Data Driven Dashboards Supporting Team Based Care

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Objectives:

1. Review of Business Intelligence and Data Environment

2. Identify how different members of the team can utilize data driven dashboards.

3. Review measures of dashboard driven improvement

Community Health Center, Inc. (CHCI) Locations and Service Sites in Connecticut

THREE FOUNDATIONAL PILLARS

1	2	3
Clinical Excellence	Research and Development	Training the Next Generation

CHCI Profile:

◎ Founding year: 1972
◎ Primary care hubs: 15; 204 sites
◎ Staff: 1,000
◎ Patients/year: 100,000 (est. 2017)
◎ Visits/year: 550,000
◎ Specialties: onsite psychiatry, podiatry, chiropractic
◎ Specialty access by eConsult to 41 specialists

Elements of Model:

◎ Fully integrated teams and data
◎ Integration of key populations
◎ Data driven performance
◎ "Wherever You Are" approach

Weitzman Institute:

◎ QI experts; national coaches
◎ Project ECHO®—special populations
◎ Formal research and R&D
◎ Clinical workforce development

CHCI Enrollment Sites (NIH)

◎ Middletown
◎ Meriden
◎ New Britain

CHCI APM Sites (HRSA)

◎ Bristol
◎ Clinton
◎ Danbury
◎ Enfield
◎ Groton
◎ New London
◎ Norwalk
◎ Stamford
◎ Waterbury

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CHC's Timeline in Using Data-Driven Dashboards

- **1970s**: Participated in initiatives around data collection using computers

- **2006:** First fully integrated electronic health record system
    - eClinicalWorks

- **2010:** Built our own data warehouse, for reporting and data analysis
    - Covers clinical, financial, and Human Resources

- **Currently:** Integrating data and process involvement with the goal of better patient outcomes

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CHCI's Business Intelligence Team

- **Director: Nicholas Ciaburri**
  - Seven team members
  - Sequel developers
- **Data domain specialists**
  - Clinical: Medical, Behavioral Health, Dental
  - Finance
  - Operations
  - Population Health
- **Collaborative work**
  - Clinical Leaders
  - Operational Leaders
  - Population Heath team

Creating Effective Dashboards and Reports

- **Team Based approach and role specific**
  - Each team member uses different sets of data, and gets a different dashboard
  - Work with clinical leadership to identify the goal of the dashboard
  - Work with care teams and clinical microsystems to determine what data is useful to them and how it best fits in with their workflows
  - Work with EHR staff to determine the best way to input the data
- **Actionable Data**
  - Distributing the data to the team members that can take action on it
  - Only include the data that is actionable – Too much data can be a bad thing!

Why develop my own reporting environment?

