a diagnosis of depression.

<table>
<thead>
<tr>
<th>Lowest Rates of Depression</th>
<th>Highest Rates of Depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town</td>
<td>%</td>
</tr>
<tr>
<td>Exeter</td>
<td>19.7%</td>
</tr>
<tr>
<td>New Shoreham</td>
<td>20.5%</td>
</tr>
<tr>
<td>Jamestown</td>
<td>20.8%</td>
</tr>
</tbody>
</table>
Rates of depression and having multiple comorbidities\textsuperscript{193} were higher than the state average for twelve out of twenty communities in the study. BRFSS data confirms that the rate of depression is higher for adults age 65 plus who have chronic health conditions such as obesity, diabetes and chronic heart disease. In addition, half of these population hubs had a higher-than-state-average rate for the use of Medicaid-financed long-term support services. Physician office visits were also lower than the state average in 10 of the 20 communities.\textsuperscript{194} This finding is especially concerning given the higher rates of depression among older adults in these neighborhoods; older adults are more likely to seek treatment initially from a physician than from a specialty mental health provider.

According to the Rhode Island Healthy Aging Report, lower rates of community engagement indicators are common among the communities with the most indicators of worse than average health, while high rates of good mental health and community engagement are found among communities with the most indicators of better than average health.\textsuperscript{195}

**Co-morbidities**

Individuals with untreated depression are at greater risk of developing serious chronic health conditions. People with depression have an increased risk of cardiovascular disease, diabetes, stroke, and Alzheimer’s disease. According to Harvard Medical School, patients who are depressed when hospitalized for a heart condition are two to five times likelier to have severe chest pain, heart attack, or stroke, in the next year. Recurrence of cardiovascular problems is linked more closely to depression than to smoking, diabetes, high blood pressure, or high cholesterol. Untreated, depression raises the risk of dying after a heart attack.\textsuperscript{196}

Depression in older adults can also increase the risk of developing various physical disorders, including heart attacks, and can complicate recovery from physical disorders, when left untreated.\textsuperscript{197} Research also suggests that people with depression are at higher risk for osteoporosis than the general population.\textsuperscript{198} This places older adults, particularly females, at higher risk for bone fractures.

The co-occurrence of alcohol use disorders and depression is well-established. Alcohol use among adolescents has been associated with considering, planning, attempting, and completing suicide. In one study cited by the NIH, 37\% of eighth-grade females who drank heavily reported attempting suicide, compared with 11\% who did not drink.\textsuperscript{199} Prevention efforts supported by BHDDH are having positive results that may impact this disturbing relationship: the rates of RI high school students reporting past month alcohol use, which was once highest within the Northeast region, is now below national averages.\textsuperscript{200} Alcohol was the most commonly identified substance in postmortem toxicologic analysis, present in 31.9\% of Rhode Islanders who committed suicide.\textsuperscript{201}

### Serious Mental Illness: Health Focus Area 8

**Definition**

Serious Mental Illness (SMI) is a severe and/or persistent mental or emotional disorder in a person aged 18 years or older that seriously impairs his/her functioning relative to primary aspects of daily living such as personal relations, living arrangements, or employment. In this section, we measure the prevalence of serious mental illness in Rhode Island looking at the percentage of residents who have experienced a serious mental illness or major depressive episode in the past year based on clinical interviews and
predictive modeling used by Substance Abuse and Mental Health Services Administration (SAMSHA) in its National Survey on Drug Use and Health (NSDUH).

Prevalence across the Life Course
Because of the small sample size of Rhode Islanders used in its survey, SAMSHA combined multiple years of data to estimate the prevalence of serious mental illness in Rhode Island. According to clinical interviews and predictive modeling generated by SAMSHA, over the course of 2012-2013, 4.9% of all Rhode Island adults had “experienced a serious mental illness within the year prior to being surveyed.” Among Rhode Islanders, rates of serious mental illness and rates of at least 1 major depressive episode in the past year vary slightly by age range (see Figure 70), but all rates are higher than the national average.

Figure 66: SMI among RI Adults

![Chart showing prevalence of SMI among adults aged 18 or older in Rhode Island and the United States, 2009-2013.]

