

Information Systems Applications Asthma Registry Version 1.0 Features Guide

Asthma Registry Main

The Asthma Registry¹ supports chronic disease care for the Contra Costa County Health Services Asthma Management Program (program) whose asthma care is based upon the approved clinical practice guidelines for the diagnosis and management of asthma². The system supports the program's mission of improved quality of care and program improvement as follows: assisting with identification of new patients and stratification of patients according to severity of condition; automating the outreach function; generating treatment requests to providers for changes in treatment and medications; enabling the identification, tracking, and closure of care plans/interventions; and providing reporting features to track the effectiveness of the program.

Essential to the registry is the ability to leverage off information already available in our data warehouse including patient demographical information, prescriptions and prescription history, influenza vaccinations, hospital and emergency department (ED) visits, encounters and diagnosis information and laboratory results (e.g., allergy tests and pulmonary function testing) from a variety of systems such as Keane, MediTech, RIMS, Immunization Registry, PCIS and external systems.

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Contact Notes	Assessments Enter contact notes	Medications	to the program Display prescriptions and also enter other medications and supplements reported by the patient	Search Patient
Education	Maintain patient self-	.	Perform Outreach including Case	3

Outreach View

Print WAP

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ssessment Asthma History Asthma Triggers to Control Asthma Triggers Medications Severity Classifications k Flow Calculator g Initial Severity g Current Severity Equipment and Action Plan Education m Performance Tracking . Page 7 ort S Maintain Quality of Life Surveys Display list of reports and enable reports to be generated and printed Search for a patient Enable user to change their password and

Tools

other functions

1 The development of this Asthma Registry was partially supported by a grant from the Robert Woods Johnson Foundation, the largest philanthropy exclusively devoted to health related funding and research.

2 The guidelines include the 2002 National Asthma Care Guidelines for Adults and the May 2003 CCHP Clinical Practice Guidelines for the Diagnosis and Management of Asthma in Children and Adolescents

Finding and Patient Roster

Print an Asthma Written Action Plan

management skills

View past visits and

diagnoses

Overview of Asthma Registry Main

Overview of Asthma Registry Main

Asthma Registry Main enables a view of the patient's history with particular emphasis on their care in the program. The Asthma Registry Main screen is invoked from Outreach by highlighting a patient and using the right click function "View Patient Record". The principal features of Asthma Registry Main include:

- Tool bar The tool bar includes functions to return to Outreach, search for a specific patient, add a new patient, change the password of the logged on user, generate reports, display program template documents and exit the system
- Demographical information The upper portion of the screen mirrors the Patient Care Information System (PCIS) demographical area and includes additional fields of interest to the program
- Asthma dashboard The asthma dashboard provides high visibility of the patient's current asthma condition in terms of their peak flow and initial and current asthma severity score and other alerts and indicators related to the patient's asthma condition
- Information not linked to an enrollment Patient information that is not linked to a particular enrollment (encounters, medications, medical screening, contact notes and written action plans) is accessed using push buttons beneath the asthma dashboard
- Care Management Log tab The Care Management Log tab displays the critical high-level information associated with each enrollment such as enrollment date, discharge date, discharge reason, care provider, referral source, date of initial assessment, last QOL Survey date, date education was completed, number of hospital and ED visits
- Peak Flow tab The Peak Flow tab enables entry of Personal Best Peak Flow and Today's Peak Flow, calculation of Today's Peak Flow/Predicted Peak Flow percent and calculation of Today's Peak Flow/Personal Best percent
- Patient Demographics The Patient Demographics tab enables maintaining patient information
- Information linked to an enrollment Patient information this is linked to a
 particular enrollment (QOL Surveys, Assessments and asthma-related
 education) is accessed by highlighting an enrollment in the Care Management
 Log and clicking on the desired information type (e.g., Education)
- Care Plans/Interventions The Care Plans/Interventions grid enables maintaining the Care Plans/Interventions that were entered when performing assessments. Care Plans/Interventions may also be maintained in Outreach.