- **Control**
  - Buying vs. Renting
  - More transparent access to your data
- **Flexibility**
  - Customize your dashboards and reports as you see fit
  - Combine your data with data from other sources (payers, EHX's, finance, HR, etc.)
- **Workflows**
  - Design your dashboards around your workflows rather than your workflows around your reporting tools
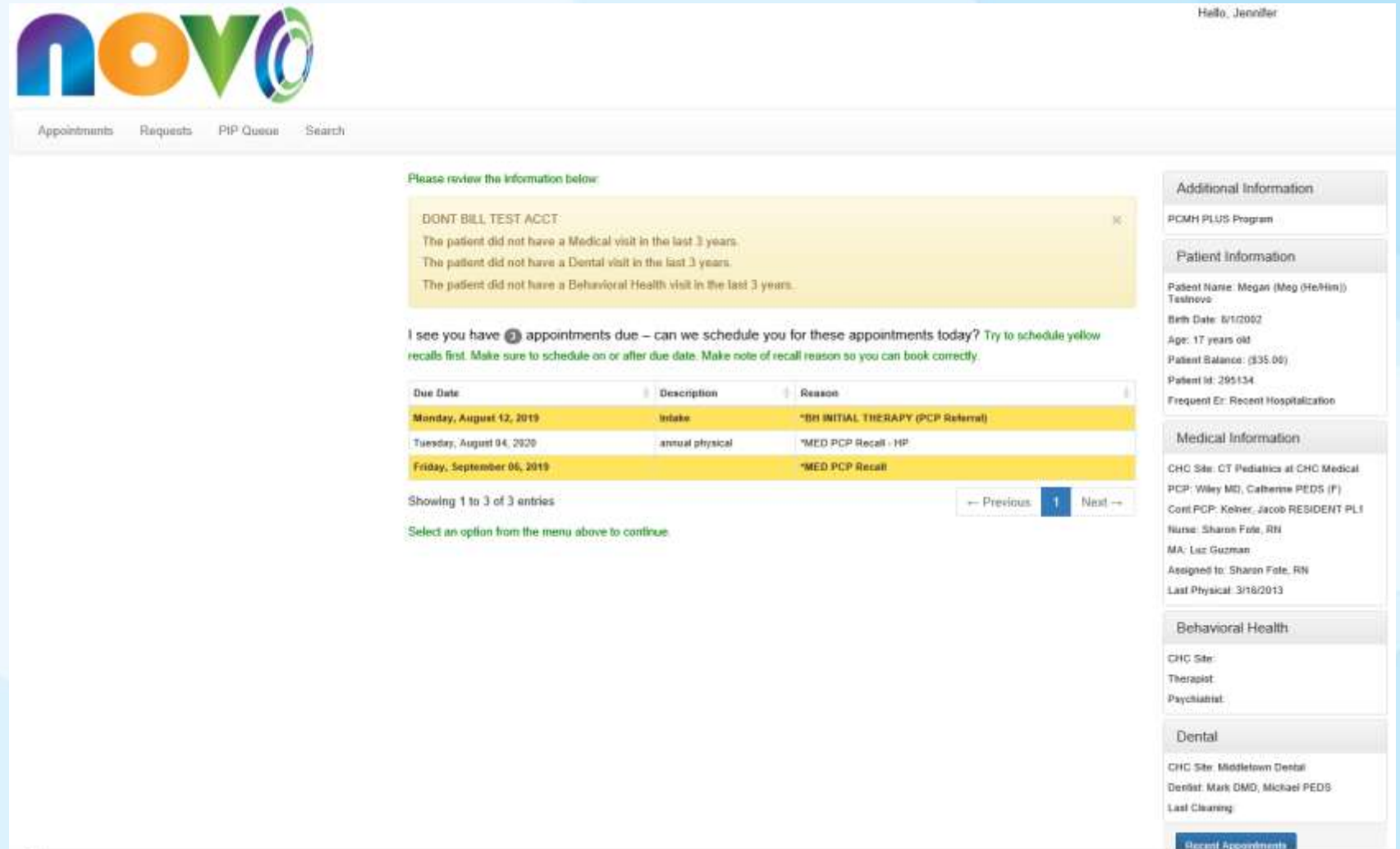
BI Data Environment

