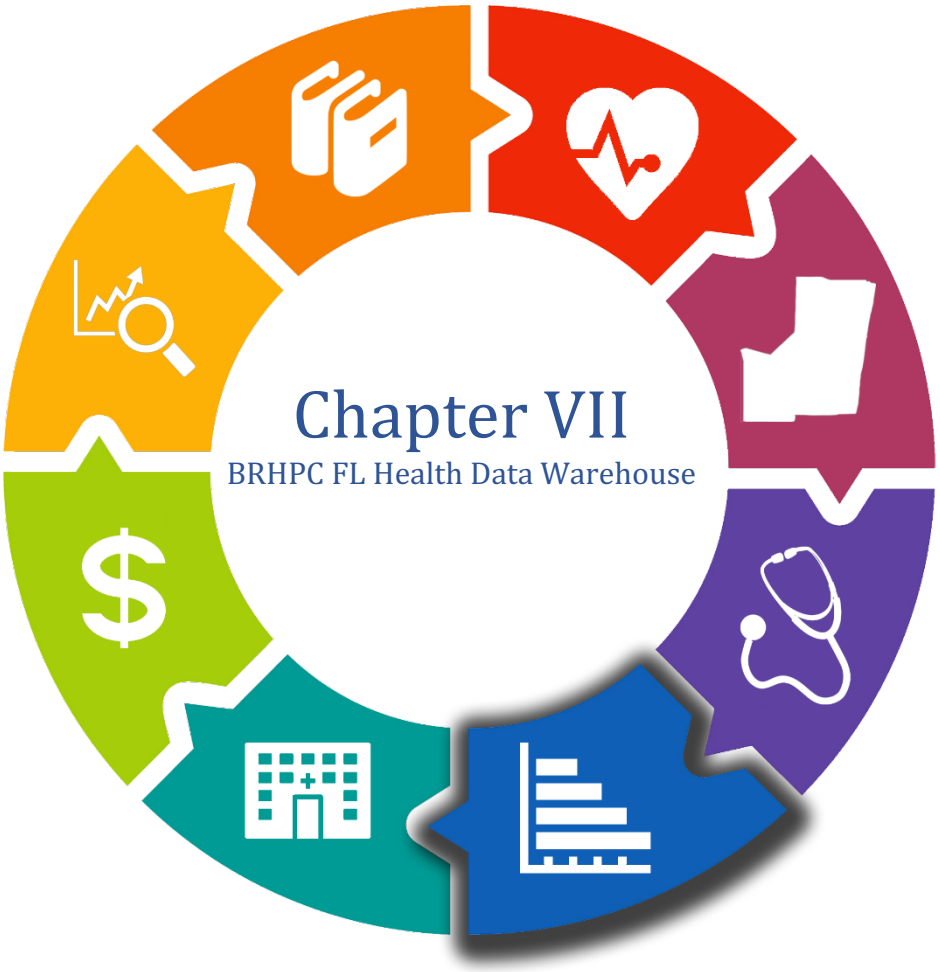
Broward County Health Plan



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CHAPTER VII: THE HEALTH DATA WAREHOUSE

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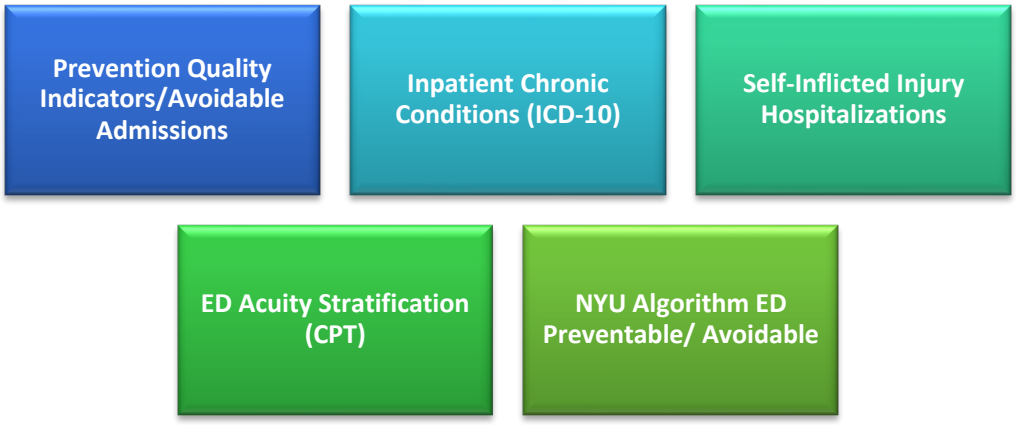
INTRODUCTION

Chapter VII of the Broward County Health Plan provides information from five modules from the BRHPC Florida Health Data Warehouse, a web-based data warehouse and analytical engine.