**Children**
Please see the health focus area 6: Children with Social and Emotional Disturbance for a thorough discussion of mental illness among children.

**Young Adults**
Based on NSDUH 2013 data, 4.9% of young adults, ages 18 – 24, living in Rhode Island had a serious mental illness, slightly above the national average of 4.2% for this age group. Young adults with emerging serious mental illness who fail to engage with treatment that meets their needs are at risk of:

- Developing a chronic mental disorder;
- Becoming incarcerated, homeless and/or addicted;
- Re-experiencing severe psychiatric crisis; and
- Academic underachievement, unemployment, and the loss of social supports.
Adults
Based on NSDUH 2013 data, 5% of adults, ages 25-64, living in Rhode Island had a serious mental illness, slightly above the national average of 4.1% for this age group.

Older Adults
The NSDUH survey reports the presence of a serious mental illness for adults age 50 years and older, which results in some duplication of counting individuals as both adults and older adults with SMI. Nonetheless, the rate of 5.1% of SMI among older adults living in Rhode Island exceeds the national average of 3.1%.  

Rhode Island also has high rates of Alzheimer's. This may be attributed to the higher incidence of Alzheimer's as age increases, and the life expectancy of RI's Older Adult population.

Access to Treatment
Young Adults
As depicted in Figure 71 below, the Truven Analytics report identified that young adults in Rhode Island were more likely to receive any mental health treatment within the past year, as well as report greater unmet need for mental health services at rates that exceed the national average.

Figure 67: Indicators of Mental Health Treatment for Young Adults Ages 18-24 with Serious Mental Illness in Rhode Island, 2010-11

In a recent federal grant application, Rhode Island reported that 3,563 (approximately 2.3%) young adults ages 16 and 25, were being treated for serious mental illness (SMI), severe emotional disturbance (SED), co-occurring mental health and substance use disorders (COD) by the two public behavioral health departments, BHDDH and DCYF. These agencies estimate that approximately 10,200 16-25 year olds with SED, SMI, or co-occurring mental health and substance use disorders are not receiving treatment in the public behavioral health system.
While it’s likely that at least some of the young adults described above are receiving treatment through primary care practices and/or private mental health practitioners, it is also likely that many are not receiving any treatment. Improving access to treatment is critical for this age group; early identification and intervention with mental health issues results in improved outcomes, including faster and more complete recovery and decreased frequency and severity in relapses.

In September of 2014, Rhode Island was awarded a federal Healthy Transitions grant intended to improve access to treatment and support services for 16-25 year olds with, or at risk for developing, serious mental illness. The cities of Woonsocket and Warwick were chosen to implement the evidence-based practice of Coordinated Specialty Care (CSC), specifically the OnTrack NY-Connection adaptation. This practice is successful in engaging and treating individuals in this age group experiencing a first episode psychosis (FEP).

**Adults**

As depicted in Figure 72 below, the Truven Analytics report identified that adults in Rhode Island were more likely to receive any mental health treatment within the past year, as well as report greater unmet need for mental health services, at rates that exceed the national average. This discrepancy may be attributed to the high rates of psychiatric inpatient admissions among adults with SMI in Rhode Island, and the limited access to recovery services and supports. The expansion of Medicaid benefits to include assertive community treatment teams and Integrated Health Homes will help to address this imbalance; however, access to evidence-based treatment approaches and supports, such as Peer Support, would help to further improve recovery outcomes.

**Figure 68: Indicators of Mental Health Treatment for Adults Ages 25 - 64 with Serious Mental Illness in Rhode Island, 2010-11**
Detecting and treating serious mental illness among adults is essential for impacting population health. A seminal 2006 study by the National Association of State Mental Health Program Directors (NASMHPD) found that the rates of mortality and morbidity among people with severe mental illnesses are alarmingly high in comparison to the rest of the population. Increased morbidity and mortality are largely due to treatable medical conditions that are caused by modifiable risk factors such as smoking, obesity, substance abuse, and inadequate access to medical care.

Individuals with serious mental illness are less likely to have access to adequate healthcare as evidenced by:

- Over-use of emergency and medical acute inpatient care.
- Lack of a primary care relationship (Healthcare Home).
- Lower rates of routine testing to identify health conditions.
- Poor dental care.