Outreach

Working with the Case Finding View

Clicking Outreach from Asthma Registry Main displays the Outreach View. Selecting the Case Finding View displays the Case Finding grid. To facilitate outreach, the system includes background functions to identify patients who have visited the hospital or ED in the last twelve months and have a primary or secondary diagnosis of asthma and stratifies the patients according to the severity of their condition. The system enables displaying these patients from the Case Finding view and enables selecting patients for Case Finding. Once patients have been selected for Case Finding, the system enables the patients to be filtered in various ways into groups of patients who need outreach actions to be performed in their behalf (e.g., Patients needing Outreach Letter).

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Performing Outreach in the Case Finding View

Once patients are selected for Case Finding, the system enables patients to be managed that were selected for outreach, track/follow-up with eligible patients and enroll patients in the program. Highlighting a patient and right-clicking displays case finding options that are available such as assigning the patient to a Disease Manager (DM), generating an outreach letter, logging a call to the patient, displaying the patient's past encounters (visit and diagnosis history) and displaying the medications prescribed for the patient. Once the patient is assigned to a DM, the patient disappears from the Case Finding View and appears on the DM's Patient Roster View.

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Outreach

Maintaining Patient Demographical Information

The system enables adding patients to the registry from sources other than within the county system and entering additional patient demographical information. Add New Patient is available from the Outreach views and Asthma Registry Main. Maintaining patient demographical information is available from the Patient Demographics tab of Asthma Registry Main.

Care Management Log Peak Flow Patient Demogra	phics				
Last Name:	Maiden Name:	[MRN:	CCHP Menber ID:	
First Name:	Mother's Maiden Name:	[CIN:	FC:	
Middle Name	Marital Code:	Gender	Height (inches)	Rece:	
Sufix DOB:	Pref Pharmacy	[Phone		
Address Employment Phone/Language Supp	ort Provider Information				
Type Address 1 Address 2	City State	Zipcode Email Ser	id mail Send email		

Working with the Patient Roster View

Selecting the Patient Roster View displays the Patient Roster grid with the patients assigned to the DM. From the Patient Roster View, groups of patients currently enrolled in the program who have Care Plans/Interventions yet to be performed may be displayed by dropping down a list of views and selecting a view. The list of views reflects the list of Care Plans/Interventions against which the performance of the program is measured. Grouping patients by Care Plans/Interventions that need to be done can streamline the DM's work in many areas. For example, groups of patients who visited the hospital or ED since enrolled can be identified, contact can be made with the patient and requests for treatment changes can be generated immediately; QOL Survey mailings (initial and follow-up), beta-agonist overuse mailings and incentive mailings can be generated for groups of patients; home trigger assessments can be identified and discharged, freeing up resources for other patients with more immediate needs.

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C Case Finding View	
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ABALOS Patents needing Fas to Provider	Kaufman, Donna
ACOSTA Patients enrolled for > 3 months and education not completed	N Kaulman, Donna
GALLEG Patients needing Home Trigger Assessment Patients Due on Incentive	Kaufman, Donna
LIMBAD Patients over using Beta-Agonist medications	Y Kaufman, Donna

Performing Outreach in the Patient Roster View

From the Patient Roster View, the system enables patients to be managed that are enrolled in the program, perform intake, track/follow-up with patients and discharge patients when they have completed the program. Highlighting a patient and rightclicking displays the Patient Roster options that are available such as viewing the patient record on Asthma Registry Main, re-assigning the patient to another DM, logging a call to the patient, performing an assessment, sending QOL Surveys, entering QOL Survey responses, generating treatment requests to the patient's primary care provider (PCP), generating the Field Chart, discharging patients, maintaining Care Plans/interventions, logging that an incentive was provided, displaying encounters, displaying medications and maintaining contact notes.