- Having Useful data starts with the EHR
  - **Structured Data**
- Reformat the data to make reporting easier
  - Include business rules
  - Connect to data from other sources
  - Format for easier reporting
    - EHR's are designed for inputting data, not reporting
- Clean the data
  - Exclude non-valid values
  - Map data to categories
- Analytics Cube allows for drag-and-drop high level data analytics
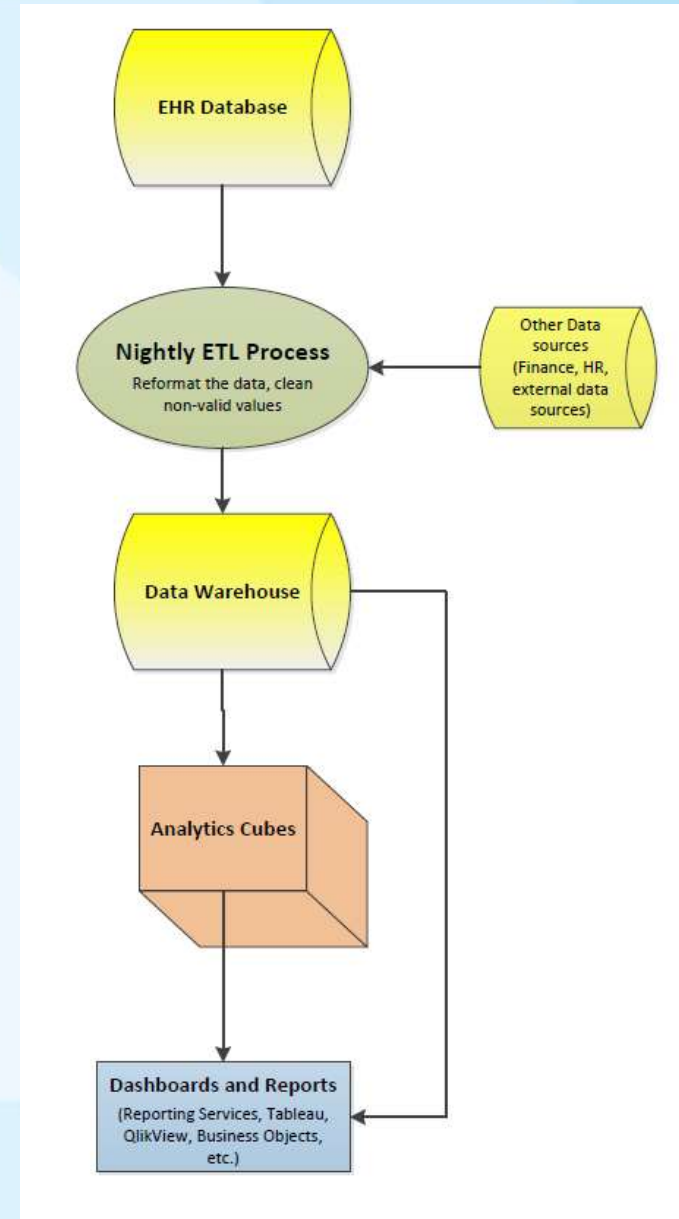
Team Based Approach to Data and Dashboards

Utilizing Dashboards
on the Front Line

Our phone script includes

Data on which appointments the patient is due for so that we can schedule all of their appointments at once.

Novo Usage – Tableau
Goal for CCS => 96%,
PSA=>90%

Increasing & Measuring
Well Child Visits (PCMH+)

Meeting PCMH+ Measures

❖ Ensure that all patients are receiving their required well child physicals during the milestone month or year to improve patient care

  ➢ 0-15 months Require 6 Visits
  ➢ 3-21 year olds Require 1 annually

❖ Create a sustainable process to track and measure progress

  ➢ Build a **Dashboard** to measure Month/Month and Year/Year Progress

❖ Enhance Novo Scheduling System to drive through Alerts for WCCs automatically

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Novo Recall Enhancement

❖ Add a Green Alert to Novo

- Uses the last WCC Date & Next Milestone Due Date

❖ Set the recall for each Milestone month for 0-15 and annually for patients > 3 Years of age

❖ Train staff to use alerts to prompt patients to schedule their next physical

I see you have **1** appointments due – can we schedule you for these appointments today? Try to schedule yellow recalls first. Make sure to schedule on or after due date. Make note of recall reason so you can book correctly.