Additionally, the large CATIE study of adults with schizophrenia found:

- 88.0% of subjects who had dyslipidemia (high cholesterol) were not receiving treatment.
- 62.4% of subjects who had hypertension (high blood pressure) were not receiving treatment.
- 30.2% of subjects who had diabetes were not receiving treatment.

Disparities in healthcare may be even more pronounced between certain groups of individuals with SMI, differing by race, ethnicity, gender, economic disadvantage (including housing stability) and socioeconomic status, and geographic location (chiefly, rural versus urban residence). Disparities exist for individuals identifying as lesbian, gay, bisexual, and transgender (LGBT) and those who have difficulty communicating in English (because it is a second language).

Adults with untreated serious mental illness often experience poor quality of life as the result of their disorder. In Rhode Island, one-third of individuals seeking services at an emergency shelter or transitional housing setting in 2014 reported having a mental health issue. More than half were assessed as having problems with alcohol and one-quarter as having problems with illicit drugs. In addition to behavioral health disorders, individuals who are homeless often have untreated chronic medical conditions. These co-morbidities result in high costs associated with ambulance transports, emergency room admissions, inpatient hospitalizations (including for mental health reasons), and interactions with the police. In addition, it is estimated that more than half of all prison and jail inmates have a mental health issue. In Rhode Island, there are over 3,000 individuals incarcerated annually in the adult correctional system.

When appropriate physical and behavioral services, including rehabilitation-recovery services, are provided in a coordinated system, overall costs are reduced through:

- Reduction in inappropriate emergency room use;
- Reduced hospital stays, both for acute physical and mental health interventions; and
- Elimination of prescription duplication and an increase in medication adherence.
Individuals with serious mental illness can and do recover when provided the proper treatment and support services. The percentage of adults reporting improved functioning from treatment received through the public mental health system was slightly higher in Rhode Island (71.6%) than in the nation as a whole (70%).

**Older Adults**
Similar to other age groups with SMI, the Truven Analytics report identified that older adults living in Rhode Island were more likely to receive any mental health treatment within the past year, as well as be admitted to a hospital with a primary mental health condition, at rates above the national average. Older adults were also more likely to be admitted to State mental health services than the national average.

**Table 69: Indicators of Mental Health Treatment for Adults Ages 65+ with Serious Mental Illness in Rhode Island, 2010-11**

<table>
<thead>
<tr>
<th></th>
<th>Received Any MH Treatment in Past Year</th>
<th>Admitted to Hospital with Primary MH Condition</th>
<th>Admitted to State MH Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhode Island</td>
<td>18%</td>
<td>.4%</td>
<td>10.2/100,000</td>
</tr>
<tr>
<td>National Average</td>
<td>10.7%</td>
<td>.29%</td>
<td>6.9/100,000</td>
</tr>
</tbody>
</table>

As described earlier in this assessment, older adults are less likely to seek treatment from the formal behavioral health system. This may raise a concern, as older adults present unique challenges for treatment with regard to the use of antipsychotic medications. For older adults receiving antipsychotics, the risks of dangerous side effects such as strokes, fractures, kidney injury, and mortality are increased. Yet in spite of these concerns, a study funded by the National Institute of Mental Health found:

- The use of antipsychotic medications increases with age after age 65, approximately twice as high among people 80 to 84 as among those age 65 to 69.
- In spite of warnings issued by the Food and Drug Administration, around 80% of antipsychotic prescriptions among adults age 65 and older were for atypical medications.
- About half of older adults ages 65 to 69 and only one fifth of those ages 80 to 84 who were treated with antipsychotics received any of these prescriptions from psychiatrists.

This issue is particularly relevant for Rhode Islanders due to having the highest proportion of older adults aged 85 or older nation, the above average prevalence of SMI among older adults and the high prevalence of dementia. In addition to supporting treatment for children, psychiatric consultation services may also be beneficial for primary care professionals treating older adults with SMI.