Figure 1. BRHPC Florida Health Data Warehouse Modules



PREVENTION QUALITY INDICATORS

Prevention Quality Indicators (PQIs) are a set of measures used with hospital inpatient-**adult only** discharge data to identify "ambulatory care sensitive conditions" (ACSCs) in **adult** populations. ACSCs are conditions for which good outpatient care can potentially prevent the need for hospitalization, and early intervention can prevent complications and disease severity. PQIs consist of the 14 ACSCs, measured as hospital admission rates. PQI data is used to identify geographic high incidence areas and develop targeted community-based interventions to reduce these unnecessary hospitalizations.

Broward County's highest PQI observation rates have been for Congestive Heart Failure for the past 3 years (Table 1). When looking at the PQI Observation Rate per 100,000, Congestive Heart Failure had the highest rate (275.8) while Diabetes Lower Extremities Amputations had the lowest rate (21.1). In 2022, almost **65%** of PQI related admissions were paid by **Medicare**, while 16.4% were paid by private insurance and 10.4% by Medicaid (Figure 2).

Table 1. Broward PQI Observation Rate per 100,000, 2020-2022

	2020	2021	2022
01 Diabetes/short-term	69.9	50.7	56.4
03 Diabetes/long-term	103.3	82.5	86.2
05 Chronic Obstructive Pulmonary Disease	139.5	100.8	97.4
07 Hypertension	75.1	65.4	74.6
08 Congestive Heart Failure	317.4	258.3	275.8
11 Bacterial Pneumonia	128.0	88.0	85.6
12 Urinary Infections	117.0	106.8	110.8
14 Uncontrolled Diabetes	49.6	43.5	48.0
15 Adult Asthma	28.0	20.1	22.4
16 Diabetes/Lower-Extremity Amputations	26.8	21.5	21.1
	Red = Increase from previous year		