Due Date	Description	Reason	
Monday, September 30, 2019 PCP Recall		WCC	*Med

WCC Dashboard

❖ Measure Baseline Data and Trends on # of Physicals

❖ Review No Shows as well as Completed Physicals

❖ Create Multiple Views to look at month/month, year/year

❖ Provide a Visual Display to show # of actual physicals completed

Physical Appts – 10/2017 vs. 10/2018

Physicals: Oct 2017 vs Oct 2018
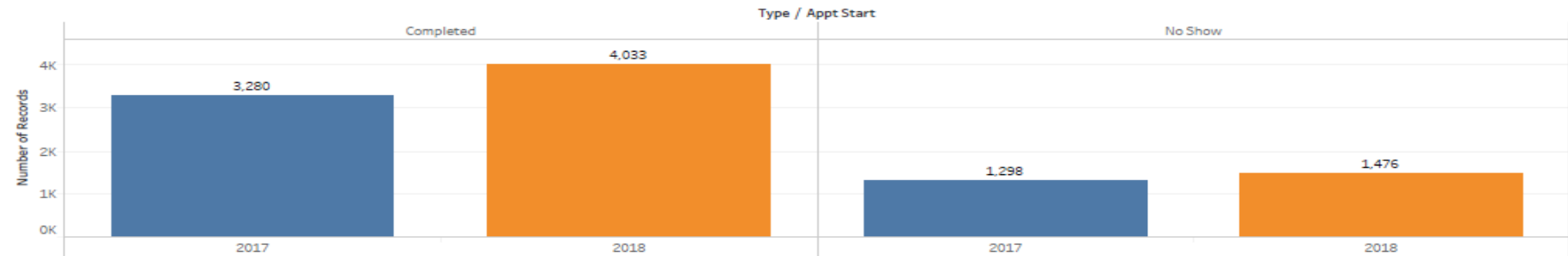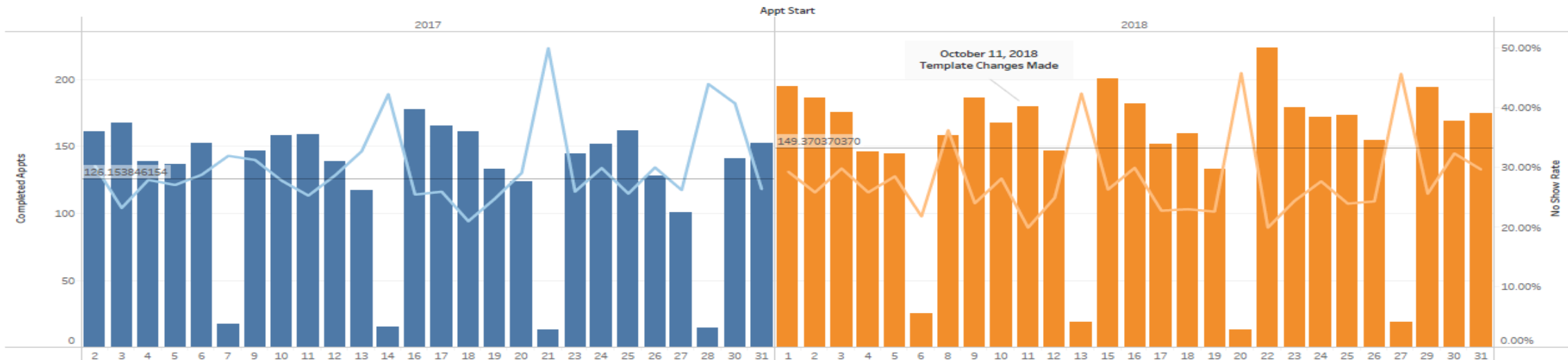
Physicals increased by an Average of 23/day.