**Co-morbidities**
Adults with serious mental illness often have comorbid medical conditions as well as substance use disorders; not only do these comorbidities exist but there are interactions between the illnesses that can worsen the course of both.
• In a study sponsored by the Robert Wood Johnson Foundation, more than 68% of adults with a mental disorder reported having at least one general medical disorder.\textsuperscript{217}

• Individuals with SMI are estimated to be losing 28.5 years of life; 85% of the premature deaths are due to preventable conditions such as high blood pressure, high cholesterol, diabetes, and heart disease.\textsuperscript{218}

• The rates of obesity are higher among individuals with serious mental illness than the general public:\textsuperscript{219}
  o People with Depression are 1.2 to 1.8 times more likely than the general public to be obese.
  o People with Bipolar Disorder are 1.5 to 2.3 times more likely than the general public to be obese.
  o People with Schizophrenia are 3.5 times more likely than the general public to be obese.

A number of studies have substantiated substance use disorders among individuals with serious mental health disorders.

• About 47% of individuals with schizophrenia also had a lifetime diagnosis of substance abuse disorder.\textsuperscript{220}

• About 56% of individuals with bipolar disorder had a lifetime SUD.\textsuperscript{221}

• Individuals with depression were approximately twice as likely to have an SUD.\textsuperscript{222}

• Individuals diagnosed with mood or anxiety disorders are about twice as likely to also have a drug use disorder (abuse or dependence) compared with the general population.\textsuperscript{223}

These comorbidities lead to poor outcomes. People with bipolar disorder who also abuse drugs or alcohol benefit less from any treatment they are receiving, recover more slowly from violent mood swings, and are more likely to commit suicide. Similarly, individuals with psychotic disorders who abuse drugs or alcohol spend more days hospitalized, have higher rates of HIV infection, relapse, re-hospitalization, depression, and suicide risk.\textsuperscript{224}
Overarching Inequalities and At-Risk Populations

The state recognizes that differences in health opportunities and resources exist across Rhode Island’s diverse population. The summaries below highlight particular communities that experience health disparities or disadvantages.

Health Equity Report Summary

In 2015, The Rhode Island Commission for Health Advocacy and Equity (CHAE) Legislative Report provided an assessment of health disparities, or differences in health between population groups in our state. The report noted differences in health outcomes. For example, adults with disabilities (compared to those who do not have disabilities) have significantly higher rates of obesity, diabetes, high blood pressure, and heart disease prevalence; and those with lower incomes and educational attainment have higher rates of diabetes and heart disease than those with higher income and educational attainment. Health disparities are particularly problematic for those with characteristics linked to discrimination or exclusion. A health disparity related to a social, economic, and/or environmental disadvantage is called a health inequality. The aspirational goal of health equity means attaining the highest level of health for all people and valuing everyone equally. To achieve health equity, efforts must be made to address avoidable inequalities and injustices.

Other underserved populations include LGBTQ, non-English speaking individuals, persons with intellectual and developmental disabilities (IDD), autism, and brain injuries, and youth with substance use disorders – these populations are underserved partially due to the lack of trained providers and specialty targeted interventions. Additionally, the lack of data on these groups prevents consistent surveillance of disparities. The 2015 CHAE report highlighted three factors that contributed to the limitations outlined in the report:

- Non-standardized reporting of the social determinants across health outcomes.
- Exclusion of important social categories from some data collection tools (for example, sexual orientation).
- Exclusion of racial and ethnic populations, such as Native American and Southeast Asians, due to small population and sample size.

Strategies for addressing these issues, such as the development of a SDOH measures set will begin to address the limitations noted by the CHAE in the measurement and reporting of health disparities.

A Focus on the Homeless Community

Homelessness was not discussed in the 2015 Rhode Island Commission for Health Advocacy and Equity Legislative Report. Individuals who are homeless consume a disproportionate amount of Rhode Island’s resources – this is consistent with the national landscape. One-third of individuals seeking services at an emergency shelter or transitional housing setting in 2014 reported having a mental health issue, more than half were assessed as having problems with alcohol, and one-quarter as having problems with illicit drugs.
In addition to behavioral health disorders, individuals who are homeless often have untreated chronic medical conditions. These co-morbidities result in high costs associated with ambulance transports, emergency room admissions, inpatient hospitalizations (including for mental health reasons), and interactions with the police.\textsuperscript{225}