Source: BRHPC FL Health Data Warehouse, Prevention Quality Indicators Module

Figure 2. PQI Charges by Payor Source, 2022

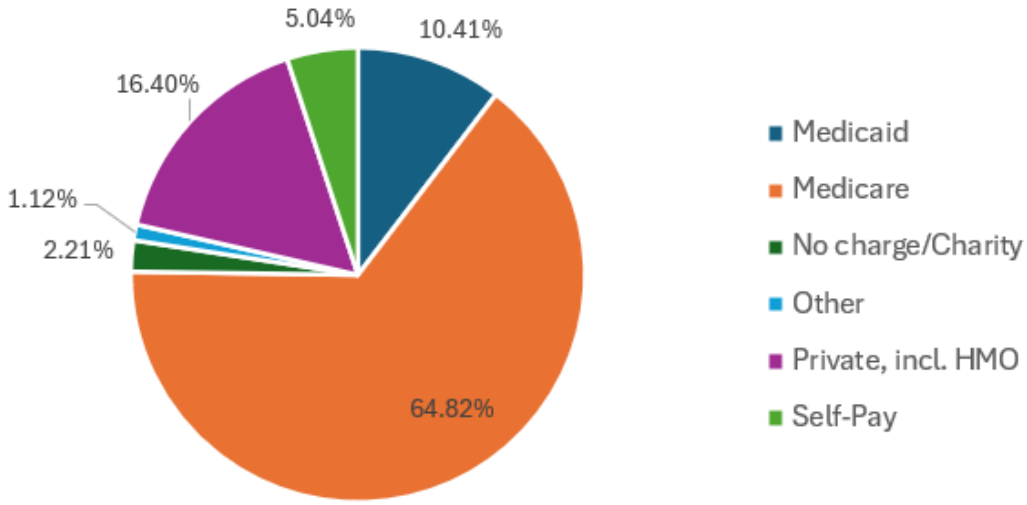


Table 1a. Prevention Quality Indicator (PQI) Definitions
1 - Diabetes Short-Term Complication: including ketoacidosis, hyperosmolarity, coma).
3 - Diabetes Long-Term Complication: Long-term complications including renal, eye, neurological, circulatory, or complications not otherwise specified.
5 - Chronic Obstructive Pulmonary Disease: COPD or Asthma in older adults.
7- Hypertension: All non-maternal discharges ages 18+ with hypertension as ICD-10- principal diagnosis code.
8 - Congestive Heart Failure: All non-maternalneonatal discharges ages 18+ w/ CHF principal diagnosis code.
11 - Bacterial Pneumonia: Principal diagnosis code for bacterial pneumonia
12 - Urinary Tract Infection: Principal diagnosis code of urinary tract infection
14 - Uncontrolled Diabetes: diagnosis code for uncontrolled diabetes, without mention of a short-term or long-term complication.
15 - Adult Asthma: Principal diagnosis code of asthma.
16 - Lower-Extremity Amputation Among Patients With Diabetes: Procedure code for lower-extremity amputation in any field and diagnosis code of diabetes in any field.

PEDIATRIC QUALITY INDICATORS

Pediatric Quality Indicators (PDIs) are a set of measures used with hospital inpatient-**pediatric only** discharge data to identify "ambulatory care sensitive conditions" (ACSCs) in **pediatric** populations. PDIs consist of the five ACSCs, measured as hospital admission rates. They're also a set of measure used with hospital inpatient discharge data, specific to pediatric patients.

As with the PQIs among adults, asthma had the highest PDI observation rate for the population between 1 to 17 years of age (Table 2). The largest payor for PDI related inpatient hospitalizations was Medicaid, representing 81 percent (Figure 3).

Table 2. Broward PDI Observation Rate per 100,000, 2019-2022				
	2019	**2020**	**2021**	**2022**
14 Asthma	96.8	46	49.6	71.2
15 Diabetes short-term	29.8	26.4	17.8	16.3
16 Gastroenteritis	27.2	9.7	13.1	10.4
18 Urinary Tract Infection	17.5	10.7	9.6	
Red = Increase from previous year				
Source: BRHPC FL Health Data Warehouse, Pediatric Quality Indicators Module				