Sustained Success

Improvement:

Dashboard Data showed an increase of >15 physicals per Day

❖ Increased Visits by >300 / Month over an 8 month period

Winning Ideas:

❖ Increasing Well Child Slots in Templates
❖ Enhancing the Novo Scheduling System with Alerts
❖ Utilizing Data Analysis Tools and Dashboard Tracking

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"Teddy Bear" Post Card Campaign

➢ Goal: Increase visits for 0-15 months - Prioritize newborns 0-6 months

➢ Population Targeted: 312

➢ Date – 30 Day Review shows a 77% ROI

    ❖ Next Step PDSA #2 (Include all ages)
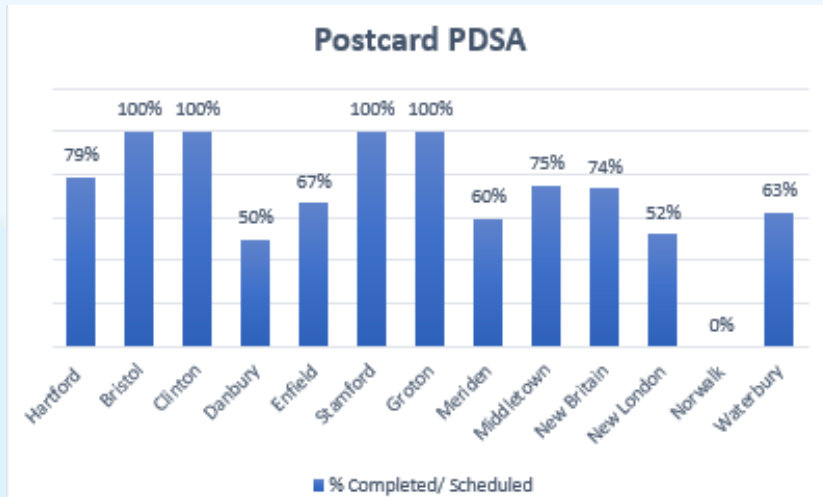
77% Scheduled or Completed a physical within 30 days

Planned Care Dashboard
Medical Assistants

Patient	PCP and Visit Info					

		ALERTS	**Last Date**	**Due Date**	**Value**	**Notes**
450613 Sex: F Age: 18.0	Ellis APRN, Keith PEDS Next Medical Appointment: 6/27/2019 9:40:00 AM CHC at CT Childrens Medical Last Dental Visit: Never Done Reason for Visit: F/u Nexplanon Insertion	**VARNISH CANDIDATE**				Fluoride
		Chlamydia Screen	Never Done	Never Done		
		HIV Screen Needed				Once,13-64 yrs old
		SBIRT	Never Done			Yearly,18+ yrs old
		SOGI	Never Done			
		HITS	Never Done			Once, Females, 14+ years old
		Annual Chronic Pain Screening		Never Done		If pos (most days/every day), administer PEG

Bubbles	**#**
TE	10
RX	
Doc	
Lab	

Complex Care Management Dashboard
Nursing

2 ER Visits in Last 12 Mths.	Hosp. Last 12 Mths.	DM	HTN	Asthma	4 Chronic Cond.	Smoking Status	A1C	BP	Age - Sex	CC Start Date	CC End Date	SMGDate	Action Item	Action Item Due Date	Last PCP Visit	Last Dental Visit	Last BH Visit	Portal Enabled
						never smoker	9.7	119/76	57.0 - F	6/29/2018					1/19/2018		2/25/2016	Yes
						never smoker	7.5	125/75	71.0 - M	2/18/2019		3/13/2018 10:00:00 AM			8/19/2019	11/17/2009		No
						former smoker	5.2	133/76	51.0 - M	4/11/2019					8/30/2019			Yes
						never smoker	5.5	123/75	11.0 - M	8/21/2019			appt	12/20/2019	8/14/2019			No
	6/22/2019					never smoker	12.8	146/73	71.0 - F	9/15/2018			DM	9/20/2019	5/3/2019	12/11/2009	5/3/2019	Yes
						smoker, current status unknown	10.7	125/80	56.0 - M	8/9/2018			DM	9/3/2019	1/28/2019	7/22/2013	6/14/2017	No
						never smoker	6.5	122/76	55.0 - M	2/1/2019			RN Care Coordination	10/8/2019	6/5/2019			No
						never smoker	10.7	134/85	43.0 - F	12/9/2017		1/16/2018 2:20:00 PM	RN Care Coordination	9/19/2019	5/2/2019			Yes
						never smoker	10.1	135/79	69.0 - F	4/25/2019					4/10/2019			Yes
						smoker, current status unknown		117/67	55.0 - M	8/15/2019			followup	9/12/2019	6/14/2019		12/7/2011	Yes

