UNC HEALTH CARE SYSTEM

HIMSS Davies Award
NICHOLAS E. DAVIES

HIMSS Davies Enterprise Award

Case Study – Improving Depression Care

UNC Health Care

Leveraging IT to Improve Patient Outcomes

September 11, 2018

UNC HEALTH CARE

UNC HEALTH CARE SYSTEM

Our Journey – Improving Depression Care

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UNC HEALTH CARE SYSTEM

UNC Health Care System Overview

Providing high quality care to patients in North Carolina

Who we are, Who we serve (1 of 3)

UNC Health Care System Overview

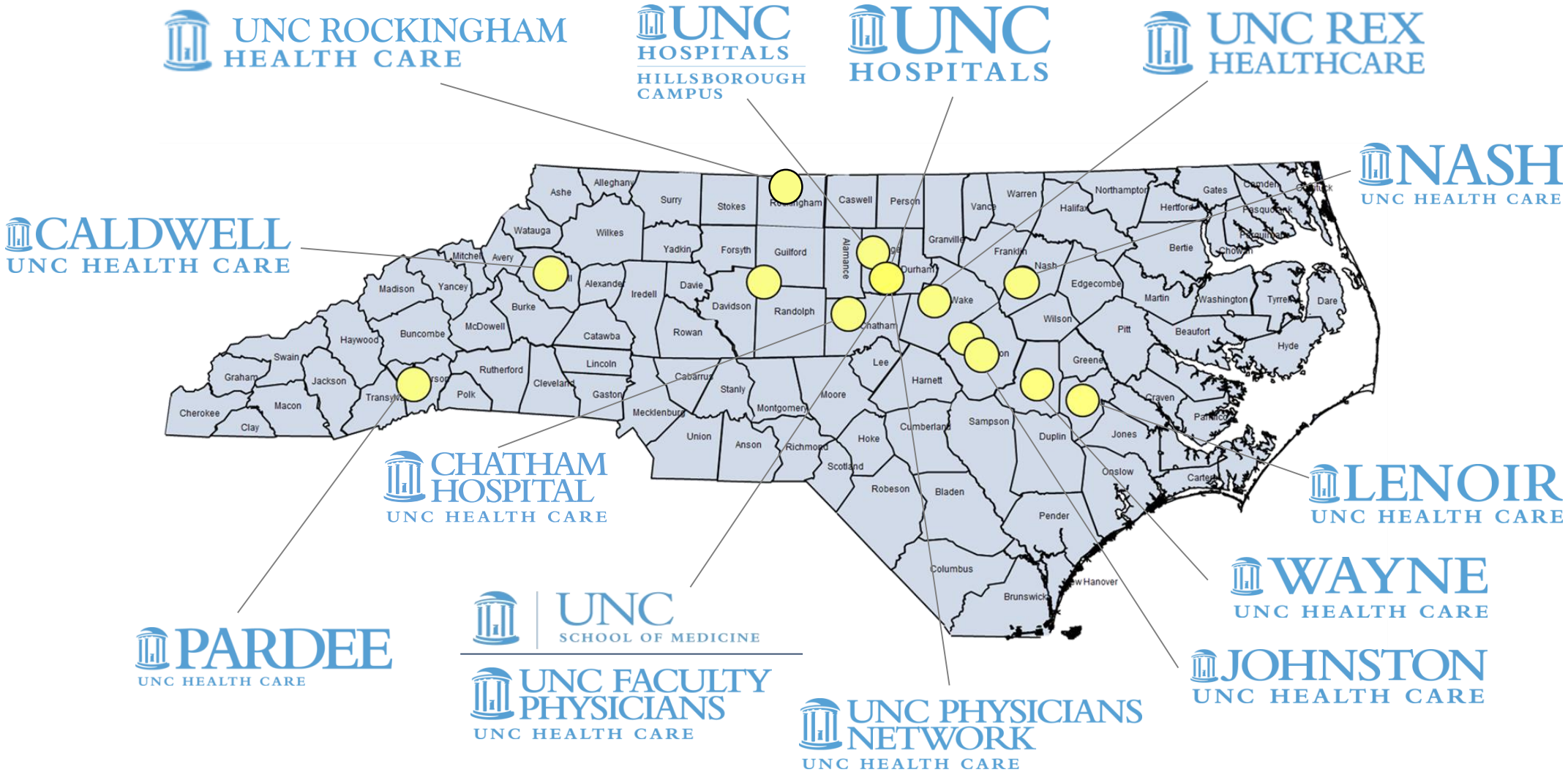
Integrated, not-for-profit health care system, owned by the State of North Carolina and based in Chapel Hill. We provide comprehensive patient care, facilitate physician education and research excellence, and promote the health and well-being of all North Carolinians

Key Stats	2011	2017
Net patient revenues	$2.0B	$4.9B
Licensed beds	1,530	>3,400
Employees	14,000	>31,500
Medical staff	3,186	>5,400
Employed MDs	2,110	>3,200
Surgeries	60,000	>120,000
ED visits	151,000	>510,000
Clinic visits	1.1M	>3.5M

We are committed to providing them high quality care across our state

Who we are, Who we serve (2 of 3)

Delivering High Quality Care Across the State



As a system, a success for one is a success for all

Who we are, Who we serve (3 of 3)

Nobel Prizes for Science

2016 HOSPITAL RANKINGS:
- 8 nationally recognized adult specialties
- 2 high performing adult specialties
- 7 nationally recognized children's specialties

"BEST HOSPITALS IN THE REGION":
- UNC Hospitals
- UNC Rex
- High Point Regional

2016 SCHOOL RANKINGS
- #2 for Primary Care
- #2 School of Public Health

UNC HEALTH CARE SYSTEM

Local Problem

Depression is a significant problem across our nation and our state

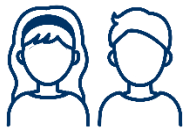
Local Problem (1 of 6)

Background and Importance

Major depression is one of the most common mental disorders in the United States. For some, major depression can severely limit one's ability to carry out major life activities [1].

Have had at least one major depressive episode (US)

6.2 million adults, or 6.7% of all adults

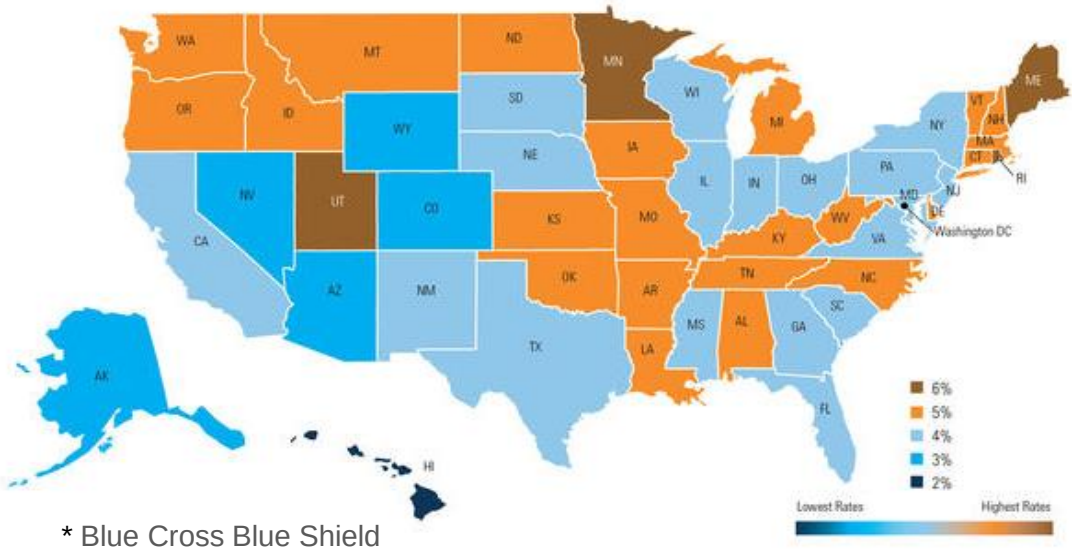


3.1 million adolescents aged 12 to 17, or 12.8% of all adolescents

NC is among states with the highest rates of depression

5% of North Carolinians have a diagnosis of major depression, or over 500 thousand people (Ref 2)

Major Depression Rates By State [2]



* Blue Cross Blue Shield

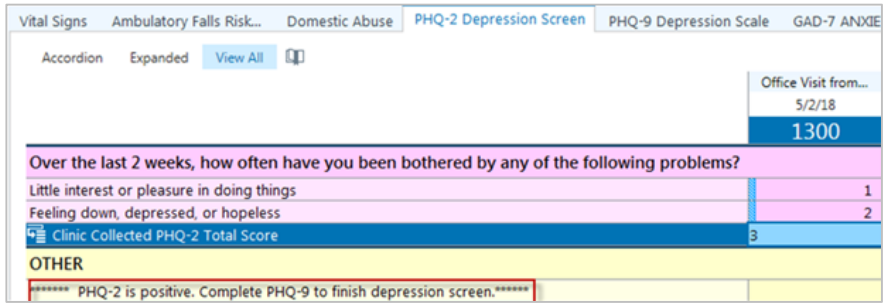
Sources : [1] NIMH - https://www.nimh.nih.gov/health/statistics/major-depression.shtml (2016) [2] BCBS NC – 2016

PHQ-2 and PHQ-9 are the most commonly used tools for depression screening

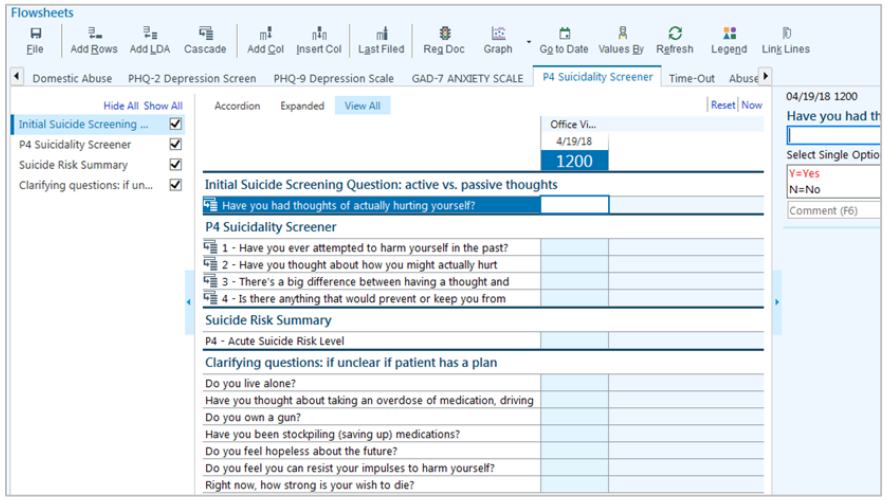
Local Problem (2 of 6)

Patient Health Questionnaires

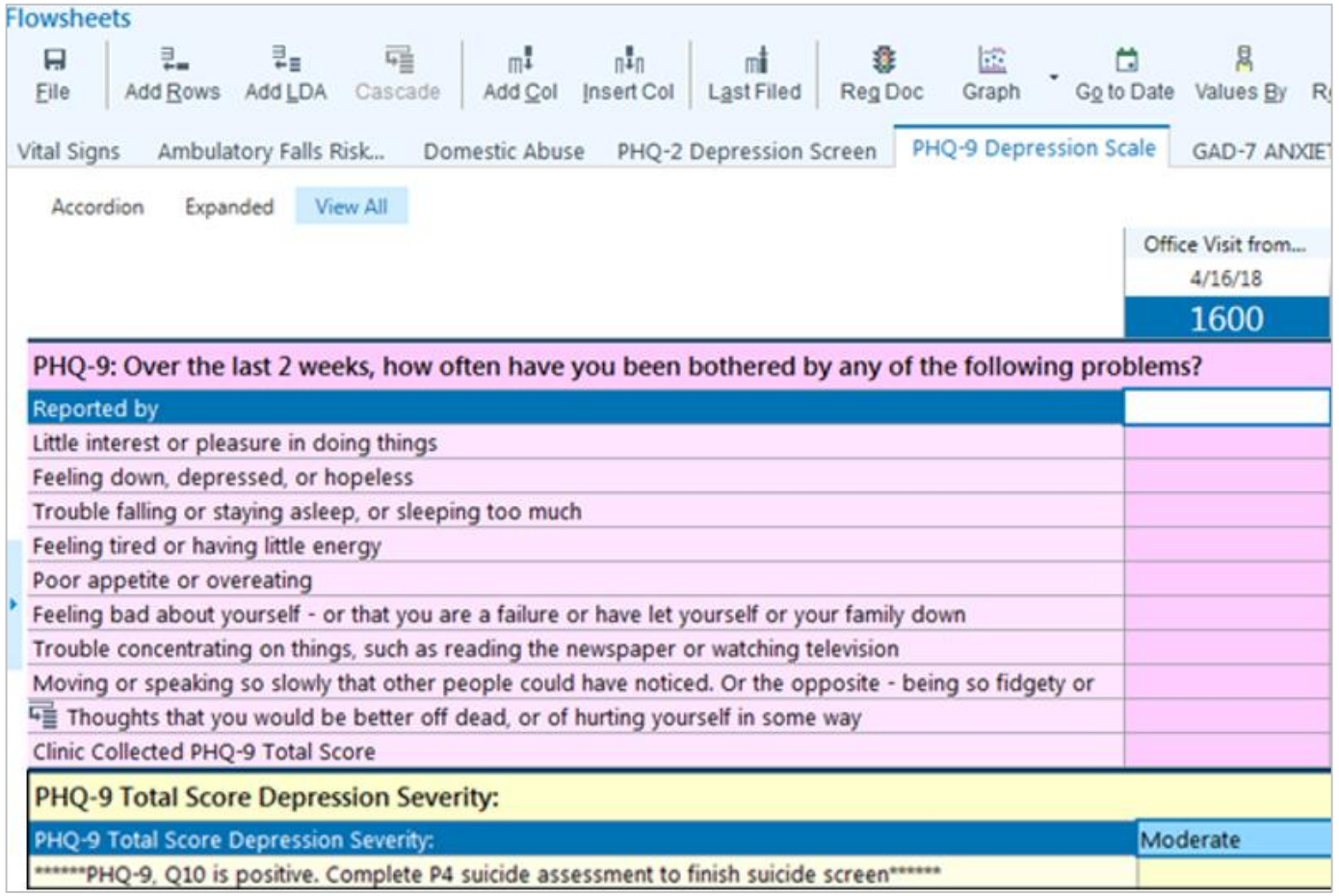
PHQ-2: Frequency of Depressed Mood



P4: Suicide Risk



PHQ-9: Determines Whether or Not Patient Meets Criteria for Depressive Disorder



Providing quality depression care is a multi-step process

Local Problem (3 of 6)

Measuring and Improving Depression Care

Depression Screening* 1 → **Depression Treatment** 2 → **Depression Improvement** 3 → **Depression Remission*** 4

% of patients administered a PHQ-2, PHQ-9 or Edinburgh assessment in the past year.