Over a third of the people who are homeless in Rhode Island spend a majority of nights sleeping on streets, in parks, in vehicles, and in other places not meant for habitation instead of sleeping in a shelter. Since these individuals have clear, existing vulnerabilities, living outside poses additional threats to safety, health, and well-being. Not only are these individuals disproportionately at risk of being physically attacked, they are also exposed to harsh weather conditions that pose very real threats to life and health.\textsuperscript{226}

The cost of homelessness in Rhode Island goes beyond the health and well-being of individuals - the utilization of expensive emergency medical and mental health services in this population is vastly higher than that of the general population. According to a 2012 report published by the Special State Commission to Study Emergency Department Diversion, the average cost of an emergency department visit in Rhode Island is $2,101, and the average cost for an Emergency Medical Service run is $580 in Providence.\textsuperscript{227} A report by the Office of the Health Insurance Commissioner in 2010 listed the average cost of an in-patient hospitalization to be $3,238 per day.\textsuperscript{228}

A study of the rates of service utilization reported by 885 individuals who are homeless (1,808 emergency department visits, 864 ambulance rides, and 698 in-patient hospitalizations) over the most-recent 6-month period yielded an estimated cost for medical treatment exceeding $6.5 million.\textsuperscript{229} There is opportunity to significantly reduce medical expenses and improve healthcare outcomes for this population. Providing permanent housing and supports to assist people in stabilizing their health and accessing preventive treatment has been shown to be considerably less costly, as individuals' utilization of emergency services decreases significantly once housed. The Special State Commission to Study Emergency Department Diversion cited the average annual savings per person to be $8,839 if people were placed in a Housing First program with a high level of support.\textsuperscript{310} Though none of the SIM interventions specifically address homelessness, the creation of a SDOH measure set could include financial resource strain (that includes financial/housing hardship) which would uncover risk factors for homelessness.

**A Focus on Children**

According to the Truven Report, children in Rhode Island face greater economic, social, and familial risks for the development of physical health and behavioral health disorders than children in other New England states and the nation.\textsuperscript{231} Unemployment among parents in Rhode Island is higher than in other New England states, more children live in single parent households, and one in five children in Rhode Island is poor. Children most at risk of not achieving their full potential are children in poverty. Poverty is linked to every aspect of a child's development and wellbeing. Between 2010 and 2014, nearly two-thirds (64%) of Rhode Island's children living in poverty lived in four cities: Central Falls, Pawtucket, Providence, and Woonsocket.\textsuperscript{232}

Despite the substantial investments Rhode Island has made in services that support children, adolescents and their families, service delivery is experienced as disjointed across agencies, significant gaps exist in evidence-based programming, and child and youth outcomes can be improved. In order to address these
concerns. In July 2015, Governor Raimondo reconvened The Rhode Island Children’s Cabinet, bringing together ten statutorily authorized cabinet leaders tasked with providing overarching leadership and a holistic approach necessary to address these concerns. The Cabinet has established a 5-year strategic plan that recognizes health inequities faced by children and families in Rhode Island, and how those inequities place children at risk for poorer health outcomes in adulthood. Children and families in Rhode Island experience the following vulnerabilities:

- While approximately 96.7% of Rhode Island children under the age of 18 are enrolled in health insurance, Rhode Island continues to experience persistent disparities in childhood obesity, asthma, lead poisoning and infant mortality. African Americans are disproportionately affected.

- Nearly a quarter of the ninth through twelfth graders who participated in the most recent Rhode Island High School Risk Behavior Survey “felt sad or hopeless almost every day for two weeks or more,” and over 560 reported more than one suicide attempt. Children and youth who face alienation, loneliness, and a lack of connection to society due to mental, emotional, and behavioral health conditions and who fail to receive needed treatment at key transition points often find themselves in prison, homeless and/or struggling with addiction later in life.

- Approximately 4,000 sixteen to nineteen year olds in Rhode Island are not in school and not working. Research tells us that many of these young adults lacked access to appropriate early learning opportunities, had poor school attendance, did not receive necessary classroom supports, and received inadequate attention to their physical and mental health needs.

- The more disconnected a child becomes from school, work, or community, the more likely he or she is to become involved in the juvenile or criminal justice system.