View A	Patients currently e	eresiled				Y Se	arch				
iplayed Re	cords 4										
act Name	First Name	Age	Telephone	Date Enrolled	Status	Last Hosp Visit	Diagnosis	Last Length of S	tay #Hosp Visits in 12 mos	Last ED Visit	#ED
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Working With Care Plans/Interventions

Care Plans/Interventions are created during the Assessment/Intake process. These flow over to Asthma Registry Main and can be maintained from Asthma Registry Main or from the Patient Roster View. The system creates certain Care Plans/Interventions when the patient is first enrolled as described in "Performing an Assessment" and automatically updates the date complete upon completion of items in other parts of the system (e.g., education completed). The system also updates date completed for other Care Plans/Interventions. For example, when a treatment request is generated to the patient's PCP (e.g., Generate Fax to Provider is selected in the Patient Roster View), the system updates the Care Plan/Intervention date complete with the date that the treatment request was created

Maintain C	are Plans/In	terventions for					×
Date Sched	Date Comp	Item to be Sent	Date Sent	Description	Comments		
05/01/2004	09/09/2004	QOL Survey	09/01/2004	Initial Quality of Life Surv			
Include Co	mpleted Items					Maintain	Cancel

Generating Treatment Requests

During the Assessment process, patient-specific responses influence entry of Care Plan/Interventions that result in treatment requests to be generated to the patient's PCP. For example, if a Care Plan/Intervention is entered for "Script for Controller" or "Medication Review" and/or the patient used eight or more canisters of beta agonist medication in the last twelve months, a request is generated for symptom control and indicates the patient's symptom frequency in the past four weeks and diagnosis history that prompted the request. If a Care Plan is entered for "Script for Albuterol and Flovent" or "Medication Review/Side effects from", a request is generated for medication management and indicates the medication that the patient reports using. Treatment requests are also generated for Care Plans/Interventions related to frequent exacerbations and trigger control. Treatment requests are generated from the Patient Roster View for one or more patients who satisfied the query to display "Patients Needing Fax to Provider" or from the Reports menu.

Working with QOL Surveys

When a patient is initially enrolled, the system creates a Care Plan/Intervention to perform an initial QOL Survey. If the survey is not returned within twenty-one days of the mailing date, another survey is sent along with a reminder letter. The system includes functions in the Patient Roster View and Asthma Registry Main to display a summary of all QOL Surveys performed for the patient. From the summary screen, an existing survey may be edited or a new survey may be entered where the patient's responses are recorded and scored. Functions are included in the Patient Roster View to send a QOL Survey to the patient. When a QOL Survey is sent to the patient, the system updates the Care Plan/Intervention date sent with the date that the survey was sent. The system provides entry and management of adult and child surveys, automated scoring and comparison of previous scores. When the patient's QOL Survey responses are saved, the system updates the Care Plan/Intervention date completed with the date that the responses were entered/saved. QOL Survey scores and QOL Survey response rate by age group are calculated and displayed on performance tracking reports as indicators to evaluate program effectiveness.

	All of the Time	Most of the Time	Some of the Time	A little of the Time	None of the Time
a) Your child complained of being short of breath	2		111 C C C C C C C C C C C C C C C C C C		
b) Exertion (such as summing) made your child breathless	0		0	0	
c) Your child coughed at night		×			
d) Your child been woken up by wheeting or coughing	0			0	
e) Your child stayed indoors because of wheezing or coughing					
() Your child's education suffered due to his/her asthma (during school)			×		
g) Your child's asthma interfered with his/her life			8		
h) Astena limited your child's activities					
it Taking his/her inhaler or other beatments estempted your child's We					
j) You had to make adjustments to family life because of your child's asthma		1.1.50			

Outreach

Focusing on Patient Self-Management Skills

One of the techniques used by the program to support comprehensive approaches for chronic disease care is to focus on patient self-management skills. By equipping the patient with self-management skills, asthma episodes may be minimized and potentially eliminated thus saving lives and reducing health care costs.

The system accommodates focusing on patient self-management skills by automatically creating a Care Plan/Intervention for "Provide Education" when the patient is first enrolled and populating the Education grid with the essential asthma-related topics. The DM enters date complete as each topic is discussed with the patient or the patient's caretaker if the patient is a child. When all topics are completed, the system marks the Care Plan/Intervention as completed. The "Provide Education" Care Plan/Intervention is one of the essential items tracked in program performance tracking. For example, the system reports for each patient whether they have completed asthma-related education, one of the requirements for completing the program.

