



# **Monitoring Patient Cycle Time: Utilizing EMR Data To Assess Patient Flow and Provider Efficiency**

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# Background

- Affordable Care Act
  - 32 million people will be insured with preventative and primary care coverage
  - Nearly double their capacity for high quality primary care
  - Makeup of patient population entering the system?
- Circumstances demand increasing the importance of provider and clinic efficiency, while maintaining excellent patient satisfaction.
- Cycle Times
  - A significant indicator for clinic efficiency and capacity
  - Have been shown to be linked with patient satisfaction
  - Currently, EAFHC patient cycle times are not frequently monitored

# Methodology

## 1) Generate EMR Data

Publishing variables through a BridgeIT.

Date range from 12/1/12 to 07/1/13.

Total of 44,010 data points.

## 2) Filter Incompatible Data

Filter conflicting data points that had:

- Cycle times shorter than 8 mins.
- Missing patient arrival and departure times.
- Missing provider labels.

Total of 4,497 data point after incompatible filter.

## 3) Data Organization and Analysis

Data organized by:

- Provider
- Date
- Site

Provider data ranges identified and analyzed for:

- Cycle time averages
- Cycle time encounter grouping
- Duration after appointment start time

## 4) Filter Tardy Encounters and Repeat Analysis

Encounters with arrival times after appointment times are filtered out.

Then repeat analysis from previous step.

## 5) Plot and Represent Data

Graphs were generated from data previously analyzed.

# Cycle Time Encounter Grouping (All Providers and Sites)

n=4,497

Providers	Cycle Time Avgs (Mins)	0-30	30-60	60-90	90-120	120 and above
Andrews-Pirtle - Valencia	109.0152318	1	40	123	131	158
Banks-Giles - Holli	132.4844257	0	24	82	107	260
Bryant - Latarsha	113.838069	1	38	121	126	168
Bush - Brenda	64.48546402	33	152	102	44	22
James - Kesha	117.578093	2	54	79	104	184
Johnson - Amy	66.30515464	21	153	151	46	17
McGuinness - Joseph	95.81391586	4	51	107	72	75
Mead - Tanja	64.92930175	26	164	144	55	12
Scaife - Lashica	83.72929487	11	58	93	57	41
Speak - Ellen	116.025	2	37	98	127	206
Thorpe - Sharon	96.14240102	1	45	90	66	59
Ward-Jones - Susan	108.176918	1	23	80	55	93
<b>All Providers:</b>	<b>99.24168149</b>	<b>103</b>	<b>839</b>	<b>1270</b>	<b>990</b>	<b>1295</b>