Assessments are used to screen for new cases of depression and to monitor patients with current depressive symptoms

**and suicide risk if identified*

% of patients in the depression registry with moderate to severe depression (last PHQ-9 score >=10) who are currently being treated for depression.

Treatment : On antidepressant/ mood disorder medication or seen by a behavioral health provider or psychiatrist in the last 6 months

% of patients in the depression registry with index PHQ-9 score >=10 in past 18 months with a significant reduction in depression symptoms.

Clinically significant improvement: a reduction of 50% from index PHQ-9 score.

Response: reduction of 5 points from index PHQ-9 score.

% of patients in the depression registry, who have achieved remission (PHQ-9 score <5) within 1 – 15 mos after index score.*

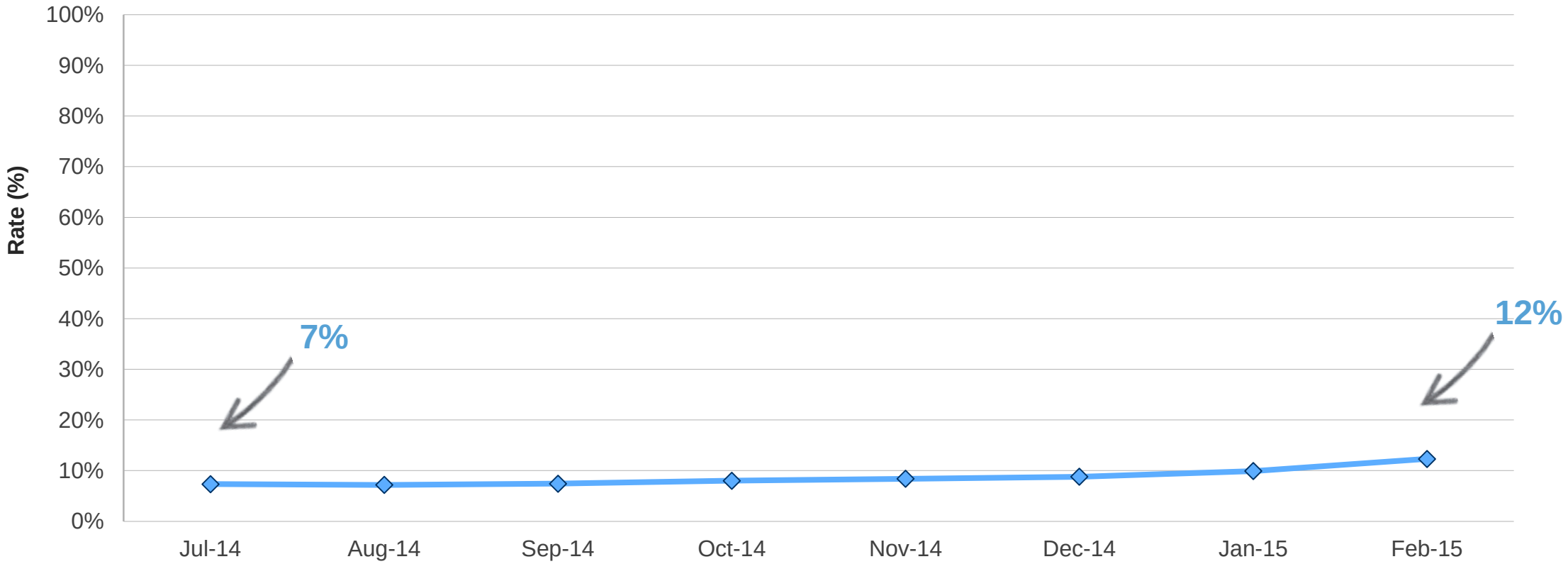
*modified from CMS definition

In 2014, our depression screening rate was 7%

Local Problem (4 of 6)

***July 2014*, our depression screening rate across primary care clinics was 7%. Loss of historical data during Epic implementation and screening results recorded as unstructured data contributed to low rates. Screening is essential because depression is often underdiagnosed. (Ref 3)**

Depression Screening Rate

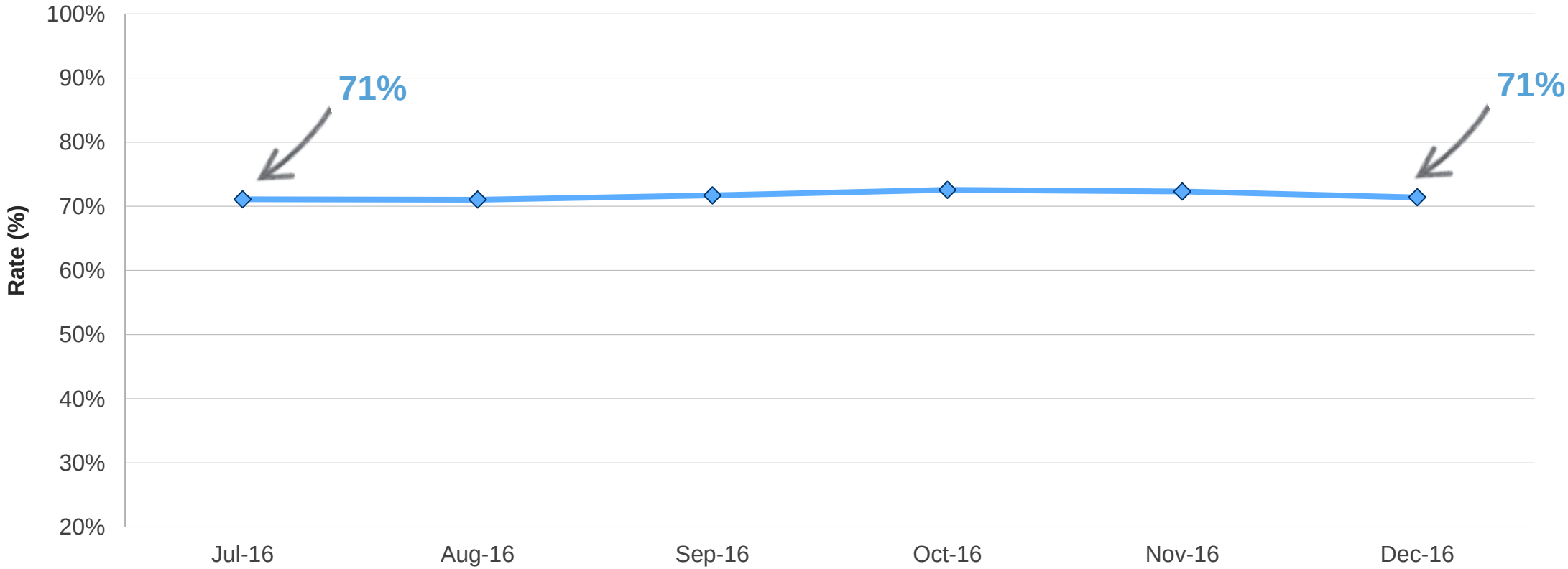


In 2016, our depression treatment rate was 71%

Local Problem (5 of 6)

In 2016, we began looking at how we were doing treating patients with known depression.
In July 2016, our depression treatment rate was 71%.

Depression Treatment Rate

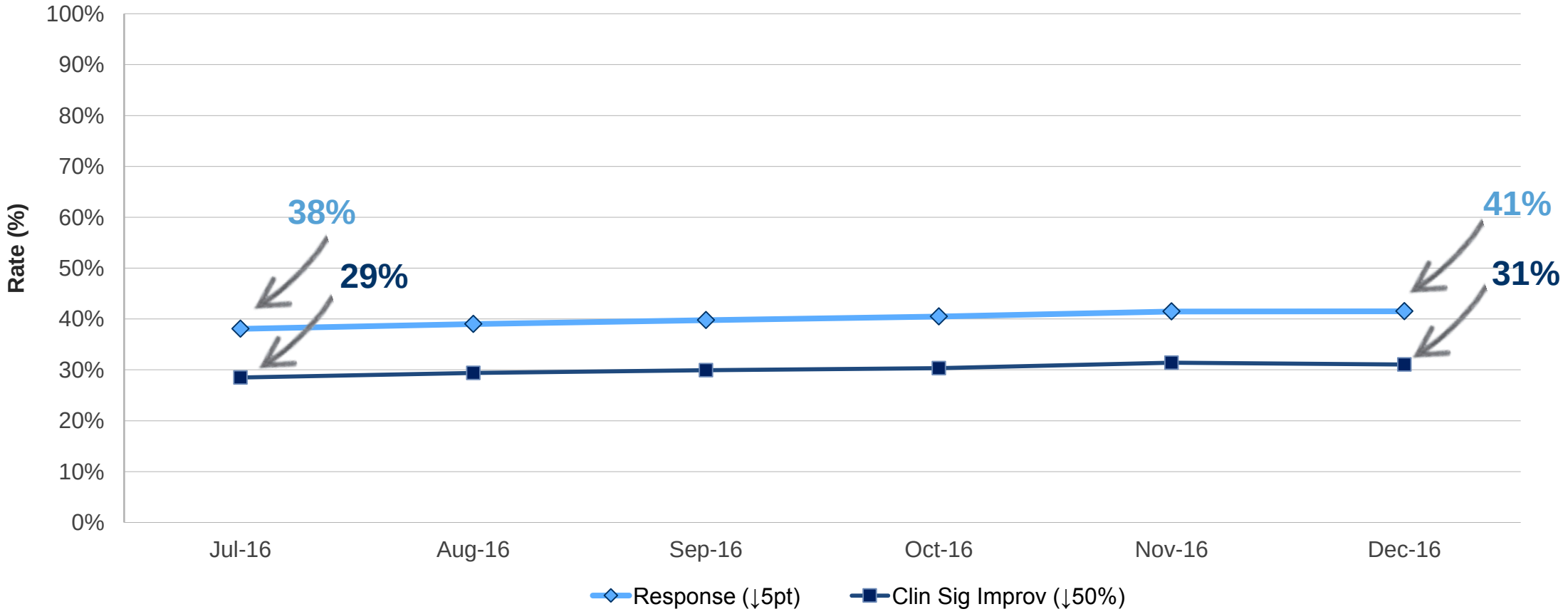


In 2016, our response rate was 38% and our rate of symptom improvement was 29%

Local Problem (6 of 6)

In July 2016, our response rate was 38% and clinically significant improvement was 29% across primary care clinics. Decreasing symptom severity for patients with depression is an important outcome measure.

Depression Symptom Improvement



UNC HEALTH CARE SYSTEM

Design and Implementation

Efforts to improve depression care was driven by our primary care collaborative

Design and Implementation (1 of 16)

Primary Care Improvement Collaborative (PCIC) - All primary care practices participate in this collaborative to set priorities, develop best practices, measure results, and share improvements.

Improvement resources and coaching to support practices

Share best practice, learning and ideas. Spread what works.