Other features included in the system that allows focusing on patient self-management skills are the capture of asthma triggers and frequency of exposure to the triggers, capture of the efforts taken by the patient to control the triggers and generation of treatment requests for written action plans (new plans and updates to existing plans). Future versions of the software may include maintaining and generating written action plans.

ducatio	on Details for			
7	7 Date ID	Date Sched	Date Complete	Description
V	09/13/2004	09/14/2004	09/14/2004	Action Plan/Self Management
	Ť.			Asthma Disease Process
				Inhaler/Spacer Use
				Medication/Side Effects
				Peak Flow Meter
				Trigger Avoidance
				Save Close

Working with Contact Notes

The system enables access to the patient's contact notes from all areas of the application. Using contact notes, the DM may record notes about the patient and care of the patient.

Notes for				J.		2
Note Date: New Rewinder Needed	ReninderDate Author	Subject Editor				
			Add	E.R.	Distr	Case

Working with Encounters Information

The system enables encounters information to be worked with from all areas of the system. For example, in Outreach, encounters information is available using the right click functions. In Asthma Registry Main and Assessments, encounters information is available by clicking Encounters. The information in the Summary of Enrollment frame summarizes the hospital and ED visits for the time frame specified in the Encounters History frame. The Encounters History frame lists detail encounters only, all encounters and ED/hospital encounters only). The Other Encounters that are not found in the data warehouse.

Wew Encounters for								×
Summary of Enrolment								
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05/01/2004	0		0					
04/28/2004 08/25/2004	0		0					
Encounters History								
Begin Date 03/13/2004	End Date 09/1	3/2004 🕂 💌	Ge	Encounter History	· .			
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		08/13/2004				Unspecified asthma, without mention of st	atus asthmaticus	
CHC CONCORD HEALTH C	PEDIATRICS - OUTP.	06/16/2004	06/16/2004			Unspecified asthma, without mention of st	atus asthmaticus	
		06/10/2004	06/10/2004					Ur
		06/01/2004	06/01/2004					Ui
		06/01/2004	06/01/2004			Unspecified asthma, with acute exacerbati	m	
4						_		,
- Encounter Tunes								
Asthma Related C Shore	All Encounters (CCHP A	nd BHC Only)	ED/F	losp Only	Total No. of Reco	ords 5		
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Working with Medications Information

The system enables medications information to be worked with from all areas of the system. For example, in Outreach, medications information is available using the right click functions. In Asthma Registry Main and Assessments, medications information is available by clicking Medications. The information in the Rx History frame lists detail prescriptions from the data warehouse and allows filtering in various ways (e.g., asthma-related prescriptions, take home prescriptions, all medications). The Other Medications frame is used to enter medications and supplements reported by the patient.

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1006-0004	AERERIO INHALER	Wilds Fold MD	250	R	00456067299
	MADISHOL PRIVALATION ASHESIDE USP	White, Fueld 142	90	R.	SARACE SACCE
1/10/2914	ACKERD INHALER	White, Easth 145	290	R.	00496387298
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Assessments (Intake)

Assessments (Intake)

Performing an Assessment

Highlighting a patient from the Patient Roster View and choosing "Perform Assessment" displays the Assessments screen. This functionality is also available by highlighting an enrollment in the Care Management Log of Asthma Registry Main and clicking Assessment. The principal features of the Assessments screen include:

- Care Plans/Interventions frame and asthma dashboard frame remain docked as the DM uses the tabs in the lower portion of the screen to request and record information from the patient or the patient's caretaker if the patient is a child
- Care Plans/Interventions When the patient is first enrolled, the system creates the following care plans: "Initial Asses/Initial Severity", "Initial Quality of Life Survey", "Provide Education" and "Provide Incentive". The DM enters the remaining Care Plans/Interventions based on approved guidelines for the management and treatment of care for asthma patients and in light of patientspecific responses.
- Asthma dashboard The asthma dashboard (carried over from Asthma Registry Main) shows the patient's current peak flow trend and provides a list of alerts related to the patient's condition. In future versions of the software, the asthma dashboard will also include the patient's initial and current asthma severity.
- Information not linked to an enrollment Patient information that is not linked to a particular enrollment (encounters, medications, medical screening, contact notes and current appointments via the Appointment Lookup System (ALUS) is accessed using push buttons beneath the docked area as the DM navigates in the lower portion of the Assessments screen.