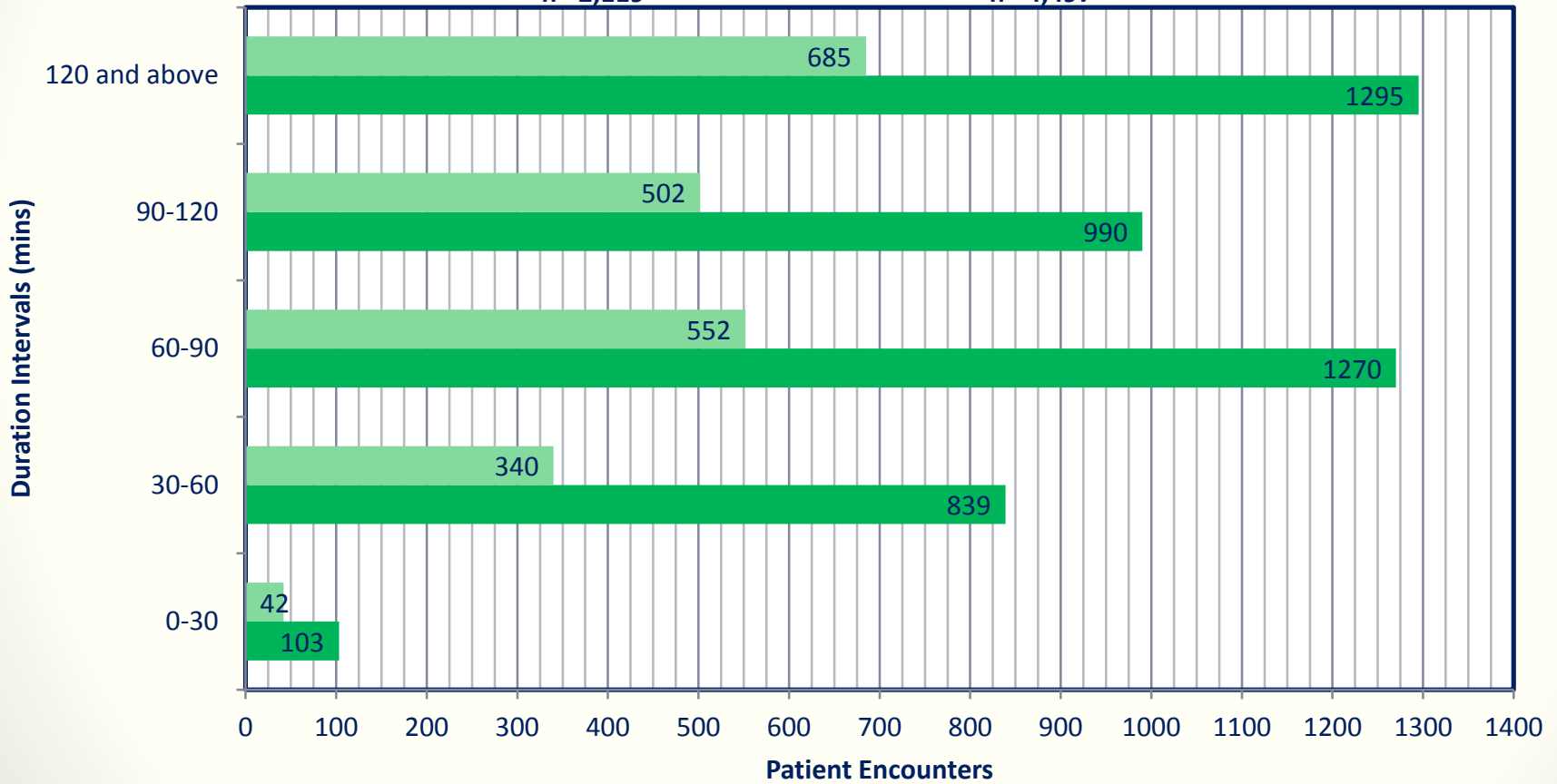
EAFHC Sites	Cycle Time Avgs (Mins)	0-30	30-60	60-90	90-120	120 and above
<b>EAFHC</b>	113.7680356	11	272	657	657	1045
<b>Healthy Partners</b>	99.79455353	12	98	216	188	199
<b>Trumann Family Health Center</b>	65.60589354	47	317	295	101	29
<b>Helena Family Health Center</b>	64.48546402	33	152	102	44	22

# Cycle Time (All Providers)

■ Cycle Time For (On Time Encounters)    ■ Cycle Time (All Encounters)