PRACTICE QUALITY & INNOVATION

PRIMARY CARE IMPROVEMENT COLLABORATIVE

Sets priorities and direction for primary care practices

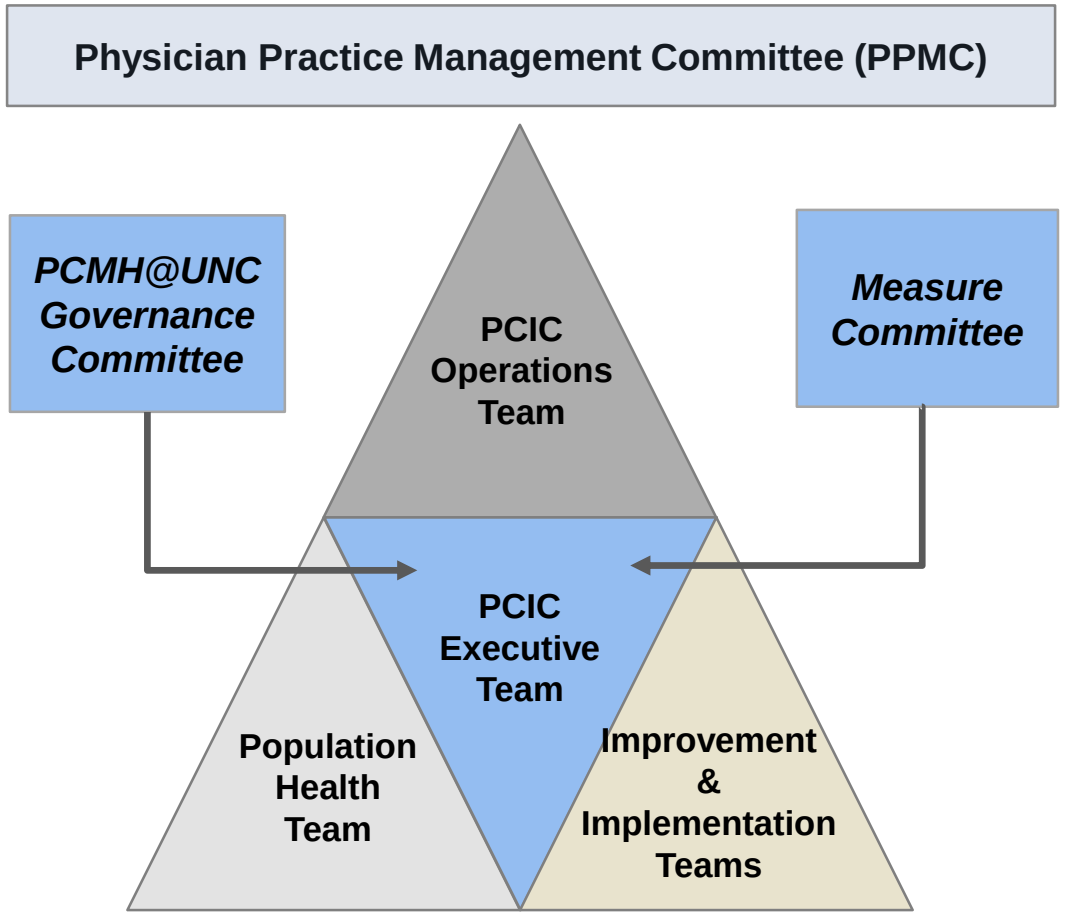
Measures that matter, goals that push us, and data that proves our point

PCIC's governance structure and framework provided us with direction and support

Design and Implementation (2 of 16)

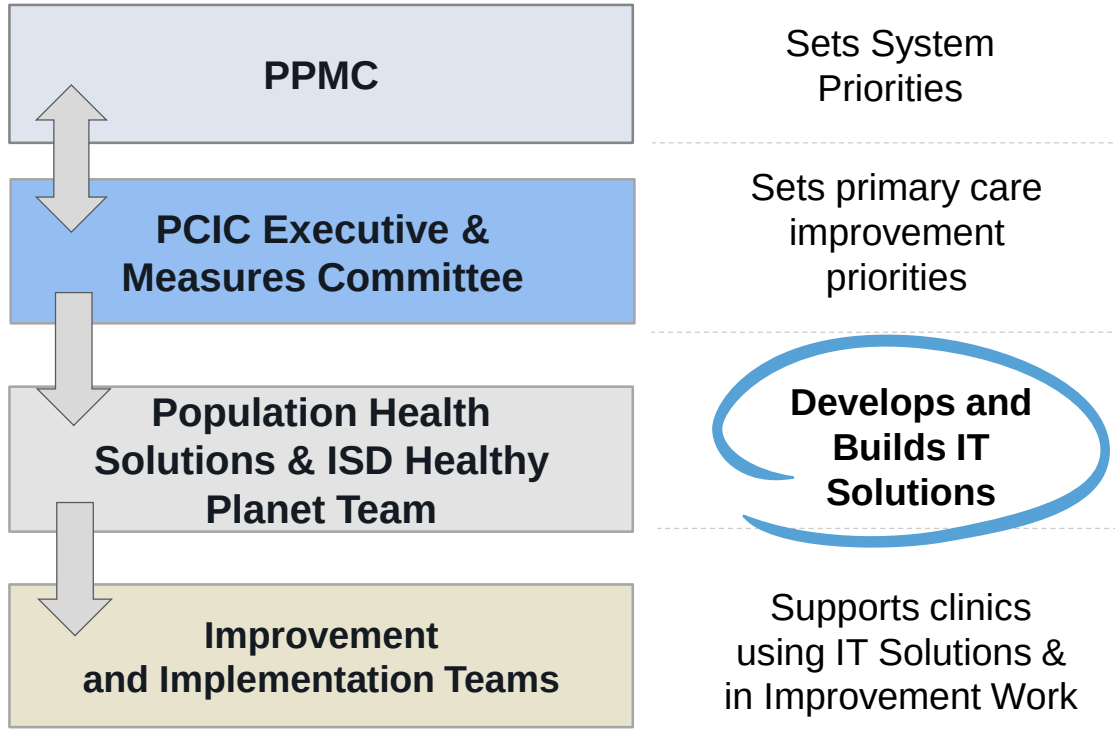
The PCIC executive committee approved our depression care QI work and its accompanying IT solutions and measures. PCIC's framework was used to support the development and implementation of these solutions to drive improvements.

Governance



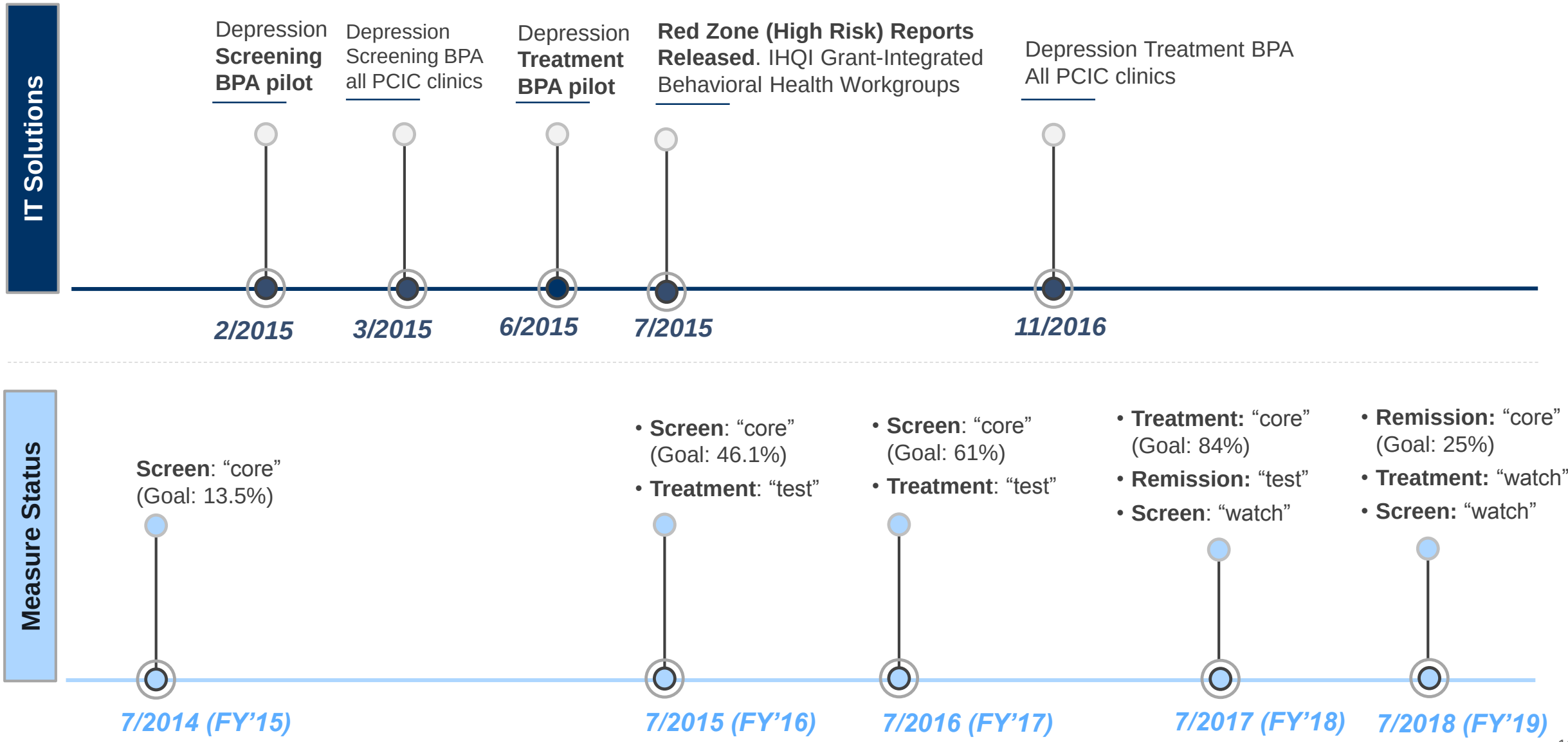
Framework/Approach

Primary care physician and specialist subject matter experts were involved at every level – providing ongoing clinical input and guidance.



Timeline – *Epic*@UNC depression solutions & measurement goals

Design and Implementation (3 of 16)



Before building any IT solutions, we outlined the desired action for each scenario

Design and Implementation (4 of 16)

UNC HEALTH CARE SYSTEM

Scenario/Population	Action/Workflow
Depression Screening: Patients not in depression registry	• Administer PHQ-2 annually • If PHQ-2>=3, administer full PHQ-9

Depression Monitoring: Patients in depression registry	• Administer PHQ-9
	• Frequency determined by severity of last score
	  ○ Last score <10, prompt every 1 year
	  ○ Last score 10-14, prompt every 12 weeks
	  ○ Last score >14, prompt every 4 weeks

Patients with incomplete screens (PHQ-2>=3 but no PHQ-9)	• Administer full PHQ-9
Patients answering positive to question #9 of PHQ-9: (“thoughts that you would be better off dead”)	Assess passive vs. active suicidal thoughts. Add “thoughts of self-harm to PHQ flowsheet. → If thoughts (active ideation), administer full suicide risk assessment (P4 screen).

We leveraged our standard process to identify, build, and deploy the right IT solutions

Design and Implementation (5 of 16)

UNC HEALTH CARE SYSTEM

Co-Creating Value-Added Solutions

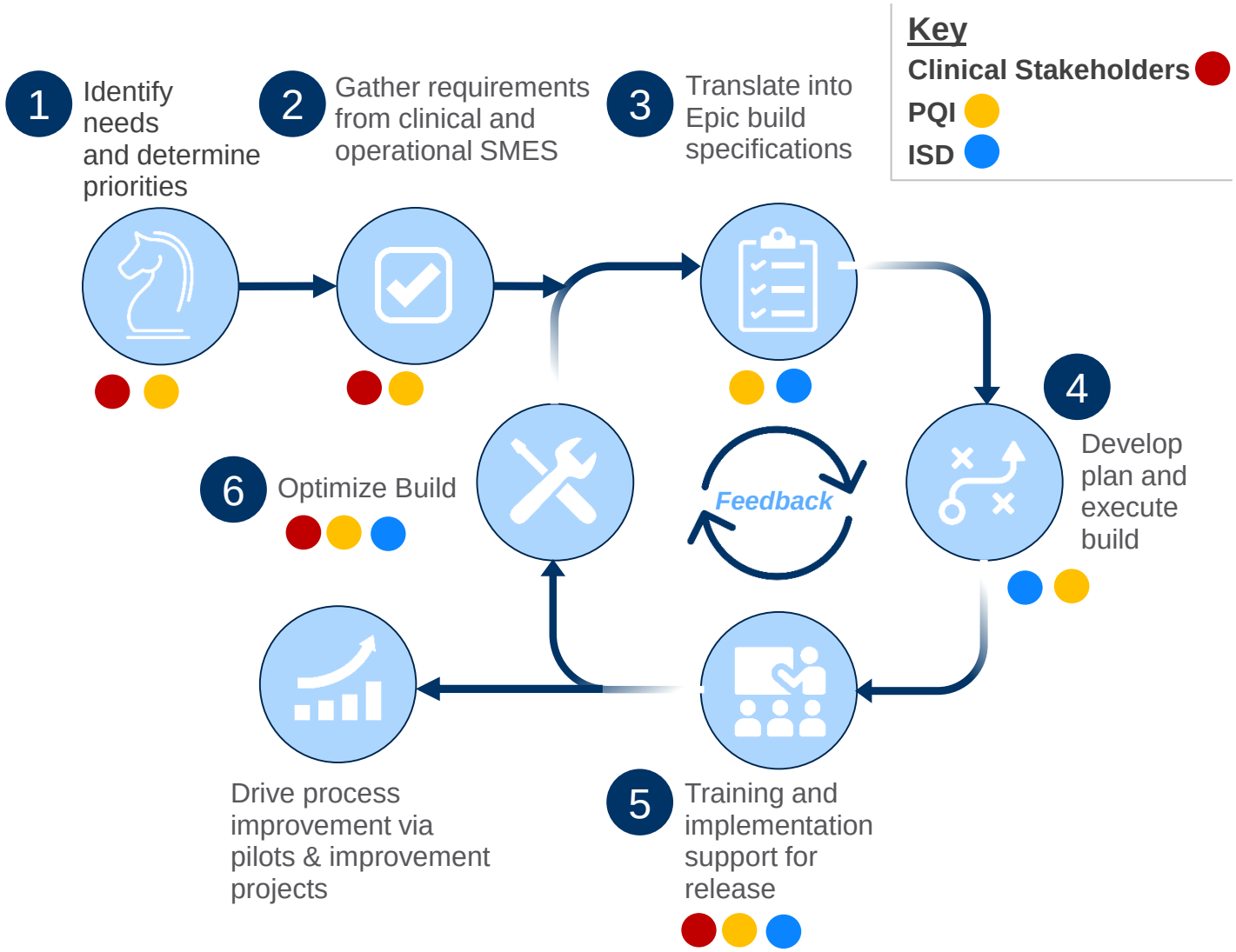
Operational, clinical and IT teams work together to develop value-added depression care tools and resources to improve care delivery