Figure 3. PDI Charges by Payer Source, 2022

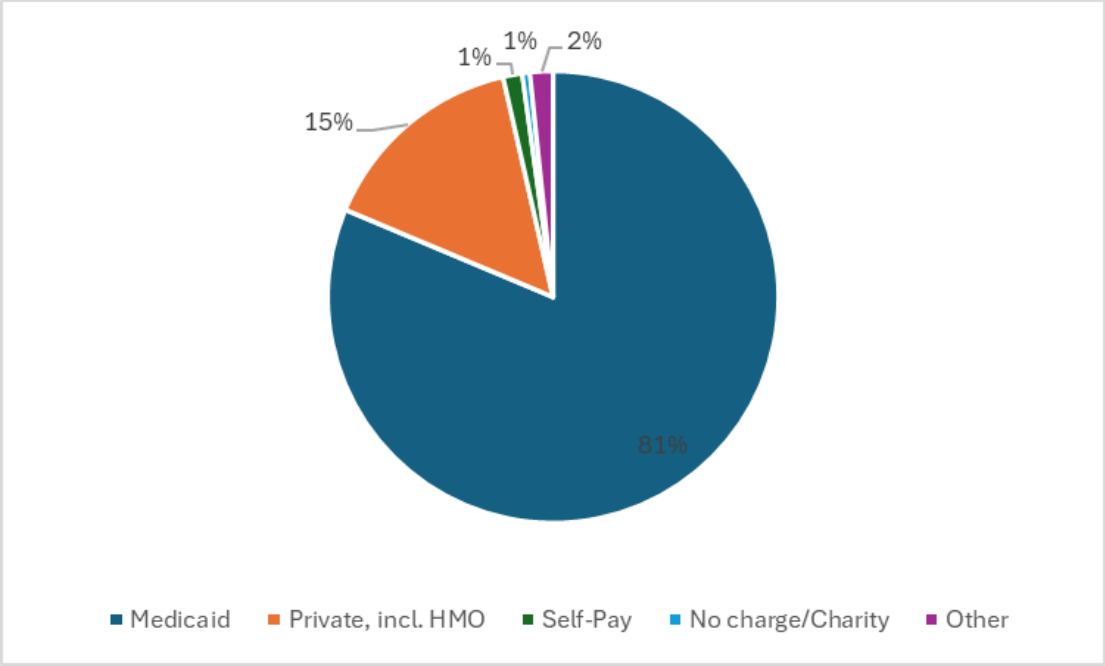


Table 3. Pediatric Quality Indicator (PDIs) Definitions
14- Asthma: discharges ages 2 to 17 years with ICD-9-CM principal diagnosis code of asthma.
15- Diabetes Short-term Complications: discharges ages 6 to 17 years with ICD-9-CM principal diagnosis code for short-term complications (ketoacidosis, hyperosmolarity, coma).
16- Gastroenteritis: 3 months to 17 years with ICD-9-CM principal diagnosis code for gastroenteritis or with secondary diagnosis code of gastroenteritis and a principal diagnosis code of dehydration.
18- Urinary Tract Infection: discharges ages 3 mos. to 17 years with ICD-9-CM UTI principal diagnosis code.

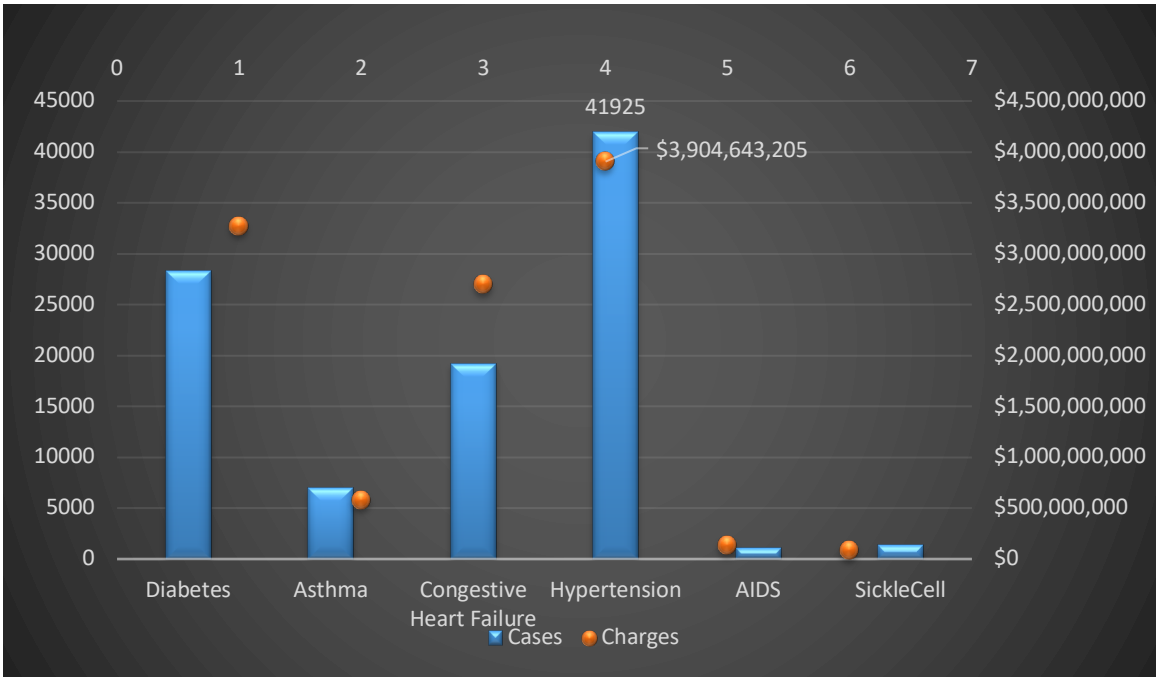
CHRONIC DISEASE HOSPITALIZATIONS

BRHPC Florida using the 10th revision of the International Classification of Diseases (ICD-10-CM) chronic disease codes for AIDS, Asthma, Congestive Heart Failure (CHF), Hypertension and Sickle Cell.

The Chronic Condition Indicator tool, developed as part of the Healthcare Cost and Utilization Project (HCUP), stratifies chronic diseases based on ICD-10-CM diagnosis codes. A chronic condition is a condition lasting 12 months or longer and meeting one or both of the following tests: (a) the condition places limitations on self-care, independent living and social interactions; (b) the condition results in the need for ongoing intervention with medical products, services and special equipment. The identification of chronic conditions is based on all five-digit ICD-10-CM diagnosis codes, excluding external cause of injury codes (E codes). More information regarding the HCUP tools used in this report may be obtained at http://www.hcup-us.ahrq.gov/tools_software.jsp.