n= 2,119

n= 4,497

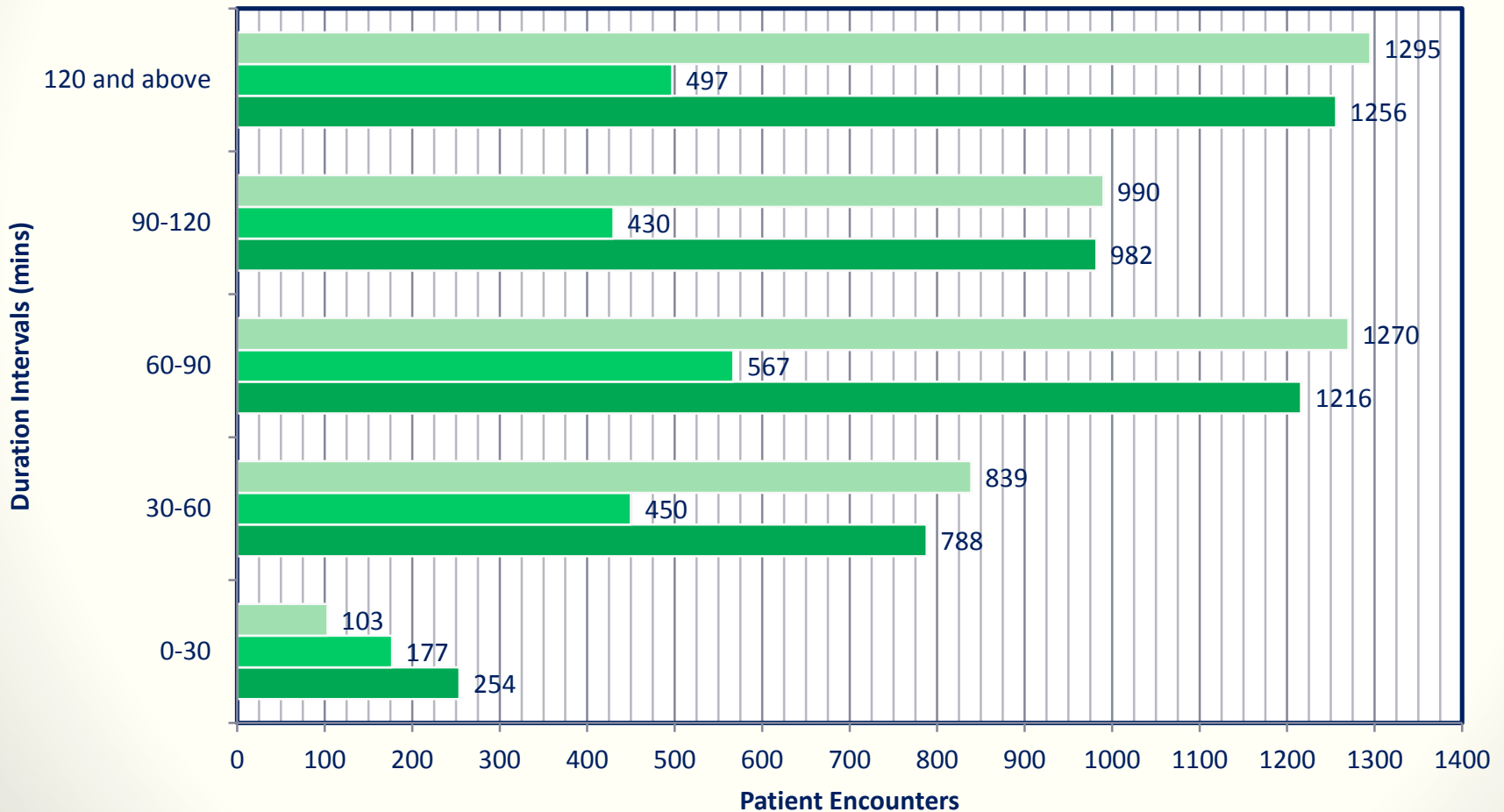


# Duration Time After Appointment Encounter Grouping

Providers	Avg Duration after appointment time (mins)	0-30	30-60	60-90	90-120	120 and above
Andrews-Pirtle - Valencia	107.078928	3	48	124	111	167
Banks-Giles - Holli	124.3150106	11	39	78	104	241
Bryant - Latarsha	112.2946769	10	44	109	114	177
Bush - Brenda	63.37855114	58	118	105	48	23
James - Keshia	113.6755924	16	49	84	85	189
Johnson - Amy	65.1285347	44	128	144	54	18
McGuinness - Joseph	93.80241935	13	49	101	79	67
Mead - Tanja	64.24177057	46	132	153	61	9
Scaife - Lashica	81.38083333	17	63	75	69	36
Speak - Ellen	114.4029433	10	38	100	119	203
Thorpe - Sharon	90.05076628	14	50	80	65	52
Ward-Jones - Susan	101.125	12	30	63	73	74
<b>All Providers:</b>	<b>96.2259527</b>	<b>254</b>	<b>788</b>	<b>1216</b>	<b>982</b>	<b>1256</b>