Clinical Stakeholders
- Primary Care Improvement Collaborative (PCIC) members

Practice Quality Innovation (PQI)
- Gathers requirements for analysts
- Works with analysts to deploy new content

Information Services Division (ISD)
- Application analysts
- Develop, plan, and execute Epic build

Process to Identify, Develop, and Deploy IT Solutions



First, we built Best Practice Advisories (BPAs) to promote screening & monitoring

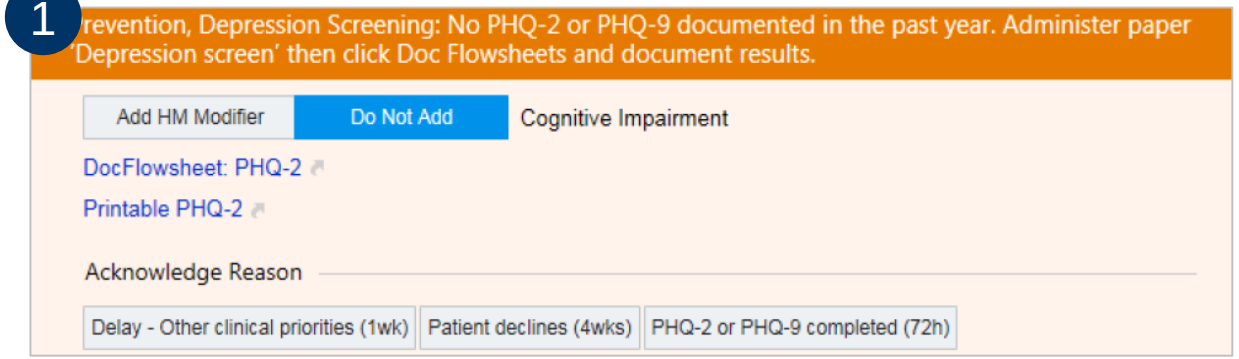
Design and Implementation (6 of 16)

Identifying Patients Due for Depression Screening and Monitoring

1. Alerts users if a depression screening (PHQ-2) has not been performed within a year

2. Alerts users if a depression screening (PHQ-9) has not been performed on a patient in the depression registry within the appropriate timeframe based on the last PHQ-9 score

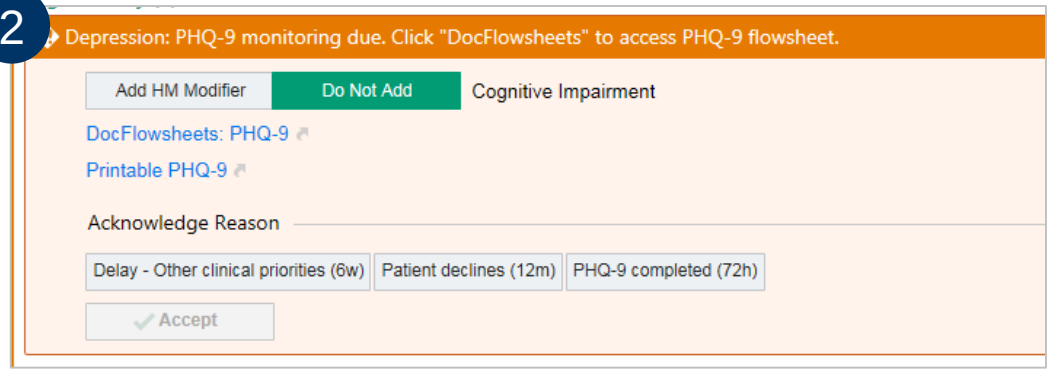
1



Intervention 1 - Depression Screening BPA

Prompting Staff & Providers to administer PHQ-2

2



Intervention 2 – Depression Monitoring BPA

Prompting Staff & Providers to administer PHQ-9

Then, we created a BPA for incomplete screens

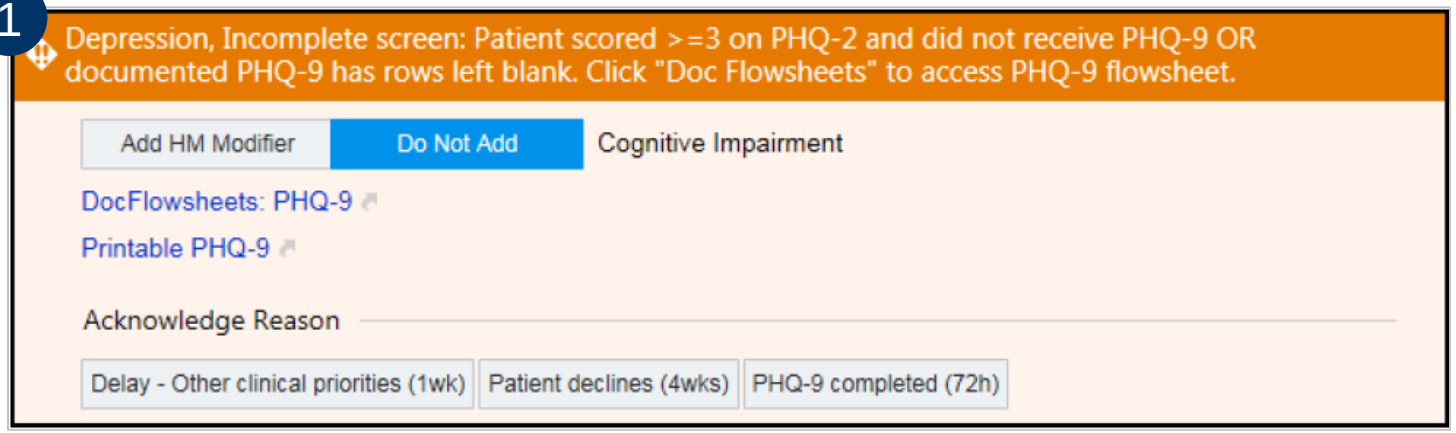
Design and Implementation (7 of 16)

UNC HEALTH CARE SYSTEM

Ensuring that depression screening process is complete

1. Alerts users that the patient screened >=3 on the PHQ-2 but no PHQ-9 was documented. This is considered an incomplete screen.

1



Intervention 3 – Incomplete Screen BPA

Prompting Staff & Providers that the PHQ-2 was ‘positive’ and a full PHQ-9 is needed

Next, a BPA was built to support the completion of the suicide risk assessment

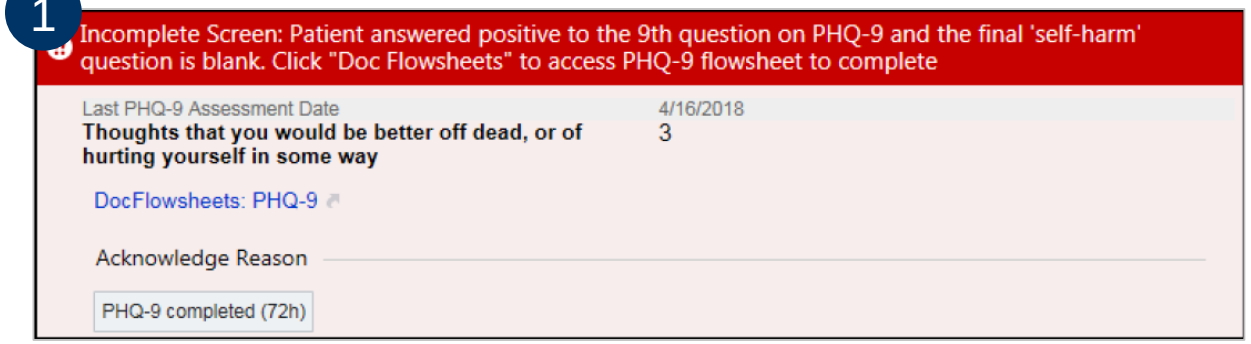
Design and Implementation (8 of 16)

Identifying and Completing the Suicide Risk Assessment

1. A *critical pop-up* alerts all users that patient answered positive to 9th question of PHQ-9 but did not answer additional 'thoughts of self-harm' question to assess passive vs. active suicidal thoughts.

2. A *critical pop-up* alerts all users to perform additional suicide risk assessment for patients indicating active 'thoughts of self-harm'.

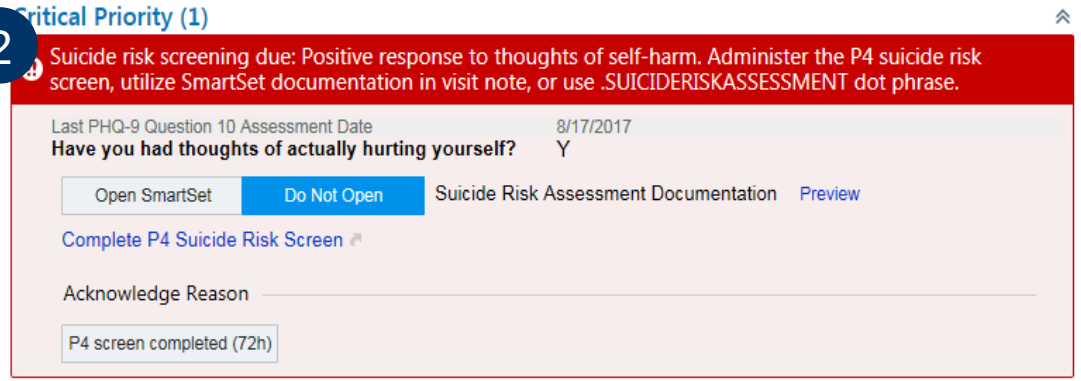
1



Intervention 4 – Passive vs. Active Suicidal Thoughts

Incomplete Screen

2



Intervention 5 – Suicide Risk Assessment BPA

Suicide Risk Screening Assessment Due

Identified Gaps - Why are patients with active depression not in treatment?

Design and Implementation (9 of 16)

UNC HEALTH CARE SYSTEM

Now that we can identify patients with depression, we need to ensure the right patients are getting the right care

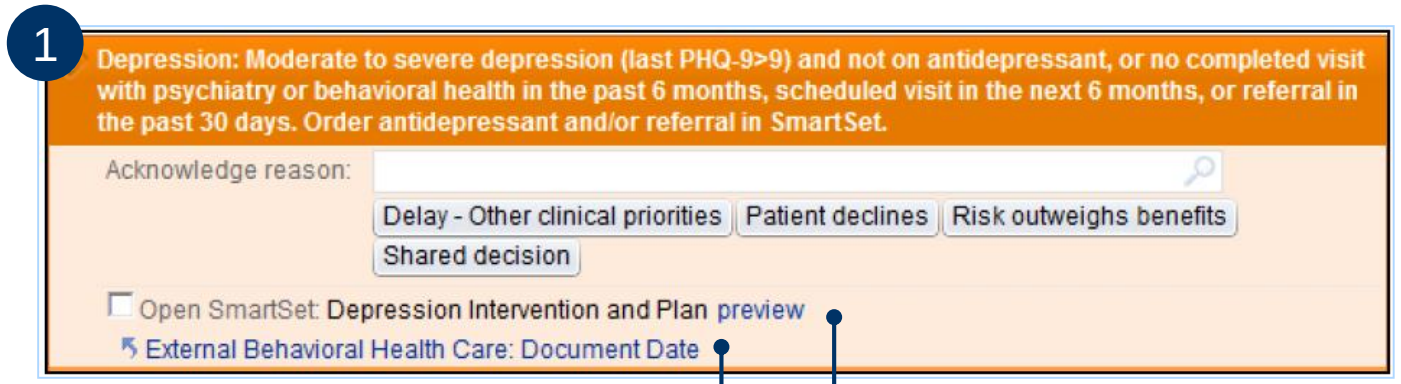
Gaps	Details	Possible Solutions
Provider lack of awareness of depression severity	**Depression is often overlooked due to more pressing medical needs. Nurse may administer PHQ-9 and not communicate with provider.**	• **Alert provider to patients with moderate to severe depression who are not in treatment.** • **Encourage nurse-provider communication about PHQ-9 scores**
Lack of awareness of outside behavioral health or psychiatry visit	**Many patients get behavioral health counseling with providers outside our system. We can't 'capture' that information.**	• **Create field to document outside behavioral health or psychiatry visits** • **Work to capture outside behavioral health visits**
Underuse of internal behavioral health resources	Some providers underusing LCSWs in managing patients with depression	• Increase awareness and comfort utilizing LCSWs (Project UPLIPHT, workgroups)
Patient resistance	Some patients are resistant to antidepressant medications or counseling.	• Reinforce patient education about treatment options and shared decision-making.
Lack of coordinated care	Some patients may have their depression managed by a psychiatrist.	• Encourage communication between PCP and psychiatrist; and other good co-management practices.

