



VIRTUAL
2020 NATIONAL
RYAN WHITE
CONFERENCE ON
HIV CARE & TREATMENT

It's All in How You Look at It: Data Visualization as a Quality Improvement Tool

Alexandra Danforth, PharmD, BCACP, AAHIVP

Grace Jividen

Jacob Scutaru, MD

Learning Outcomes



- Discuss utilizing data visualizations to track progress towards clinical quality measures
- Review using Tableau to build innovative tools for providers to analyze multiple aspects of the HIV care continuum
- Describe unique ways to motivate clinical providers by making data more accessible

- FQHC-LAL in Rochester, NY
- Clinic served 7,300 people in 2019
- Have been a RWC grantee since 1990
- ≈ 900 PLWH served in 2019
- Offers primary care, specialty care (including HIV and Hep C treatment), pediatrics, GYN, gender affirming treatment, MAT for substance abuse, mental health care, and supportive services
- Pharmacy and lab on-site



Quality Program Pre-2018



- Quality Manager would discuss metrics directly with individual providers
- Some charts posted around the clinic spaces, but no major pushes to improve most metrics
- Time consuming and providers did not have much buy in
- Fragmented discussions

Quality Program (QAPI)



- Steering committee lead by Manager, Quality and Performance Improvement
 - Includes chairs from all subcommittees across the agency
 - Meets monthly
- Subcommittees
 - Adult Primary Care
 - HIV
 - HepC
 - Pharmacy
 - Pediatrics
 - GYN
 - Patient Experience

- Meets monthly to review current HIV Quality metrics
- Representation from clinic (providers, nurses), care management, business intelligence, Ryan White team, PrEP team, and quality departments
- Focus in on 3-5 goals for the year and also tracking other metrics for Ryan White programming
- Led by Alex Danforth and Jacob Scutaru

Current Goals



Metric	Goal
STI screening yearly (GC, CT, syphilis)	80%
Anal pap screening yearly	70%
Resistance testing documented	80%
Pregnancy testing for pts with child bearing potential	85%
Viral load suppression (VL<200)	90%
Prescribed ART	95%

Where We Started



- Brainstorming reasons for missed screenings
 - Patients skip lab on their way out
 - Providers forget to order
 - Missed appointments
 - Providers waiting for annual physical appointment to order
- Trying to leverage EHR alerts for screenings that were due
- Didn't see much progress in improving metrics

What We Changed



- Started looking at our data and metrics
 - Which providers?
 - Who could influence the numbers?
- How can we use the EHR alerts more effectively?
- How can we incorporate other team members?
- How can we improve our note templates?

DM/HM Alerts



- Shows what HIV QAPI measures a patient is 'due' for
 - Helps nurses and providers to remember to screen for STIs and offer anal paps

- Group: Qapi HIV Measures

Due/Alert	Date	Re
HIV Anal Pap,	03/01/19	19-S

Not Due	Date	Re
HIV:Pneumoc	03/15/16	907
CQM 77 HIV/	01/13/20	1.7
HIV Gonorrhoe	01/13/20	Sour
HIV Syphilis A	01/13/20	Neg

- Group: Qapi HIV Measures

Due/Alert	Date	Re
HIV Anal Pap,	12/31/18	18-S
HIV Gonorrhoe	12/31/18	Prof

Not Due	Date	Re
HIV:Pneumoc	12/05/13	907
HIV Syphilis A	01/14/20	SYP
CQM 77 HIV/	01/22/20	NEG