Entering/Editing Asthma History

From the Assessments/Asthma History tab, family history of asthma and other conditions (e.g., asthma-related and co-morbid conditions) that the patient has may be entered. Any asthma-related visits that the patient had outside the county system (and thus not in registry data structures) may also be entered.

				EncounterID 1	Visit Type Clinic	Description	Last Date 03/02/2004	Len of Stay 1	Provi Kalka
A00	EOR								
Date ID'd	Date Resolved	Description							
08/26/2004	09/01/2004	Allergic rhinitis							
08/26/2004	09/09/2004	CAD							
08/26/2004	09/02/2004	Asthma							
08/26/2004	09/01/2004	CHE							

Entering/Editing Asthma Triggers and Efforts to Control Asthma Triggers

From the Assessments/Triggers and Efforts to Control tab, the other risk factors (e.g., patient moved recently or changed jobs) related to the patient, the patient's use of tobacco, asthma triggers along with frequency of exposure and efforts to control the triggers may be entered. If available from the Immunization Registry, the last flu shot date will be displayed or may be entered by DM.

Cold Weather N	HE'rH Yoddoni and Nathers and Pillows hol	Buy HEPA 8/25/2004 Cover and 8/25/2004 Flu Shot		nhs	Edit Y N	Add Trigger Dust Cold Weather
Aerosols N			_		N	Aerosols

Entering/Editing Medications

From the Assessments/Medications tab, the patient's preferred pharmacy contact information can be entered as well as medications that the patient is currently taking.

		1	1		1	1.0	
x Date	Medication	Provider	Taken From	Taken To	Taken Regularly	Strength	Frequenc
3/18/2004	FLOVENT INHALATION AEROSOL	AHMED, ANEELA MD	08/01/2004	08/17/2004	Y		

Assessments (Intake)

Entering/Editing Severity Classifications

From the Assessments/Severity Classifications tab, new initial and/or current asthma severity readings may be added or existing readings may be edited.

Asth	ma Hist	ony Triggers an	d Efforts to Control Medicatio	ns Seventy Classification	Equipment and Action Plan Ed	ucation	
	Initial St	eventy history	Initial Severity So	we	Current	Severity Score	
	ID .	Date ID'd	Initial Severity Classification	Initial Severity Reason	Current Sevenity Classification	Current Severity Reason	
IJ							
	Add	d EdR					

Using the Peak Flow Calculator

From the Severity Classifications/Initial Severity tab or Current Severity tab, the patient's height, weight and Today's Peak Flow reading may be entered. The patient's Personal Best Peak flow reading defaults to patient's highest peak flow score with override ability. The system displays Predicted Peak Flow from embedded predicted peak flow tables based on the patient's gender and height, calculates Today's Peak Flow/Personal Best percent and Today's Peak Flow/Predicted percent. The system generates a graphic display of the peak flow trend to depict the patient's improvement as a result of being enrolled and participating in the program.

A.(d Assessment	s for ACOS	TA, JENNE	ICR E - (75-59-63-6)						
ſ	Peak Flow									
	Height	31		Weight			-			_
	Today	09/14/20	n4	Peak Flow	Value		_		150 -	
	Personal Rest	_		Today/Pe	ronal Rest. 3	2	_			
	Performances.	-		Today/Te	and the second pro-		_		100	
	Predicted			I oday/Ph	sacred %					
	Body Height	61				Add	Clear		50 -	
	Date Calculated	Deex Rent	Reak Eleve	Drad Dask Elser DE /Da	en Rent Y D	EdDard Y Dr	er Rast/End		1.1	
	00/12/2004	120	105	297	00	35	3		08/10/04 08/11/04 08/12/04	
	08/11/2004	120	117	297	98	39	3(001004 001004 001004	۰.
	08/10/2004	120	120	297	100	40	34		Legend	
	•								- Dask Slow - Darrooal Bart	
						Edt	Delete		80% Personal Best - 50% Personal Best	
L										
ſ	Initial Sevenity (unent Seve	triky							
	Hx of Initubation				C Ye	is C No				
	Symptoms this 5	ear compa	red to last y	es.	0.84	NSH CW	lotte C Sat	me		
	F	Reason sym	ptoms are w	orse						
	Ave there for a	free all a face	athal adam	the Dt is suppliers from	0.4	C No.				
	And there unles	(WOOK.5780	entraj verejen	and in a symptom nee				_		1
	1	ime of year	symptoms	are worse				•	Asthma-related ED visits in the last 12 months:	
	Number of times	t on prednit	one in the l	aat year					Asthma-related Hosp visits in the last 12 months	
	Number of days	of work or	school miss	ed in the last 12 month		-				
		lousi sympi	ons occuri	ng with flare-ups		_		•		
								_		
									5 m	
										_