We then developed a BPA to identify patients not being treated for depression

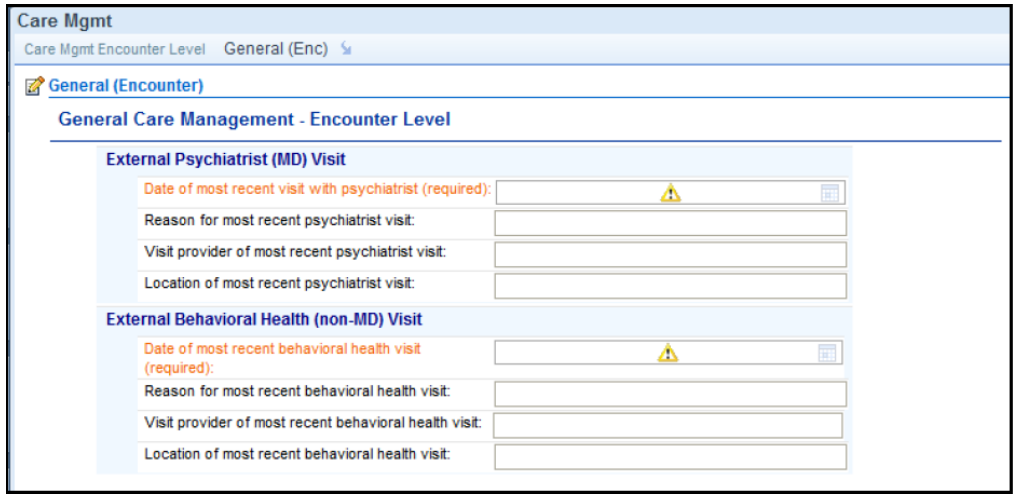
Design and Implementation (10 of 16)

Identifying Patients with Moderate to Severe Depression Not in Treatment

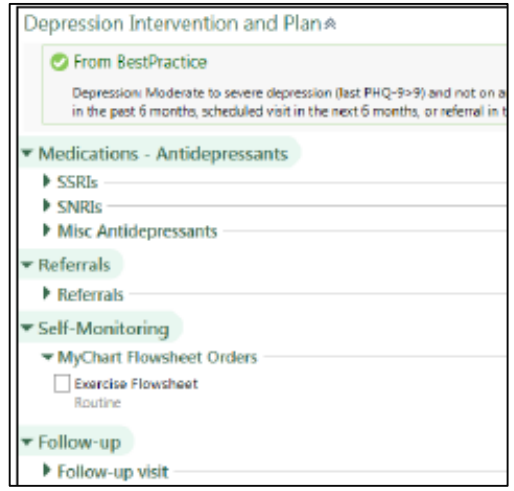
1. A BPA was developed to alert providers to patients with moderate to severe depression (PHQ-9 >=10) that are not currently in treatment (antidepressants, behavioral health counseling, or psychiatry)



Collecting External Treatment Data



Depression Intervention and Plan



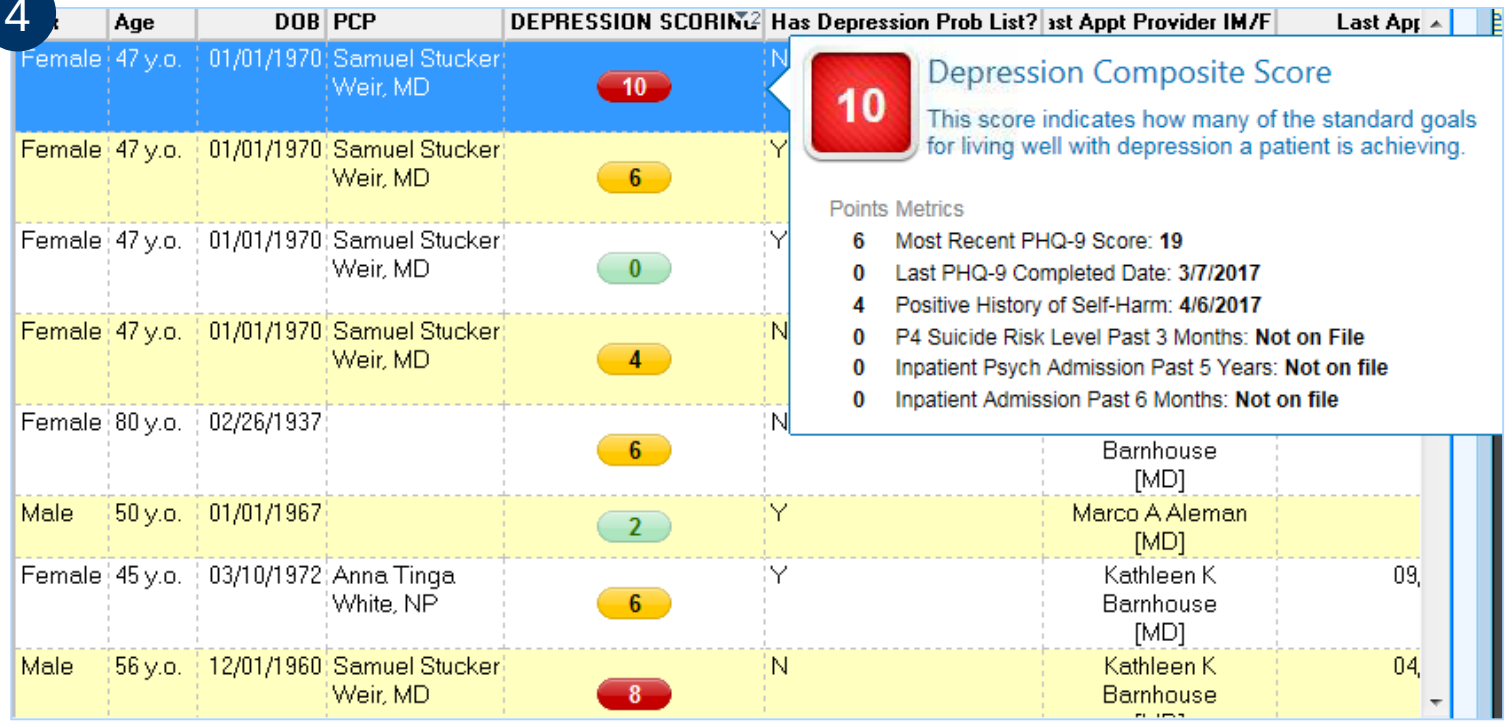
Reports were developed to support ongoing monitoring and action

Design and Implementation (11 of 16)

Monitoring Trends and Taking Action at the Population Level

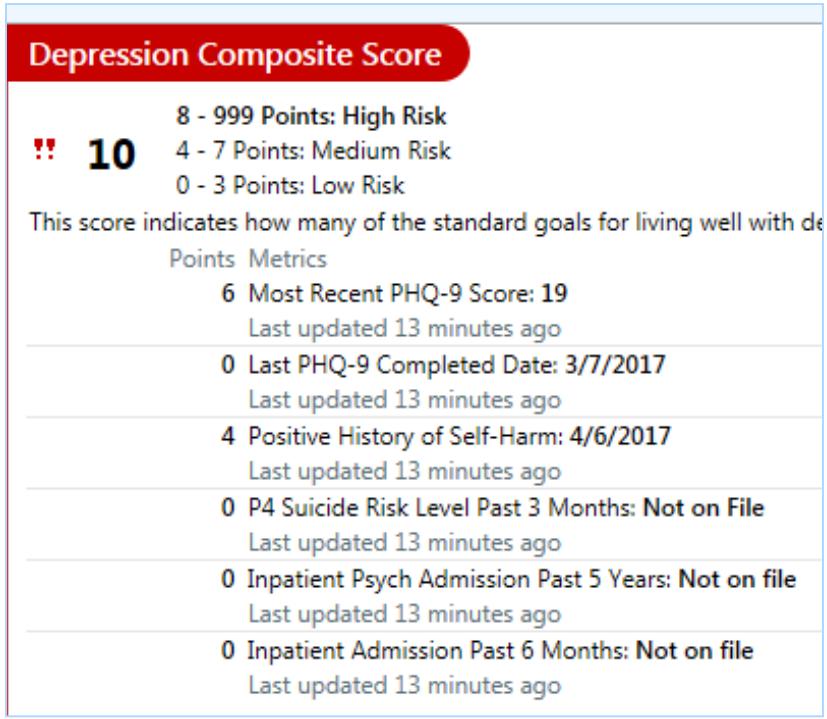
Once in the registry, providers and clinics can run registry reports to monitor and take action on high risk patients. Additional reports allow users to find patients who are failing depression measures.

4



Reporting Workbench Depression Screening Report

Composite Scores Help Identify Patients That Would Benefit from Additional Follow-up



Depression Composite Score

A Score Based on Multiple Depression Components

Workgroups Supported Integrated Behavioral Health Model

Design and Implementation (12 of 16)

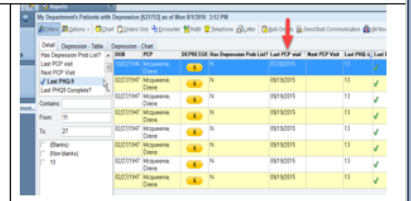
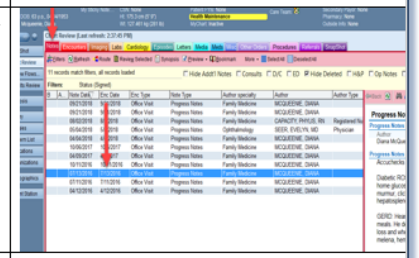
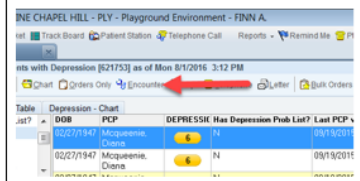
Workgroups brought together LCSWs to develop and spread population-based interventions utilizing reports

- **Workgroups brought together LCSWs from primary clinics to learn how to run and use depression reports.**
- **Standard Work was developed to help LCSWs target patients for intervention and outreach such as:**
  - Lost to follow-up: Patients with high PHQ-9 scores and no scheduled follow-up visits.
  - Follow-up Provider Visit: Review provider visit notes and follow-up with treatment changes

Standard Work for Depression Outreach and Patients lost to Follow-up

Trigger: Outreach for depressed patients
Purpose: Ensure needs/access of all depressed patients met
Performed by: Nurse, Care Manager, LCSW

Owner: Beth Caviness
Last Updated: 8/4/16

4	**Prioritize these patients for return calls**	-You should now see a narrowed list of patients - Click on the **Last PCP visit** column to place patients in order of furthest visit out to catch those who have not had depression follow-up. -Schedule appts for those who have not been seen. -follow clinic workflow for scheduling appts. Skip to Step 7. -For those patients who have had follow-up but not recently, proceed to step 5.	
5	**Preform chart review to know patients care plan**	-Double click on a patient row to open chart review for that patient. -Click notes tab and find provider note for last visit and when follow-up is desired.	
6	**Call and document patient progress in Patient Outreach Encounter**	-Open Patient Outreach encounter -click encounter in the patient specific tool bar with patient highlighted below -Click New Encounter -Fill in encounter type with **Patient Outreach** and click accept -Fill in **Contacts** and **Track Pt Outreach** Section -Move to **Care Management Tab** and fill out **Depression Pat and Enc** sections with information you gather from patient telephone call.	

PDSA cycles were used to evaluate and improve our new BPAs

Design and Implementation (13 of 16)

"Pilot" Plan-Do-Study-Act (PDSA) cycles were performed to ensure that these new BPAs were working as expected.
"Local" PDSAs were performed by clinic quality coaches to improve utilization and adherence to the defined workflow.