Figure 4. displays that hypertension accounts for both the highest number of admissions (41,925) and charges ($3,904,643,205) out of the six observed chronic conditions.

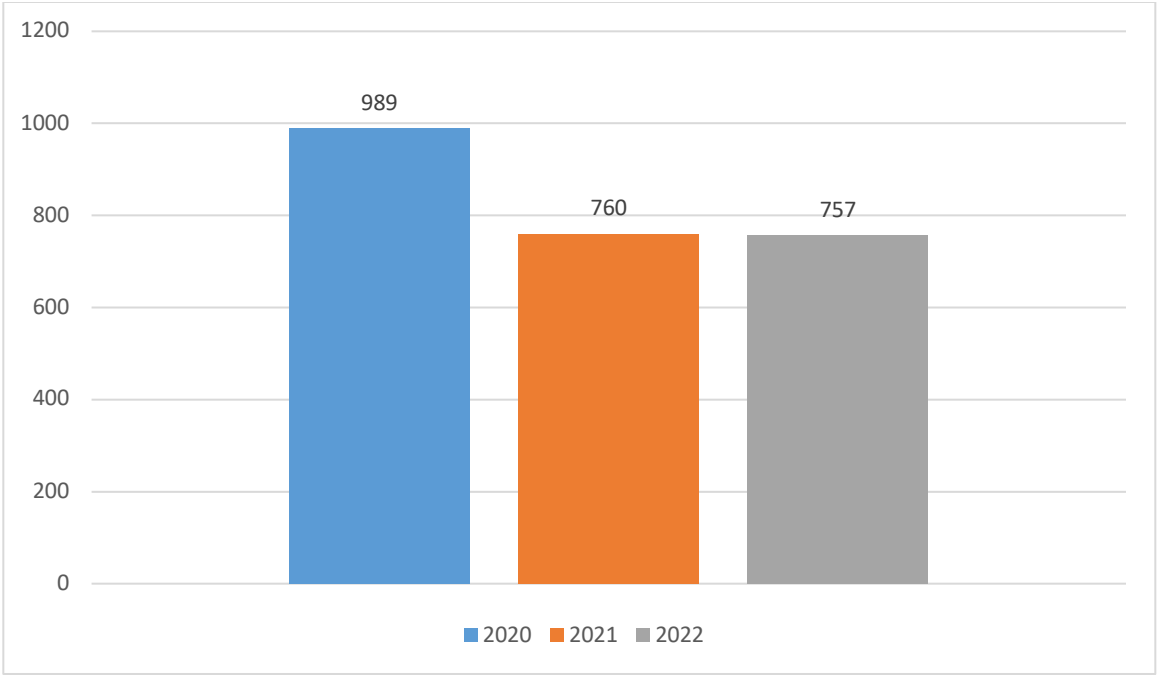
Figure 4. Chronic Conditions Admissions vs. Charges, 2022



SELF -INFLICTED INJURIES

The Health Data Warehouse includes suicide and self-inflicted injury incidence data by E-code or "external cause of injury" codes. The cases have been pulled from the Agency for Health Care Administration (AHCA) Inpatient database and are pulled when they contain any of the E-codes related to suicide or self-inflicted injury for any of the E-code fields. E-codes are diagnostic categories which differ from nature of injury codes (N-codes) in providing data on the cause, rather than type, of injury. For example, a traumatic head injury, coded with an N-code, could result from a car accident or gunshot wound, both coded with E-codes. Additionally, E-codes distinguish self-inflicted injuries, essential information for suicide surveillance.

Figure 5. Self-Inflicted Injuries, 2020-2022



EMERGENCY DEPARTMENT VISIT SEVERITY STRATIFICATION

Hospital Emergency Departments (ED) are intended to provide urgent and lifesaving care; however, EDs have increasingly been utilized as a safety net provider by the uninsured, underinsured and persons with limited or no primary care services. This is likely due to federal law requiring hospital EDs to accept, evaluate and stabilize all those who present for care, regardless of their ability to pay. Consequently, hospital EDs are providing increasing levels of primary care services to millions of Americans. BRHPC's database provides two methods for analyzing ambulatory emergency department visits (visits resulting in inpatient admissions): 1)Acuity/Severity and 2) New York University (NYU) Algorithm.