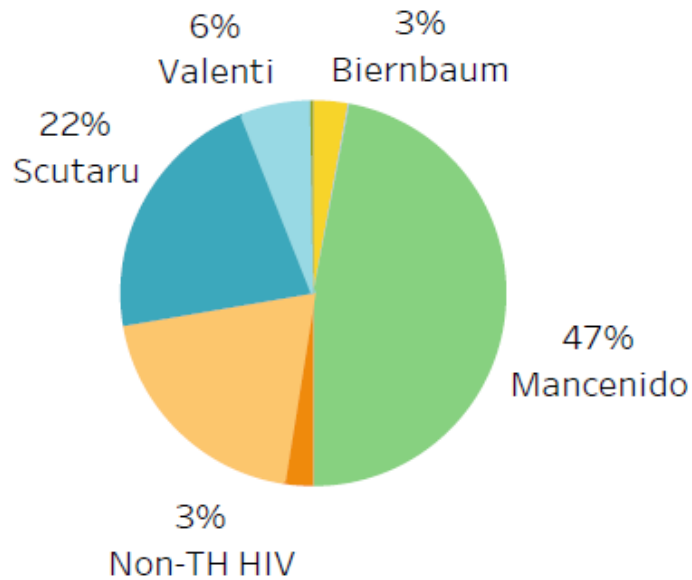
Data Visualizations



- Made sure each patient is assigned a HIV provider in the system
 - Allow for tracking each provider's performance
- Each month the group looks at graphs and data trends for the clinic as a whole and the providers as individuals
- The team can easily shift focus to where we are struggling, individualize interventions, and celebrate successes