UNC HEALTH CARE SYSTEM

"Pilot"

"Local"

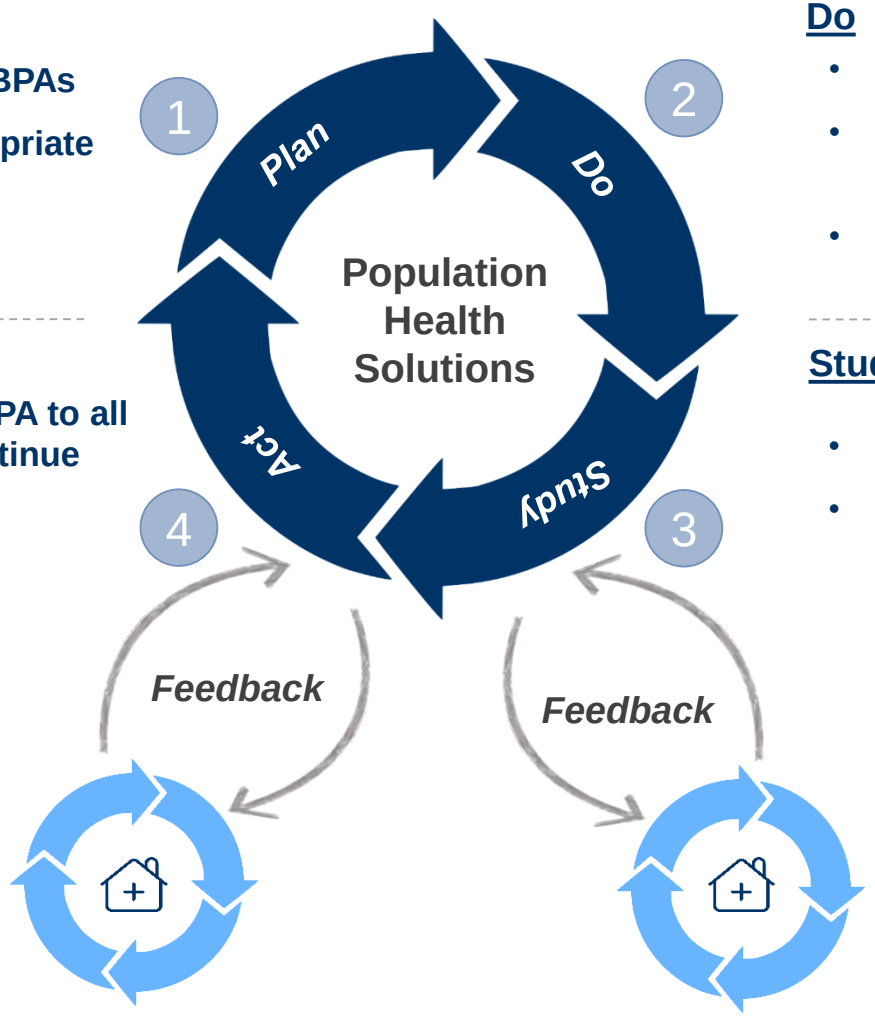
Plan

- Select PCIC pilot clinics to test BPAs
- Ensure correctly firing for appropriate patients and test workflow
- Obtain feedback from users

Act

- Determine whether to release BPA to all PCIC clinics, refine build or continue pilot
- Coordinate with ISD training for tipsheets and PCIC groups for next steps

PCIC Quality and Clinical Implementation Coaches perform PDSAs at local clinics



Do

- Release BPA to pilot clinics
- Check in weekly or monthly with providers for feedback
- Typical pilot 1 – 3 months

Study

- Run reports in Epic of BPAs fired
- Document any issues, correct with analysts if needed.

Tailor improvement work to local issues:

- Academic vs. community clinic
- Clinic size & staffing ratios
- Availability of local BH/psych resources
- Makeup of patient population

Coaches performed local PDSAs to help improve depression care in our PCIC clinics

Design and Implementation (14 of 16)

Improving Depression Care at our Local PCIC Clinics

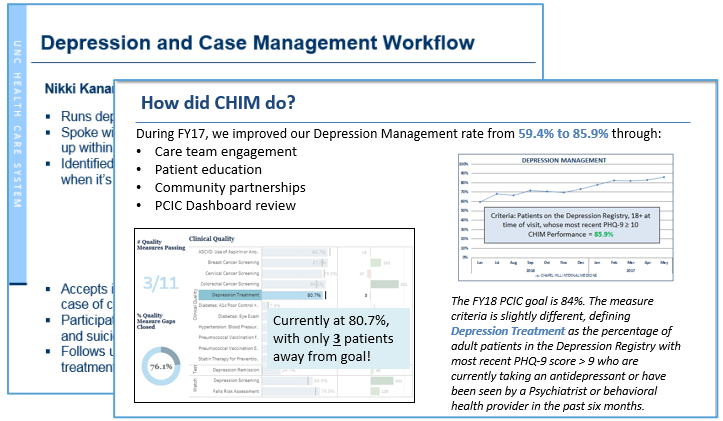
Our PCIC quality and implementation coaches support local improvement work in PCIC clinics. Focusing on:

- Communication and education around Epic Functionality
- Work with clinics to identify local needs and test PDSA cycles
- Share what works and funnel user feedback for optimization

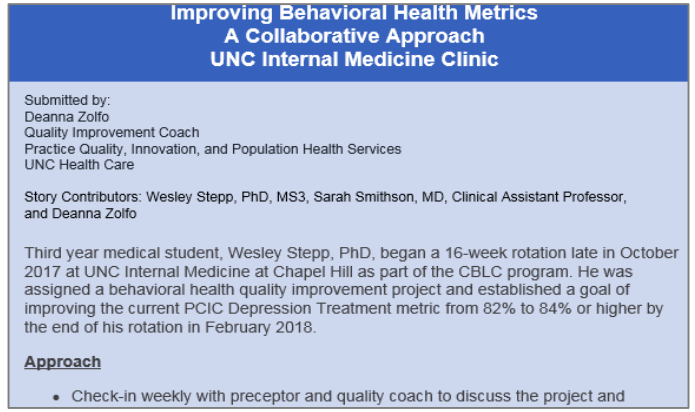
Local PDSA Cycles

Communication & Education → Plan → Do → Study → Act → IT Feedback / Shared Learnings

Education



Presentations

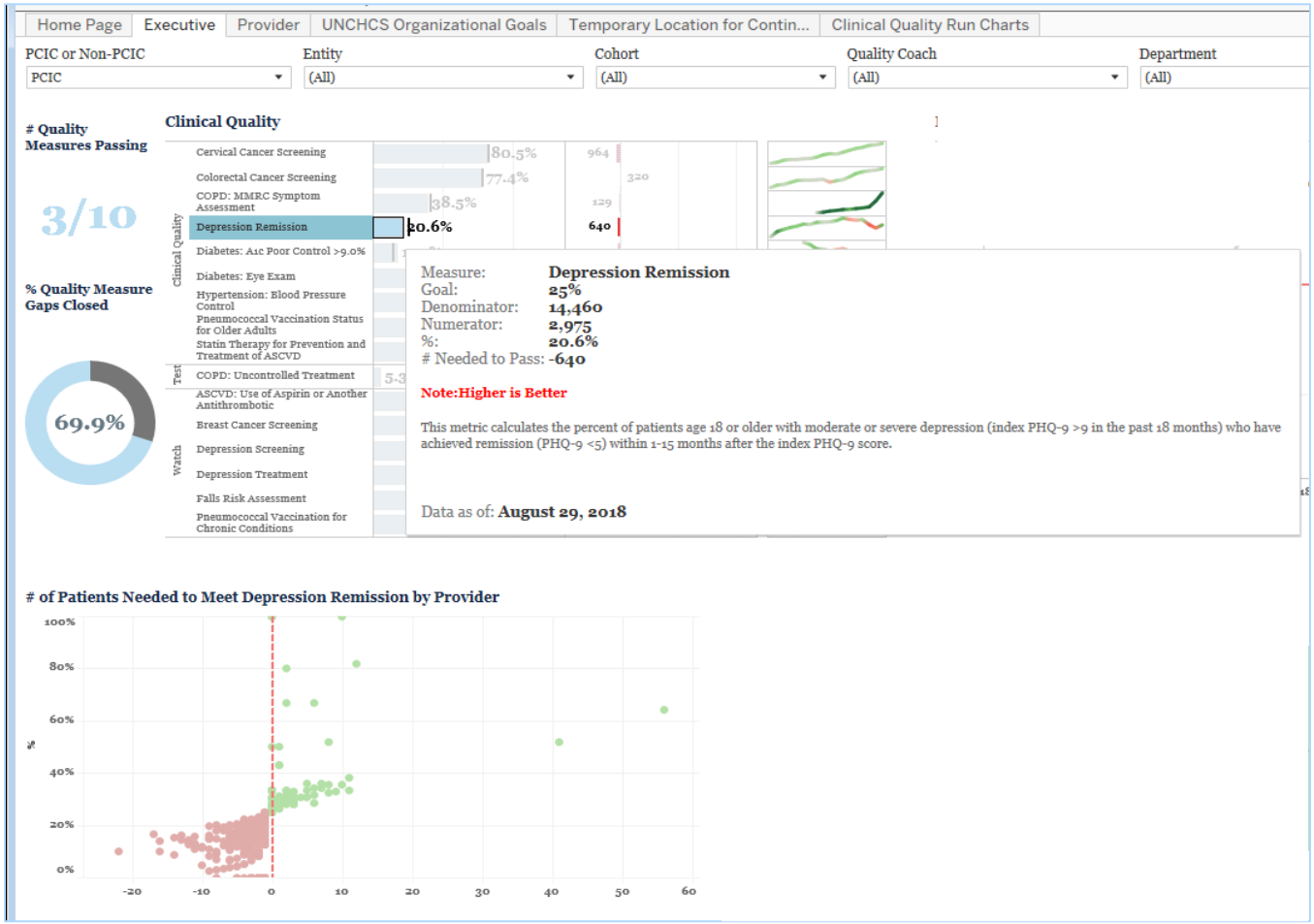


Newsletters

Our PCIC dashboard helps clinics and providers “drill” into their depression care data

Design and Implementation (15 of 16)

***Epic*@UNC Quality Measures are displayed in a Tableau Dashboard. Allows more advanced views of the data like number needed to meet goal and trend lines. Providers have unblinded data available to compare performance between clinics, providers and entities.**



Our aim – identify patients with depression, treat depression, improve symptoms

Design and Implementation (16 of 16)

UNC HEALTH CARE SYSTEM

Intended Goals

1. **Increase depression screening rates for patients not already in the depression registry**

2. **Increase depression monitoring rates for patients in the depression registry to ensure monitoring of depressive symptoms**

3. **Increase the percentage of patients with moderate to severe depression who are actively being treated for depression with antidepressant medication, counseling and/or psychiatry follow-up.**

4. **Our primary aim is to leverage our depression care tools and improvement efforts to help decrease depressive symptoms and improve quality of life for our patients.**

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Leveraging Health IT

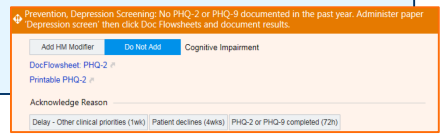
Depression Screening tools were embedded into the clinical workflow

Leveraging Health IT (1 of 7)

UNC HEALTH CARE SYSTEM

Screening Process

1. Epic registries identify patients with depression by PHQ-9 score, billing diagnoses & problem list diagnoses
2. BPA prompts provider or nurse that PHQ-2 or PHQ-9 is due



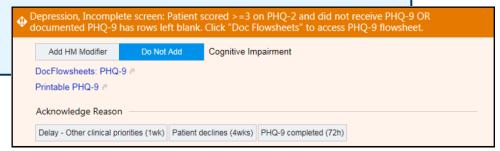
3. BPA provides link to PHQ flowsheets
4. User enters responses into flowsheet or defers BPA
5. Screening or Monitoring BPA disappears
6. Additional BPA fires for incomplete screens & suicide risk assessment to 'close the loop'

“Closing the loop” on depression screening (1 of 2)

Leveraging Health IT (2 of 7)

Incomplete Screen

1. BPA prompts provider or nurse that last PHQ-2 was positive but PHQ-9 missing
2. BPA provides link to PHQ-9 flowsheet



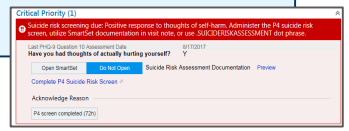
3. User enters responses into flowsheet or defers BPA

“Closing the loop” on depression screening (2 of 2)

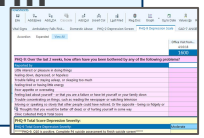
Leveraging Health IT (3 of 7)

Suicide Risk Assessment – Positive Q9, But Missing Value for Self-Harm Question

1. Critical Pop-up alerts user that Q9 positive but self-harm question blank

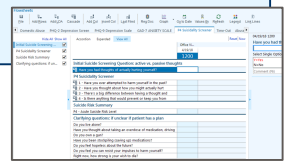


2. User links to PHQ-9 to answer self-harm question



3. If thoughts of self-harm = yes, critical pop-up alerts user to administer full suicide risk assessment screen

4. User links to P4 suicide risk screen.



5. Provider completes P4 with patient or uses dotphrase to document assessment.

6. Based on outcome of suicide screen, provider would take action based on suicide risk protocols

How “Closing the Loop” saved a patient’s life

Leveraging Health IT (4 of 7)

A Testimonial From an Internal Medicine Physician

I was precepting in my clinic. A resident went into the patient’s room to perform a procedure. When the resident and I were reviewing the chart together, the red P4 suicide risk assessment BPA popped up

We reviewed the last note. She had been referred to outside psychiatric resources at her visit. She had a PHQ9 done at her last visit with a positive question 10, but no P4 was completed.

We returned to the patients room to perform the suicide risk assessment. I said hello to a smiling, cheerful woman sitting with her husband.

20 minutes later, the resident and nurses returned to the precepting room. They were shocked. This woman with no indication of depression reported that since a major illness 3 months prior, she thought about suicide daily

She had a plan for self-harm. She was crying in the exam room – she was scared for her safety, and she was asking for help. No one saw it coming. There were no clues or signs. There was only the P4 BPA.

Because of the BPA, we were able to provide her with the help she needed – likely preventing a suicide attempt.