Entering/Editing Initial Severity

From the Severity Classifications/Initial Severity tab, answers to several questions related to the patient's initial condition may be entered. The system calculates initial severity based on the patient-specific responses and the approved embedded guidelines for the management and treatment of asthma.

Initial Sevenity Current Sevenity	
Hird Intubation Symptoms the year compared to list year Rearon symptoms are worse Are three firms (medic-limit) when the P1 is symptom free Time of year symptoms are worse Number of times on predisionen in the list year Number of times on predisionen in the list year Usual symptoms occurring with flare-yea	Yes No No Yes No Adhmentiated ED visits in the last 12 months: Authmentiated Floop visits in the last 12 months: Authmentiated Floop visits in the last 12 months Y

Entering/Editing Current Severity

From the Severity Classifications/Current Severity tab, the patient's daytime symptoms, nighttime symptoms, albuterol use and impact on activity may be entered. The system populates peak flow/predicted based on the peak flow calculations that were entered in the above area of the screen. The system calculates current asthma severity based on the patient-specific responses and the approved embedded guidelines for the management and treatment of asthma, which specifies that the presence of one of the features of severity is sufficient to place a patient in that category. An individual will be assigned to the most severe grade in which any feature occurs.

	Mild Internittent	Mild, Persistent	Moderate Persistent	Severe Persistent
Peak Flow / Predicted	C <= 80%	C >= 80%	C > 60% < 80%	C <= 60%
Daytime Symptoms	C <= 2x/Week	C 3-6X/Week	C Daily	C Continuous
Nighttime Symptoms	C <= 2x/Month	C 3-4XMonth	C > + 5/Month	C Frequent
Albuterol Use	C <= 2xWeek	C 3-6X/Week	C Daily	C ⇒ 1x/Day
Impact on Activity	C No affect	C May occur w exacerbations only	C Activity affected by exacerbations	C Limited Physical Activity

Entering/Editing Equipment and Action Plan

From the Assessments/Equipment and Action Plan tab, the equipment and written action plans that the patient currently has and/or needs may be entered.

Att	ma History T	riggers and Ef	forts to Control	Medications Sev	enty Classifications	Equipment and Action Plan Education
	Equipment					
	Date ID'd	Description	Currently Has	Currently Needs	Uses Regularly	Comments
	09/02/2004	Flow Meter	Ó			
	09/02/2004	Nebulizer				
	and the second s					
	Maintain					

Entering/Editing Education

In an effort to focus on patient self-management skills in the care of asthma patients, when a patient is enrolled in the program, the system creates a list of the asthma-related educational topics that are to be discussed with the patient and these are listed in the Education tab. In addition, the system creates a Care Plan/Intervention to "Provide Education". When all educational topics have been completed, the system marks the Care Plan/Intervention as completed. Completing the asthma-related education is one of the prerequisites to completing the program.

	a Colord	Date Complete	Description					
ate ID Da	e sched	Date Complete	Description	_	_	_	_	

ADM Program Performance Tracking

Care Plans Report

For each patient enrolled in the program, the system tracks the interventions that are required, the progress that has been made in completing the intervention as well as the results of the intervention.

Monthly Report

The system provides a recap of essential interventions that have been completed for enrolled patients for the specified time period in terms of the total number of patients and percentage by age group for the specified period.

Utilization Reports

Utilization reports are available that report by age group indicators such as prevalence, severity, hospital admissions, ED visits, percent that received education, percent who have action plans as well as ITG score performance.