Population Health Dashboards
Clinical Teams

HTN Dashboard

age	Gender	Race/Ethnicity	Systolic BP	Diasttolic BP	BP Above Target	Smoking	DM Status	DM BP Above Target	Total Medical Encounters	Total Medical Encounters w/ viable BP	Avg Systolic	Avg Diastolic	Avg BP Above Target	Avg DM BP Above Target
						ever smoked								
87.0	Male	White	145	92	Y	unknown if ever smoked	N/A	N/A		1	145	92	92 Y	N/A
55.0	Female	Black or African American	155	96	Y	unknown if ever smoked	N/A	N/A	2	13	156	94	94 Y	N/A
72.0	Male	White	128	75	N	unknown if ever smoked	E11.9	N	1	5	134	81	81 N	Y
57.0	Male	White	129	85	N	unknown if ever smoked	N/A	N/A	1	4	113	76	76 N	N/A
54.0	Male	White	99	60	N	unknown if ever	N/A	N/A	19	76	133	75	75 N	N/A

Opioid Dashboard

127660	M	White		8/27/2019	Not Scheduled	8/27/2019	1	8/27/2019	8/27/2019	8/22/2019	8/22/2019 Stebinger PhD, Allan ADULTS ONLY Clinton Mental Health			MME > 90
131816	F	White		7/12/2019	Not Scheduled	7/12/2019	1	7/12/2019	7/12/2019	7/9/2012	7/9/2012 McElfresh MSW, Katya Clinton Mental Health		1	
132400	F	White		7/23/2019	9/13/2019	Never	0	6/4/2019	Never	Not Scheduled	Never			
133834	M	White		6/20/2019	Not Scheduled	3/15/2019	1	6/20/2019	3/15/2019	Not Scheduled	Never			
140848	F	White		5/14/2019	Not Scheduled	Never	0	3/26/2019	Never	1/29/2013	1/29/2013 Schmidt LCSW, Jeanne Clinton Mental Health		1	
142656	F	White		4/9/2019	Not Scheduled	4/9/2019	0	4/9/2019	4/9/2019	Not Scheduled	Never	1	1	

Behavioral Health Dashboard

Appointment	Total Therapy Visits	Intake	Last Therapist	Last Psychiatry Provider	Initial CarePlan	Last Review	Last PHQ	Vitals	Controlled Substance	Alerts	WRAP	Recalls
4/4/2019 8:30:00 AM	178	2/3/2011	Carter, Vicki		10/8/2018	10/8/2018	4/20/2018	Weight: 227 BP: 135/80	N/A		7/27/2017	Hover
4/4/2019 9:00:00 AM	22	N/A	Carter, Vicki	Hunt, Sarah	10/15/2018	10/15/2018	9/22/2016	Weight: 179 BP: 126/85	7/13/2018			Hover
4/4/2019 9:30:00 AM		N/A			N/A	N/A	1/11/2019	Weight: 176.4 BP: 141/87	N/A			Hover
4/4/2019 10:30:00 AM	50	N/A	Carter, Vicki		10/15/2018	3/7/2019	9/24/2018	Weight: 255 BP: 161/82	11/14/2017			Hover
4/4/2019 1:00:00 PM	51	8/23/2012	Carter, Vicki	Tirado-Montanez, Victor	12/5/2013	10/19/2018	3/21/2018	Weight: 121.4 BP: 134/84	N/A			Hover
4/4/2019 2:30:00 PM	17	3/25/2019	Carter, Vicki	Hunt, Sarah	10/4/2018	10/8/2018	5/1/2018	Weight: 171.2 BP: 118/69	N/A			Hover
4/4/2019 3:00:00 PM	13	2/16/2017	Carter, Vicki	Tirado-Montanez, Victor	10/11/2018	10/11/2018	9/25/2018	Weight: 226 BP: 111/73	N/A			Hover
4/5/2019 8:30:00 AM	3	2/5/2019	Carter, Vicki	Hunt, Sarah	3/8/2019	3/8/2019	4/23/2018	Weight: 207 BP: 121/76	2/13/2013			