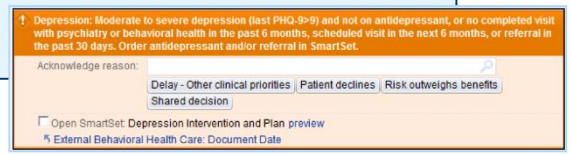
Closing the gap on depression treatment

Leveraging Health IT (5 of 7)

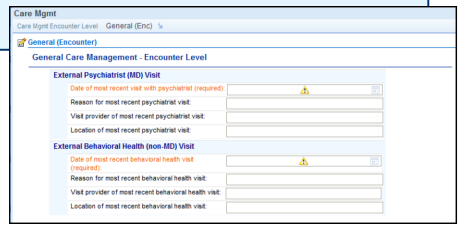
UNC HEALTH CARE SYSTEM

Depression Treatment

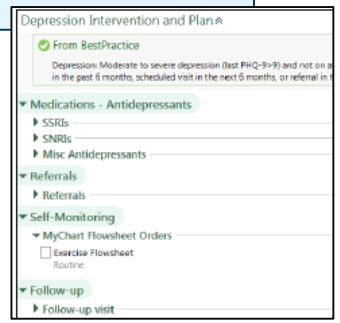
1. **BPA prompts provider that last PHQ-9 score was >=10 and patient not in treatment**



2. **From BPA, provider can: document external behavioral health or psychiatry visit. If in past 6 months, BPA satisfied.**



3. **From BPA, provider can open Smart Set and**
   - **Order antidepressant**
   - **Place referrals**
   - **Request follow-up appointment**

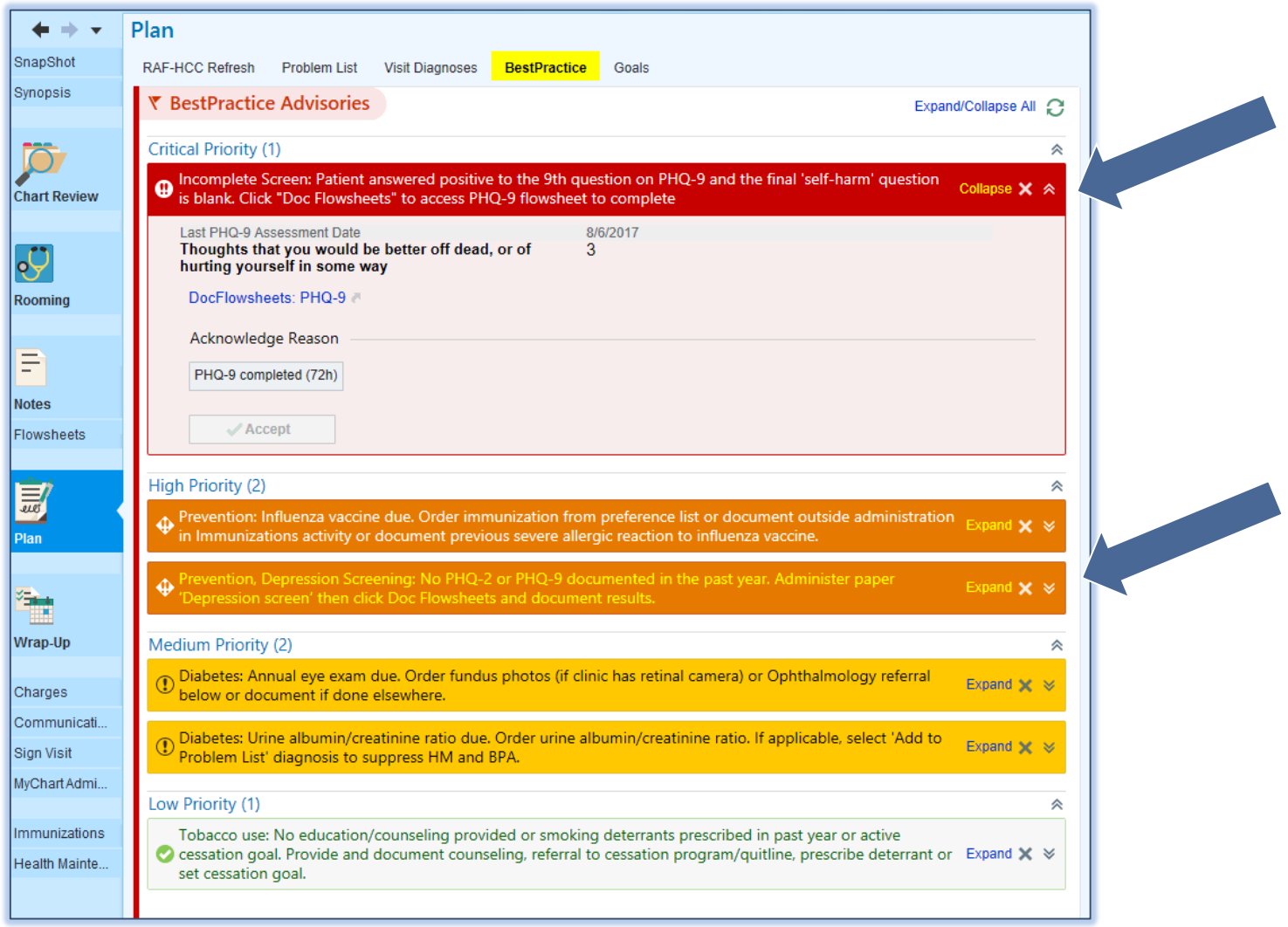


BPAs are prioritized by color and presented in the visit navigator

Leveraging Health IT (6 of 7)

Overall BPA Framework

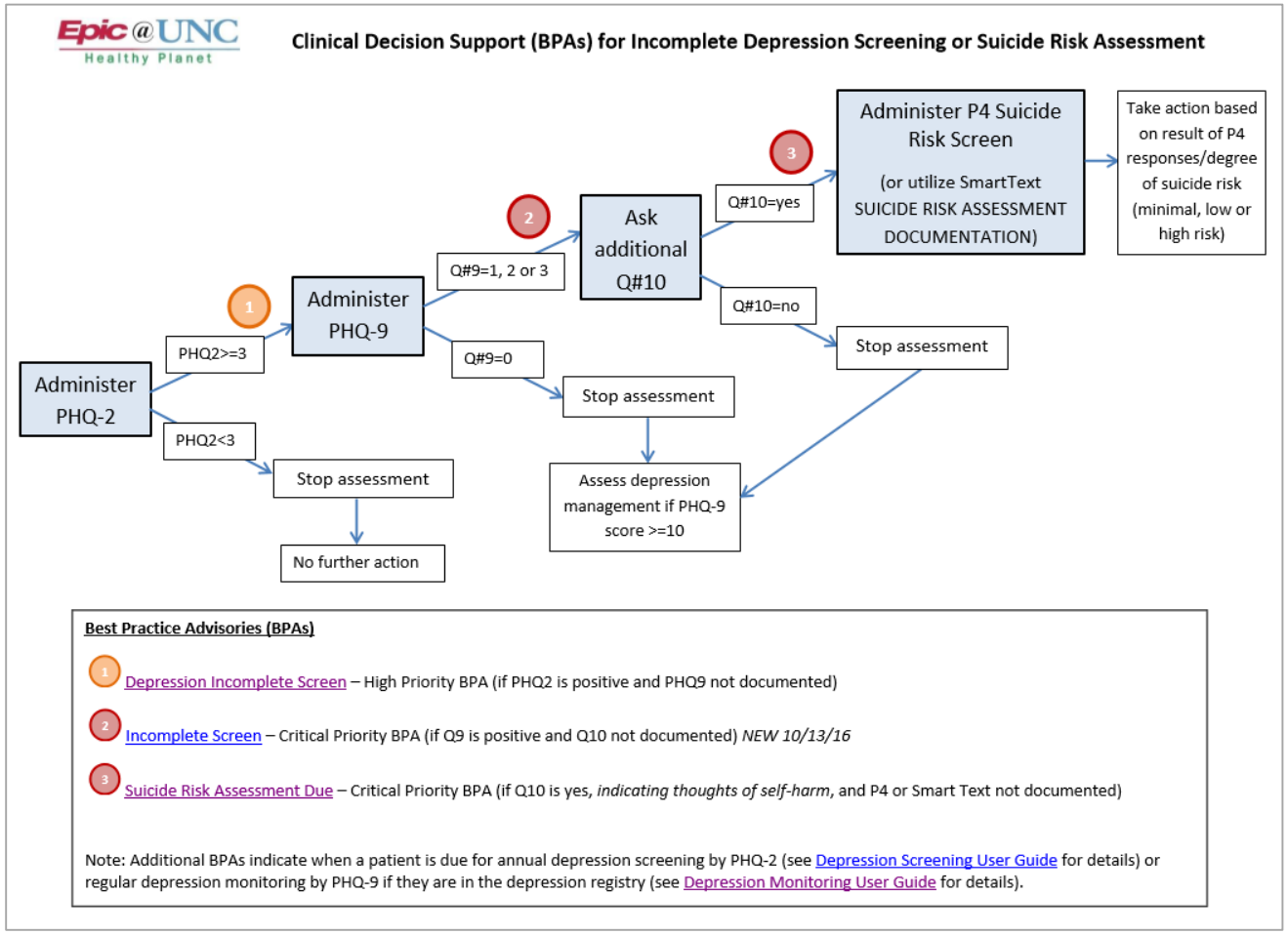
1. BPAs are presented in the visit navigator in Plan section
2. Color-coding indicates priority level
3. Critical suicide BPAs pop-up in addition to navigator view
4. User can choose whether to address today, defer by clicking acknowledge reason or leave BPA to address at another visit



Overview of Screening and Treatment Workflow

Leveraging Health IT (7 of 7)

High-Level Process Map - Clinical Decision Support (CDS)



UNC HEALTH CARE SYSTEM

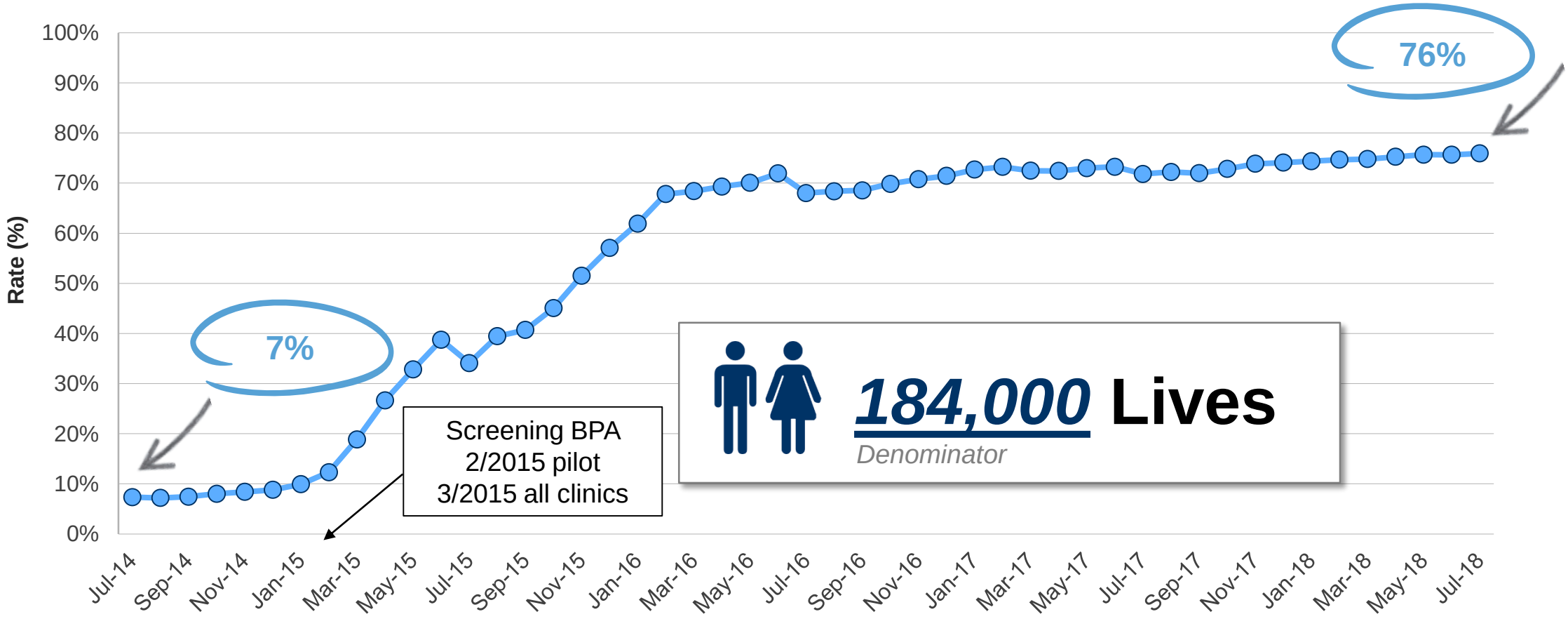
Value Derived

As a result, we've seen a significant increase in our depression screening rate

Value Derived (1 of 3)

Depression Screening rates across all primary care practices have increased from 7% (July 2014) to 76% (July 2018). July 2018 data covers 49 practices and 184,000 patient lives.