# Duration After Appointment Time (All Providers)

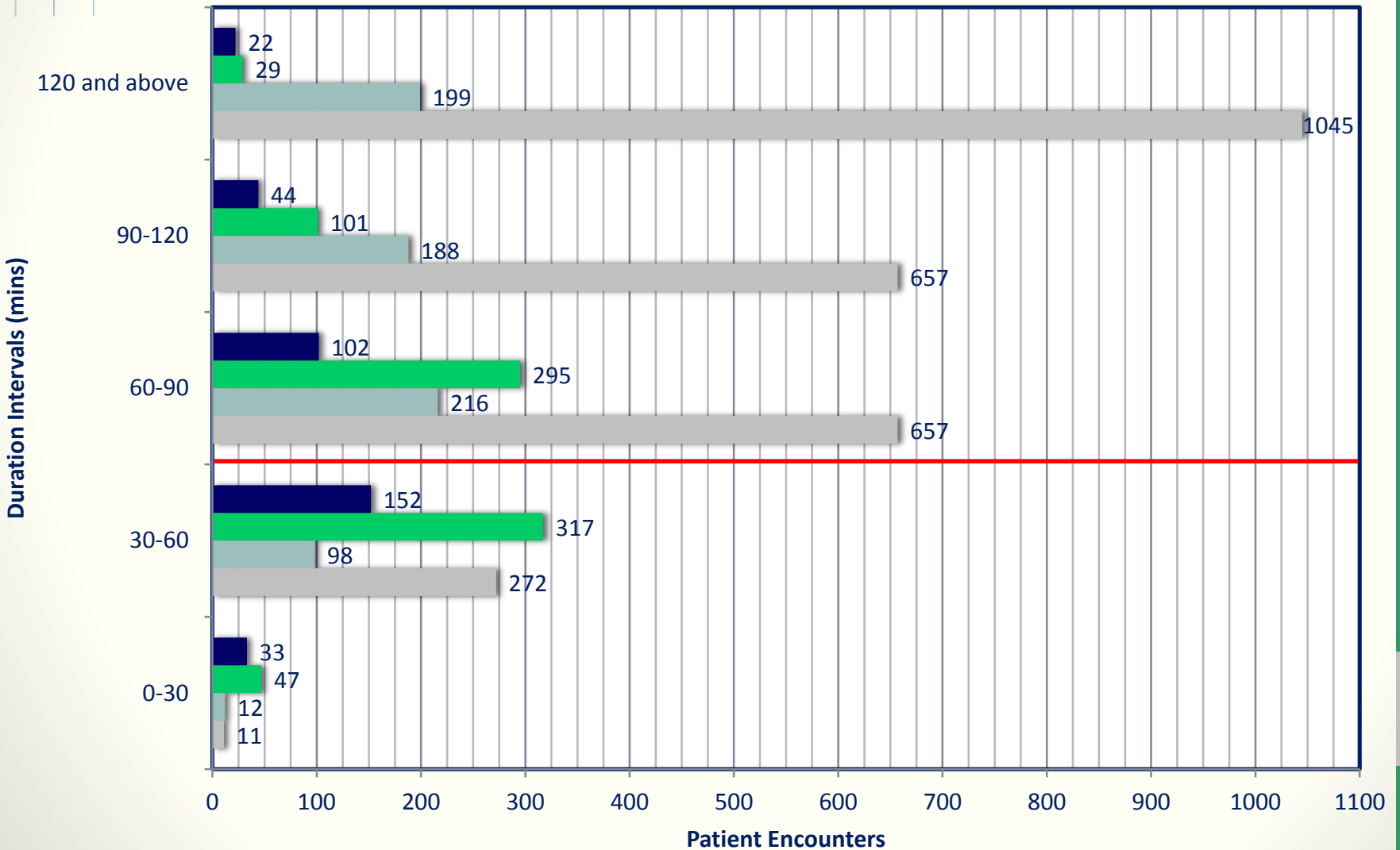
- Cycle Time (All Encounters)
- Duration After Appointment Time (On time encounters)
- Duration After Appointment Time (All Encounters)