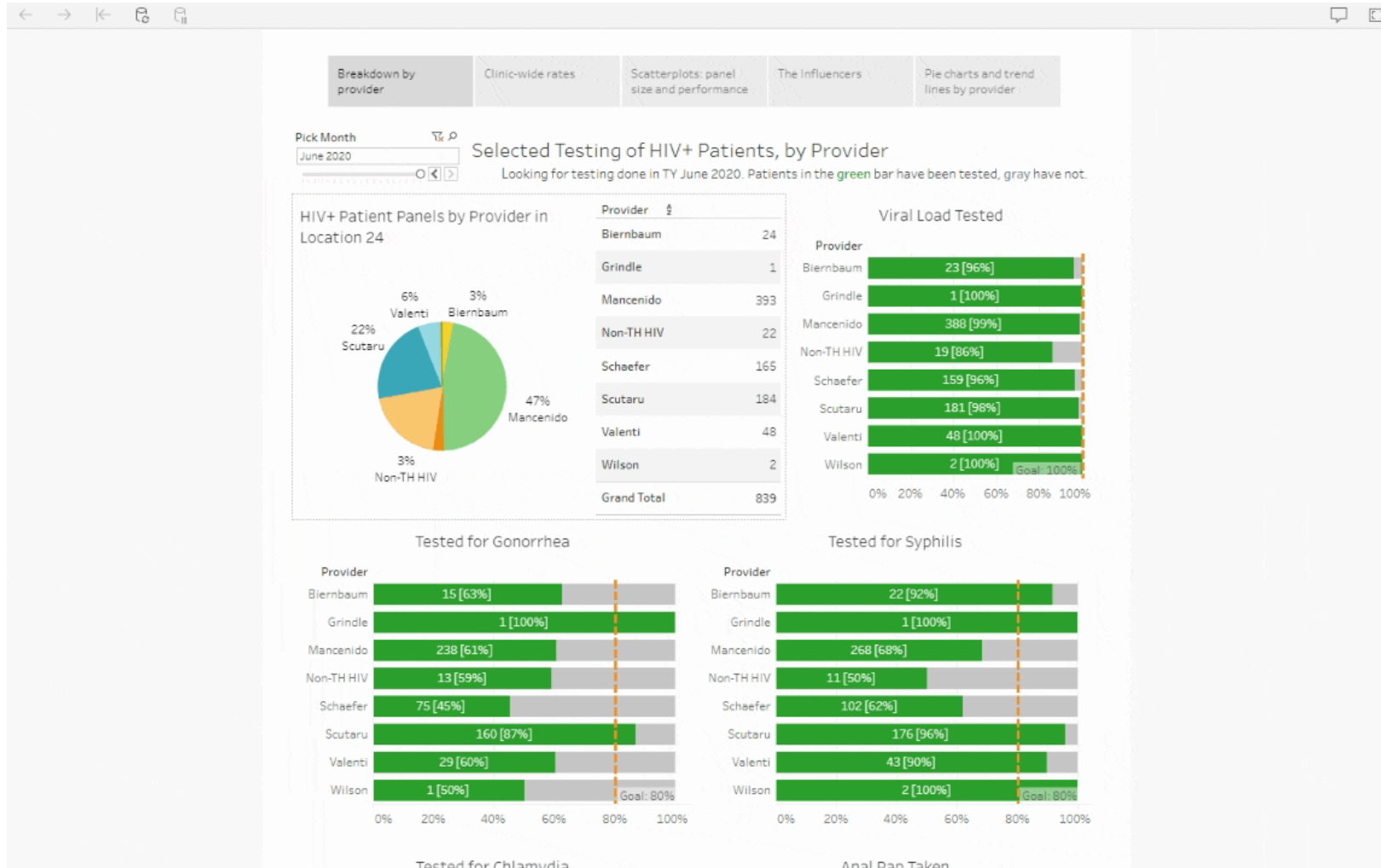
Patient Panels

HIV+ Patient Panels by Provider in Location 24



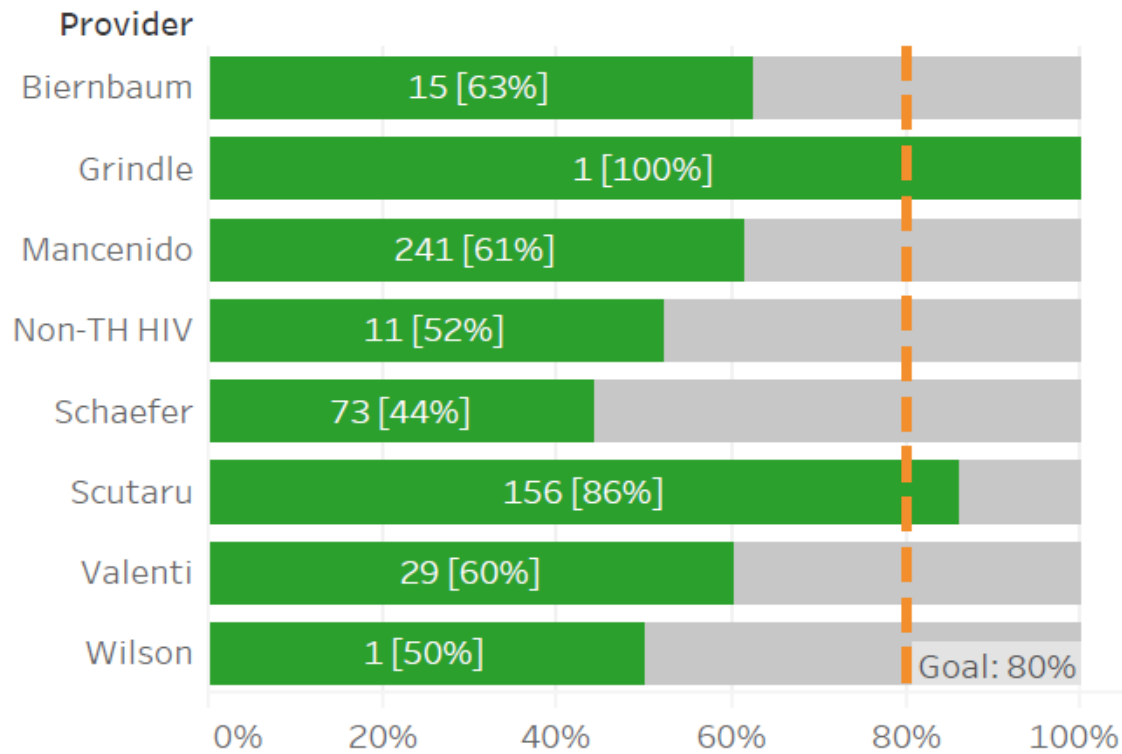
Provider	
Biernbaum	24
Grindle	1
Mancenido	392
Non-TH HIV	21
Schaefer	165
Scutaru	181
Valenti	48
Wilson	2
Grand Total	834