Screening Rate

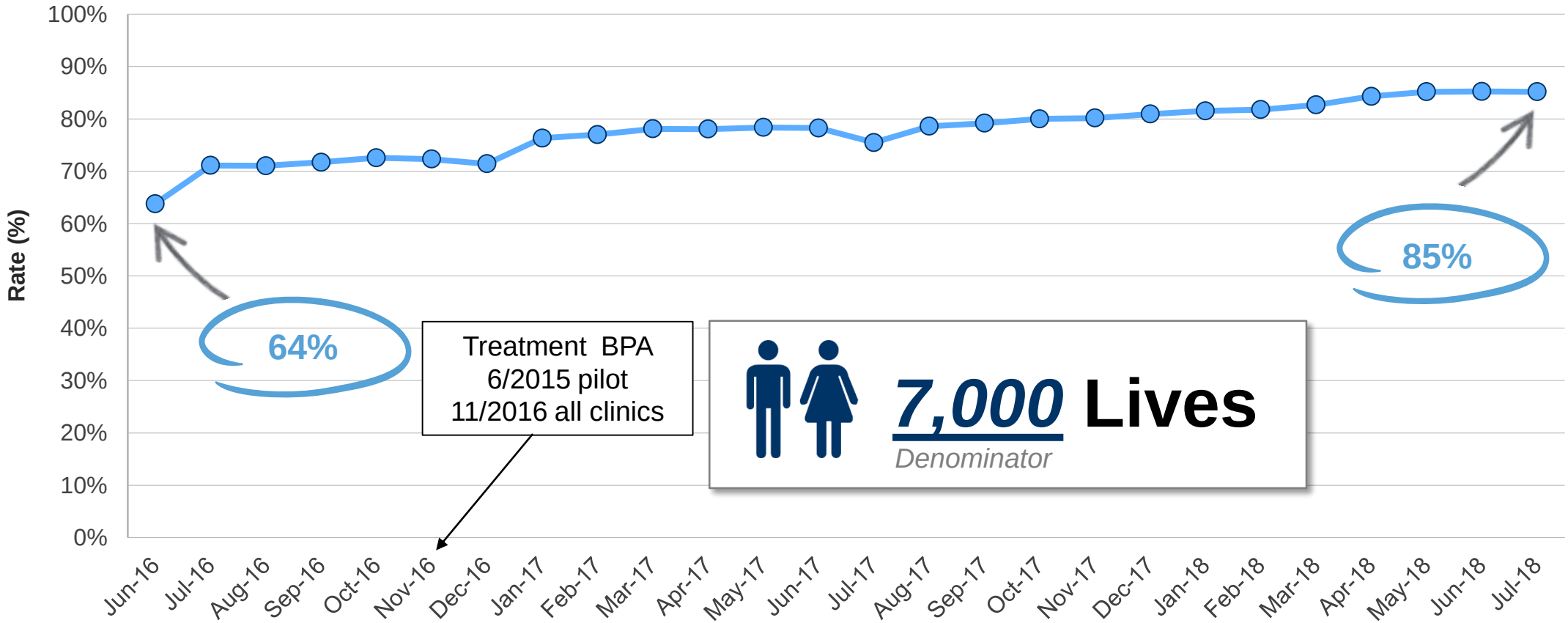


…and a rise in the percentage of patients being treated for depression

Value Derived (2 of 3)

Depression Treatment rates increased from 64% (June 2016) to 85% (July 2018). More patients with moderate to severe depression are being treated for 'active' symptoms of depression.

Treatment Rate

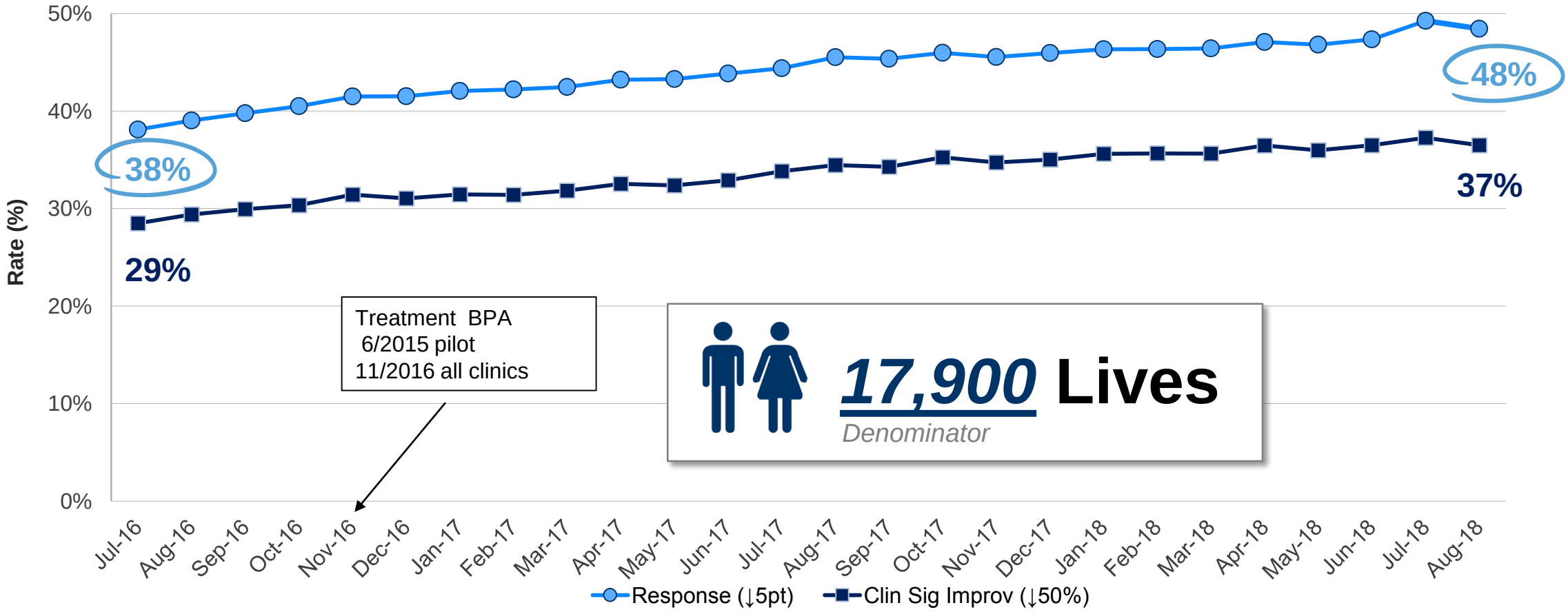


As a result, we are doing better at decreasing depression symptom burden

Value Derived (3 of 3)

Response rates increased from 38% (July 2016) to 48% (July 2018). Clinically significant improvement rates increased from 29% (July 2016) to 37% (July 2018). Improving the quality of life for depression patients

Response Rate (Outcome)



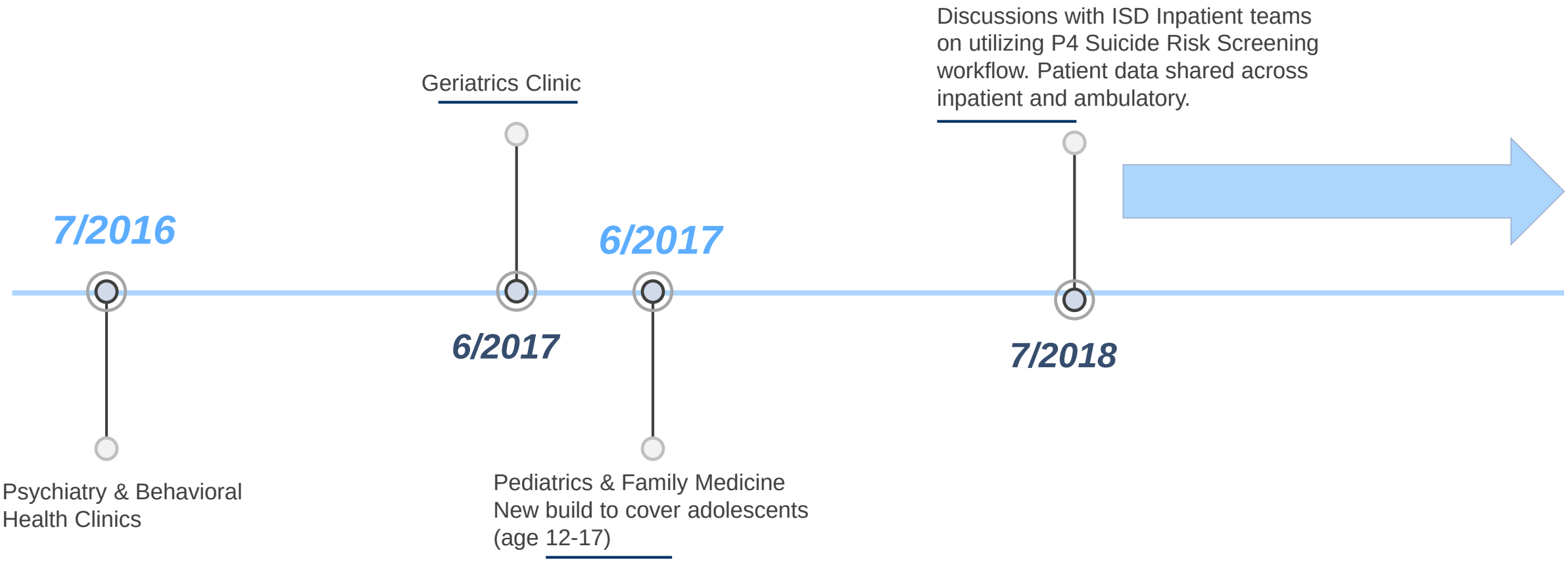
UNC HEALTH CARE SYSTEM

Next Steps

Going beyond primary care

Continuous Improvement (1 of 3)

Depression Screening, Monitoring and Treatment BPAs released to additional specialties.
Patients seen in the UNC Health Care System more likely to get systematic quality depression care

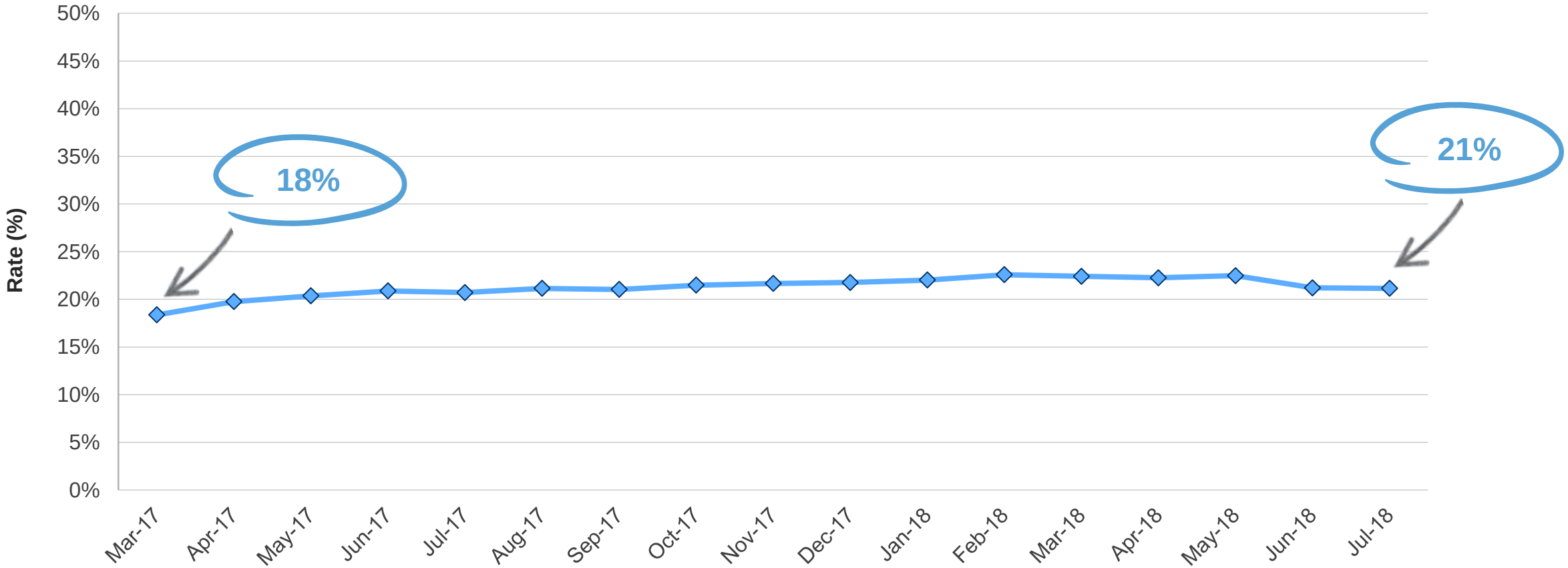


Now we are focused on depression remission

Continuous Improvement (2 of 3)

Depression Remission has been elevated to a FY19 PCIC core measure and also a UNC system organization goal. Groups are actively engaged in developing/piloting IT solutions and optimizing clinic processes. We have seen modest increase from 18% (March 2017) to 21% (July 2018).

Depression Remission (Outcome)



Next Steps – Continue to focus on improving depression remission

Continuous Improvement (3 of 3)

UNC HEALTH CARE SYSTEM

1. **Have held strategy session with clinical advisors and Healthy Planet team to brainstorm IT solutions to support continued depression remission improvements. Areas identified for intervention:**
   - Addressing clinical inertia
   - Addressing patients with comorbid conditions (e.g., chronic pain, substance abuse, anxiety, etc.)
   - Ensuring appropriate follow-up scheduled

2. **Currently investigating possible IT solutions**
   - Summarized views of patient's depression care – recent PHQ-9 scores, current medications, medications discontinued, date of last medication change, date of visits with behavioral health and/or psychiatry.
   - Alerting providers to patients 'failing depression' with link to treatment algorithm
   - Reminders to get PHQ-9s "off-schedule" to assess whether patient is in remission
   - Further slicing population to better target intervention (high vs. low PHQ-9 score, scheduled vs. not scheduled)

3. **Then will enlist PCIC clinics to pilot test potential solutions using PDSA cycles to determine which solutions warrant further testing and/or implementation.**

Also investigating population level solutions with ambulatory care management group