WHO Candidates for New London Medical

Controlno	Appt Start	Appt Stop	Resource Name	Appt status	Room No	Reason
112963	2:00 PM	2:20 PM	Flood APRN, Tiffany	Arrived	a6	Opioid Patient, PCMH+,
146254	2:00 PM	2:20 PM	Monroe, Jr. MD, John-FP	Arrived	a2	BH Diagnosis
165150	2:40 PM	3:00 PM	Monroe, Jr. MD, John-FP	Arrived	a2	WCC
205430	3:00 PM	3:20 PM	Marden APRN, Nicole	Arrived		PCMH+
157381	3:00 PM	3:20 PM	Monroe, Jr. MD, John-FP	Arrived		Opioid Patient,

Dental Dashboard

CHC Dental Prevention Program

Meriden 9/9/2019

Appointment Total: 50 Back **Patient Search**

Next Appt	Facility	Resource	controlno	age	grade	Insurance	sex	Last Prophy	Last FMX	Last CHC Dental Visit	Caries Risk Assessment	Last Varnish
7:40:00 AM	Meriden Medical	Smith APRN, Tonya FP	311393	9.0	1	Medicaid Managed Care Fee for Service	M	1/10/2019	5/23/2018	5/7/2018		1/10/2019
8:40:00 AM	Meriden Medical	Kumar MD, Kishore PEDS	234811	13.0	8	Medicaid Managed Care Fee for Service	M	2/15/2019		1/5/2016		2/15/2019
8:40:00 AM	Meriden Medical	Ghabag MD, Faraj FP	292404	15.0	7	Medicaid Managed Care Fee for Service	F	5/3/2017		6/8/2017		4/5/2017
8:40:00 AM	Meriden Medical	Darko APRN, Amma PEDS	475967	2.0		Medicaid Managed Care Fee for Service	M	5/25/2018	12/11/2018	11/19/2018		11/19/2018
9:00:00 AM	Meriden Mental Health	Nagot LCSW, Sara	436608	20.0	11	Medicaid	F			1/31/2019		1/24/2019
9:20:00 AM	Meriden Medical	Darko APRN, Amma PEDS	226317	13.0	7	Medicaid Managed Care Fee for Service	F	11/29/2018		4/5/2018		11/29/2018
9:20:00 AM	Meriden Medical	Kumar MD, Kishore PEDS	231754	13.0		Medicaid Managed Care Fee for Service	F	6/7/2018	10/2/2017	6/7/2018		6/7/2018
9:20:00 AM	Meriden Medical	Keast RN, Jennifer	435802	4.0		Medicaid Managed Care Fee for Service	M	10/23/2018		2/28/2019		2/28/2019
9:20:00 AM	Meriden Medical	Darko APRN, Amma PEDS	449988	3.0		Medicaid Managed Care Fee for Service	F	3/15/2019		12/10/2018		12/10/2018
9:40:00 AM	Meriden Medical	Keast RN, Jennifer	203366	17.0	10	Medicaid Managed Care Fee for Service	F	8/23/2018		2/7/2019		2/7/2019

Dashboard driven Improvements

Clinical Metric	Pre-Dashboard	Post-Dashboard
BH Screening for 1-17 years olds (Templates also updated) 2016 → 2017	41.6%	63.8%
Developmental Screening in first 3 years of life 2017→ 2018	74.1%	86.3%
SOGI collection 2016	0%	73%

Questions?