Screening Rates by Provider

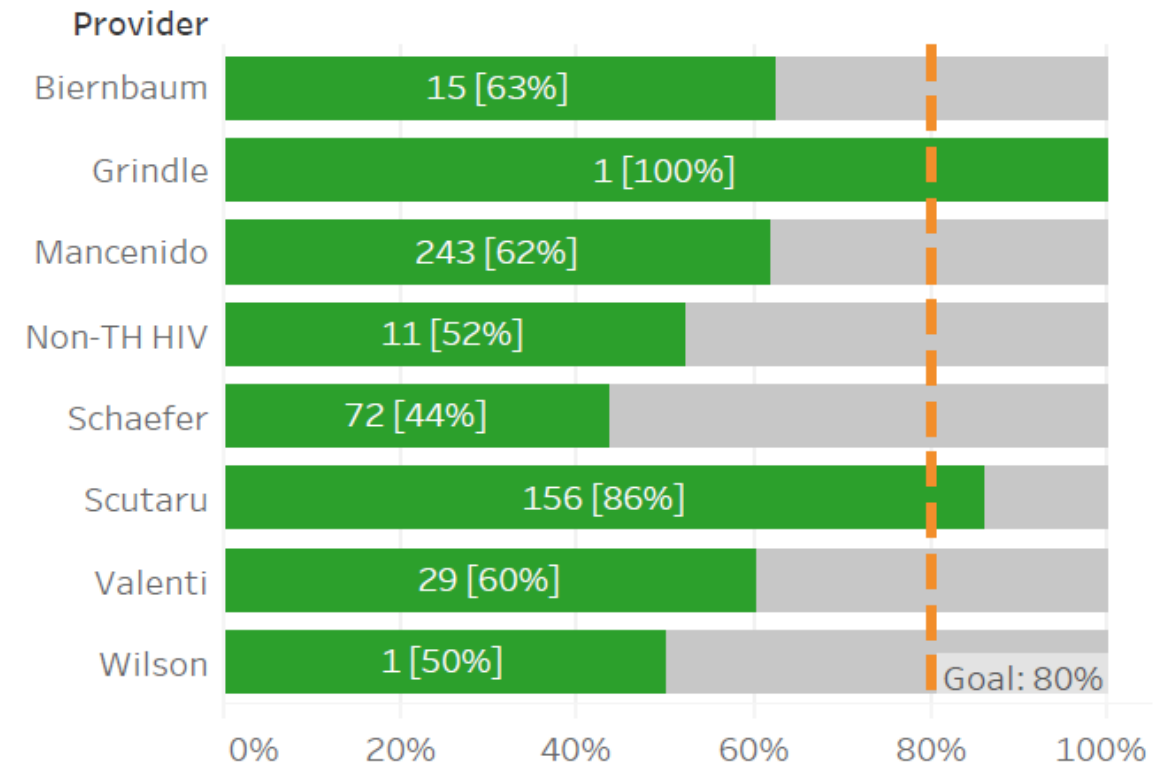


STI Screenings: By Provider

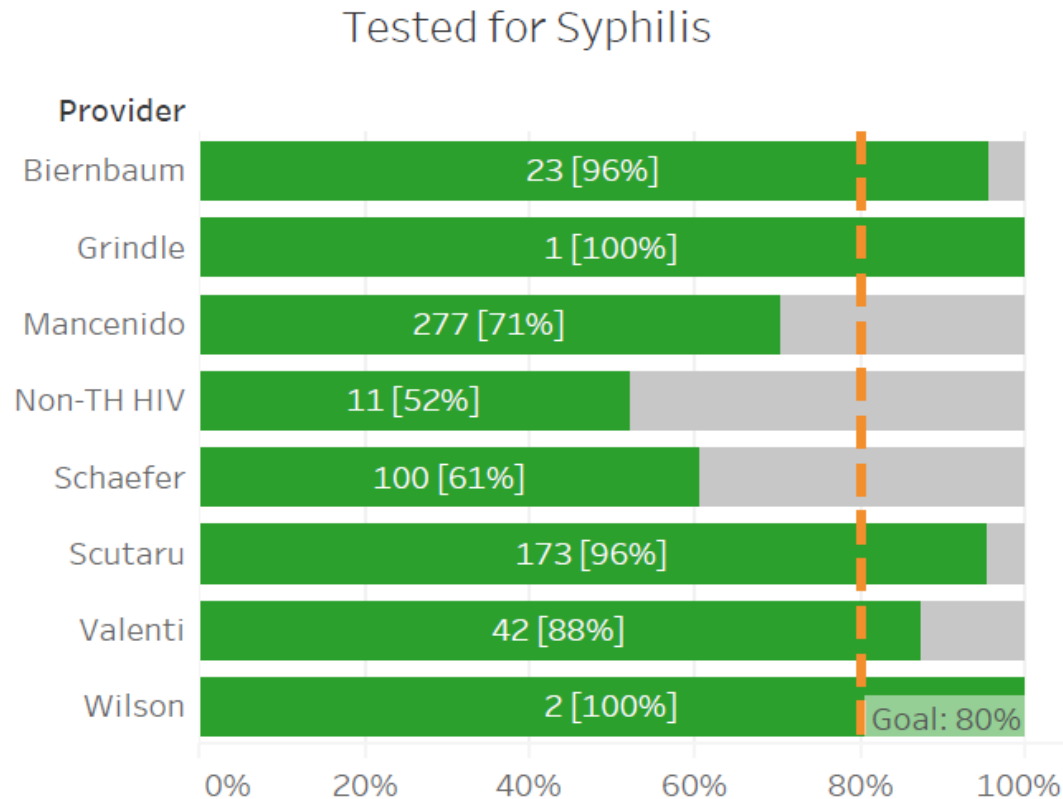
Tested for Gonorrhea



Tested for Chlamydia



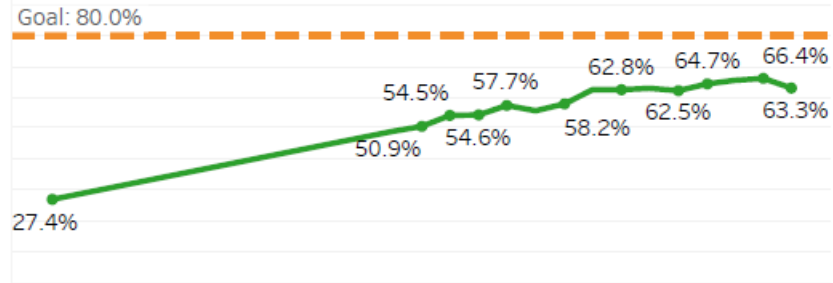
STI Screenings: By Provider