AMBULATORY EMERGENCY DEPARTMENT ACUITY/ SEVERITY LEVEL

Ambulatory ED visits were aggregated by Current Procedural Terminology (CPT) Evaluation and Management codes delineating the relative severity of the condition upon arrival at the ED. From 2021 to 2022, low and moderate acuity ED visits decreased by over 20,000 and high acuity visits (85) decreased by more than 50%. This data suggests that fewer individuals visited the hospital for both minor cases and life-threatening cases.

Table 4. Broward ED CPT Acuity Stratification, 2021 and 2022

	Visits		Charges	
	2021	**2022**	**2021**	**2022**
81-Minor severity	12,043	5,941	$9,336,003	$3,769,041
82-Low/moderate severity	41,690	21,086	$55,466,961	$23,054,740
83-Moderate severity	169,516	77,740	$581,970,803	$240,110,739
84-High severity/non-immediate	196,346	101,690	$2,164,801,366	$1,028,214,562
85-High severity/immediate	91,378	45,944	$1,757,848,781	$795,370,139
Total	**510,973**	**252,401**	**$4,569,423,914**	**$2,090,519,221**

Source: BRHPC FL Health Data Warehouse, ED Severity Module

Table 4a. Acuity Admissions CPT Codes, Acuity Classification and Descriptions

Low Acuity ED Visit (99281 – 99282)	
99281	Usually, the presenting problem(s) are self-limited or of minor severity.
99282	Usually, the presenting problem(s) are of low to moderate severity.
High Acuity ED Visits (99283 – 99285)	
99283	Usually, the presenting problem(s) are of moderate severity.
99284	Usually, high severity, & require urgent eval **w/out** immediate significant threat to life or function.
99285	Usually, high severity **with** immediate significant threat to life or physiologic function.

EMERGENCY DEPARTMENT: EMERGENT VS. PRIMARY CARE TREATABLE OR PREVENTABLE

New York University (NYU) ED Algorithm classifies visits based on patient principal diagnosis (ICD-10-CM), from the perspective of primary care and preventive care for emergent and non-emergent cases. The algorithm was developed with the advice of a panel of ED and primary care physicians, and based on an examination of a sample of almost 6,000 full ED records. Data abstracted from these records included the initial complaint, presenting symptoms, vital signs, medical history, age, gender, diagnoses, procedures performed, and resources used in the ED. Each case was classified into one or more of the following categories:

1. Non-Emergent
2. Emergent But Primary Care Treatable
3. Emergent, Ed Needed, But Preventable/Avoidable
4. Emergent, Ed Needed, Not Preventable/ Avoidable

Because few diagnostic categories are clear-cut in all cases, the algorithm assigns cases probabilistically on a percentage basis, reflecting this potential uncertainty and variation.
The unit of analysis is the county resident ED visit not resulting in a hospital inpatient admission. ED visits for an individual whose place of residence was not identical to the county hospital or was unknown were excluded. The term "**Emergency Status**," is defined by NYU algorithm classifications 1-4 above, is used to represent the cases identified as non-emergent or emergent. The term "**ED Avoidable,**" is defined by NYU algorithm classifications 1-3 above, represents ED visits that were potentially avoidable or treatable in a primary care setting.

As shown in Table 5, there were a total of 422,616 Emergency Department visits in Broward County in 2022. Sixty percent of those visits were categorized as "Non-Drug, Alcohol, Psychiatric or Injury" visits and $2,090,519,221 in charges. Of those visits, over 73% were classified as Non-Emergent (30.6%) or Emergent Primary Care Treatable (44.5%); while the remaining 26.1% were classified as Emergent Preventable (8.5%) or Emergent Non-Preventable (17.6%).

Table 5. Emergency Department (ED) NYU Algorithm Data, 2022

ED Visit Type	All NON-Drug, Alcohol, Psychiatric or Injury	Drug/Alcohol, Psych or Injury & Unclassified	Total ED Visits
ED Visits	252,401	170,215	422,616
Charges	$2,090,519,221	$1,290,166,276	$3,380,685,497
Non-Emergent	30.6%		
Emergent Primary Care Treatable	42.5%		
Emergent Preventable	8.5%		
Emergent Non-Preventable	17.6%		