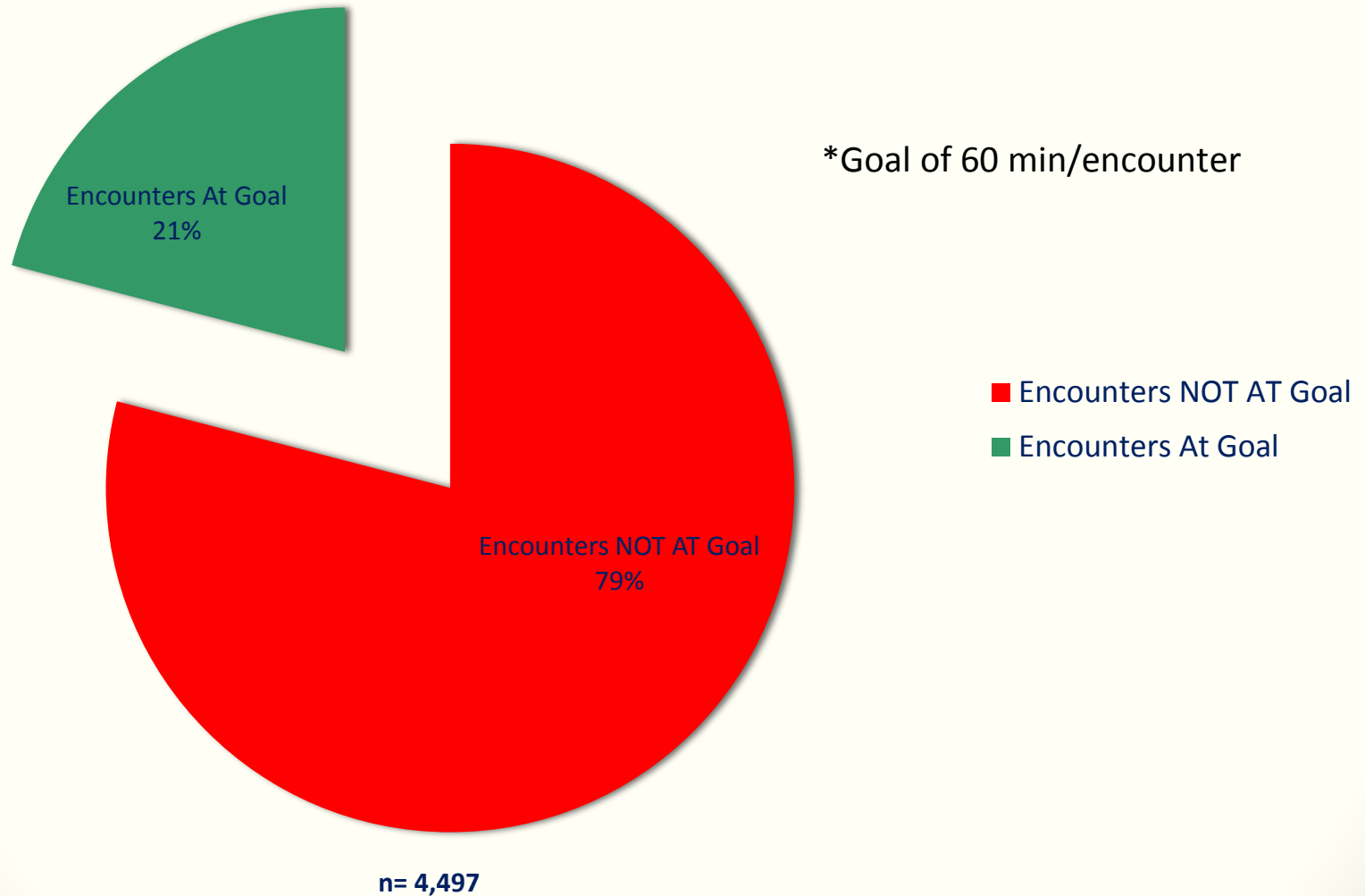


# Cycle Time (All Sites)

■ Helena ■ Trumann ■ Healthy Partners ■ EAFHC



## Encounters Meeting Set Goal





# Conclusion

- The data generated by the EMR via BridgeIT can serve as a great tool to evaluate clinical operations.
- Compared to goals published by other CHCs, EAFHC has room for improvement.
- Patient Encounters that are not “On time” did not have a significant impact on the cycle time spread of encounters.
- Some significant differences in the cycle times at the various sites.
- The cycle times varied across providers at the same site.

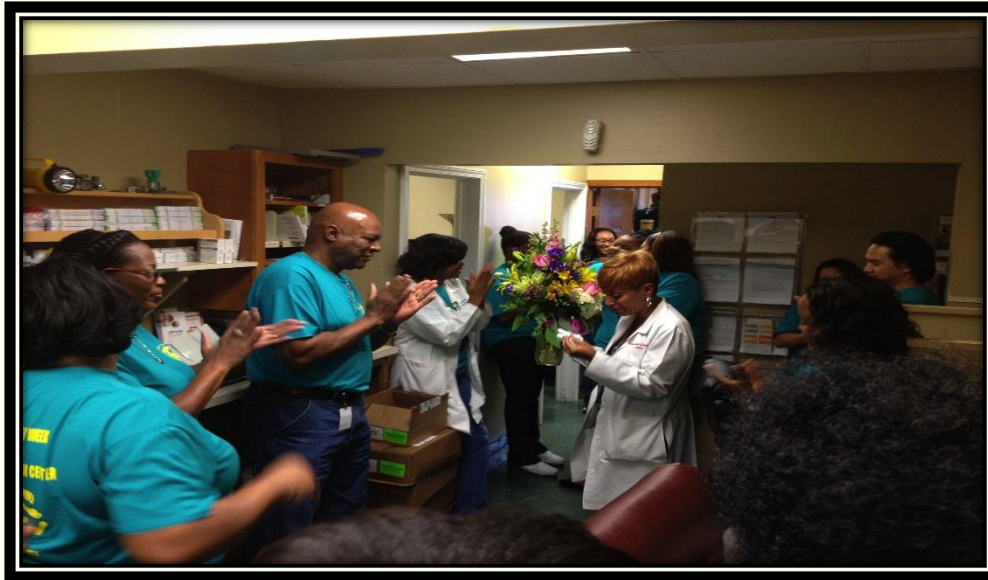


# Recommendations

- Enforce admin staff to carefully mark the check-in and check-out times so there is higher confidence in the values.
- Assign provider and nurse teams
  - Keep record of nurse and provider pairing.
- Monthly Performance Dashboards or Efficiency Evaluations
  - Using BridgeIT examine with performance of each provider and nurse.
  - Reviewing the performance with the provider team and brainstorm avenues for improvement.
  - Setting clinic goals/aims and provider-specific goals.
    - Time specific
    - Measurable
  - Flow mapping with overlaying cycle time
    - Examine how the process can be expedited without sacrificing quality.
- Interruption Lists
  - Noting incidents that cause them to have to step out of the exam room.
  - Assists in identifying patient flow problems.

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