- As 19.8% of Rhode Island children lived in households with incomes below the poverty threshold last year, and over 9,000 children lived in families receiving cash assistance from the State. Many parents and families struggle to maintain safe housing and stable incomes to support their children in safe and healthy environments that impact their children’s development and future outcomes.

The Strategic Plan focuses on five outcome areas that are critical to the well-being and holistic development of children living in Rhode Island—physical health and safety, behavioral and emotional security, academic empowerment and career readiness, social, cultural and civic engagement, and family and community stability. The plan also commits to intervene in and address disparities in child and youth outcomes that are rooted in racial inequity, income-level, and other special needs.

A Focus on Older Adults

More than 217,000 Rhode Island residents are age 60 or older, representing 20% of the population. The number and proportion are expected to continue increasing. In addition, Rhode Island has a higher proportion of adults age 85 and older than any other state in the nation.
The Rhode Island 2016 Healthy Aging Data Report is a comprehensive examination of healthy aging in the state. The Report provides custom profiles that include more than 120 indicators of healthy aging for all 39 Rhode Island communities, plus 20 focused profiles at the zip code level for the core cities and high population areas of the state. Rhode Island is one of only two states in the nation to have such comprehensive data on healthy aging. Compelling findings include:

- Compared to other New England states, older adults living in Rhode Island are in relatively poor health, with the highest regional rates of high cholesterol, hypertension, ischemic heart disease, diabetes, asthma, anemia, osteoarthritis/rheumatoid arthritis, cataracts, and those living with four or more chronic diseases.

- There is a correlation between resources and the health of older adults living in Rhode Island: in wealthier communities, health indicators are generally better than the state average; and in less resourced, mostly urban areas, health indicators are generally worse than the state average.

Table 70: Demographic and Socioeconomic Factors Contributing Most to Differences in Older Adult Population Health

<table>
<thead>
<tr>
<th>Factors associated with BETTER population health in older adults</th>
<th>Factors associated with WORSE population health in older adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Higher levels of income and education</td>
<td>• A less-educated, poorer, and older population</td>
</tr>
<tr>
<td>• Having a more racially diverse and acculturated population, other things being equal</td>
<td>• Poorer social environments (e.g., higher crime rates, lower voter participation rates)</td>
</tr>
<tr>
<td>• Good health behaviors and use of preventive services</td>
<td>• Higher percentages of older women and veterans in the population</td>
</tr>
</tbody>
</table>

Authors of the report suggest that significant progress can be made in improving health outcomes in a relatively short time frame, generally within one to four years, by focusing on specific actions such as addressing improved nutrition, physical activity, or obesity. They also suggest that issues such as reducing poverty rates, racial and ethnic disparities, and addressing other social determinants of health are longer-term challenges that will require collaborative community, regional, and state efforts—engaging all community members, even those not typically involved in healthy aging endeavors.
Conclusion

The State of Rhode Island has committed considerable time, energy and money to assessing the health of its residents and analyzing the quality of its health care system. This assessment puts that information in one place to focus state efforts, encourage collaboration and most importantly, guide efficient and effective action steps to improve the health of all Rhode Islanders. The state’s framework for taking that action is the focus of section two of this report, which describes Rhode Island’s Population Health Strategy.
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Rhode Island Healthy Aging Data Report

Section One: Health Assessment Report

DRAFT DOCUMENT – WILL BE UPDATED BY JUNE 30, 2017

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187 Treatment of Adult Depression in the United States. Mark Offson, MD, MPH;Carlos Blanco, MD, PhD; Steven C. Marcus, PhD. JAMA Intern Med. 2016;176(10):1482-1491.
189 BRFSS
190 2014 Pregnancy Risk Assessment Monitoring System Data Book
191 2014 PRAMS Data Book.
192 Rhode Island Healthy Aging Data Report
193 Comorbidities defined as having 4 or more of the following: Alzheimer’s disease and related dementias, diabetes, stroke, chronic obstructive pulmonary disease, asthma, hypertension, heart attack, high cholesterol, heart disease, congestive heart failure, atrial fibrillation, arthritis, osteoporosis, cancer [breast, colon, lung, prostate], benign prostatic hyperplasia, chronic kidney disease, hypothyroidism, anemia, cataracts, and glaucoma
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