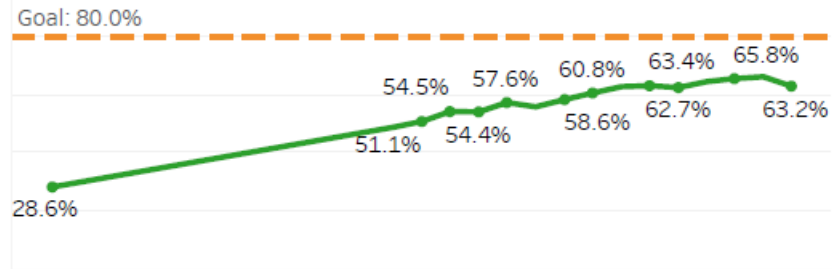
- Makes it easy for the group to see which providers/teams are at goal or not
- Ability to brainstorm more directed interventions

STI Screenings: Clinic Wide

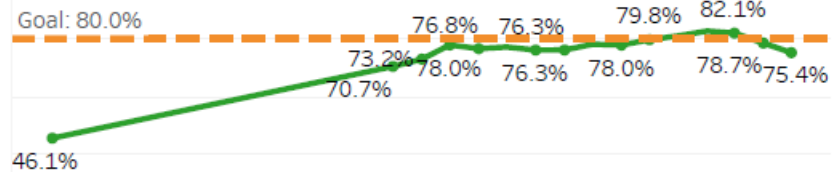
Chlamydia Over Time



Gonorrhea Over Time

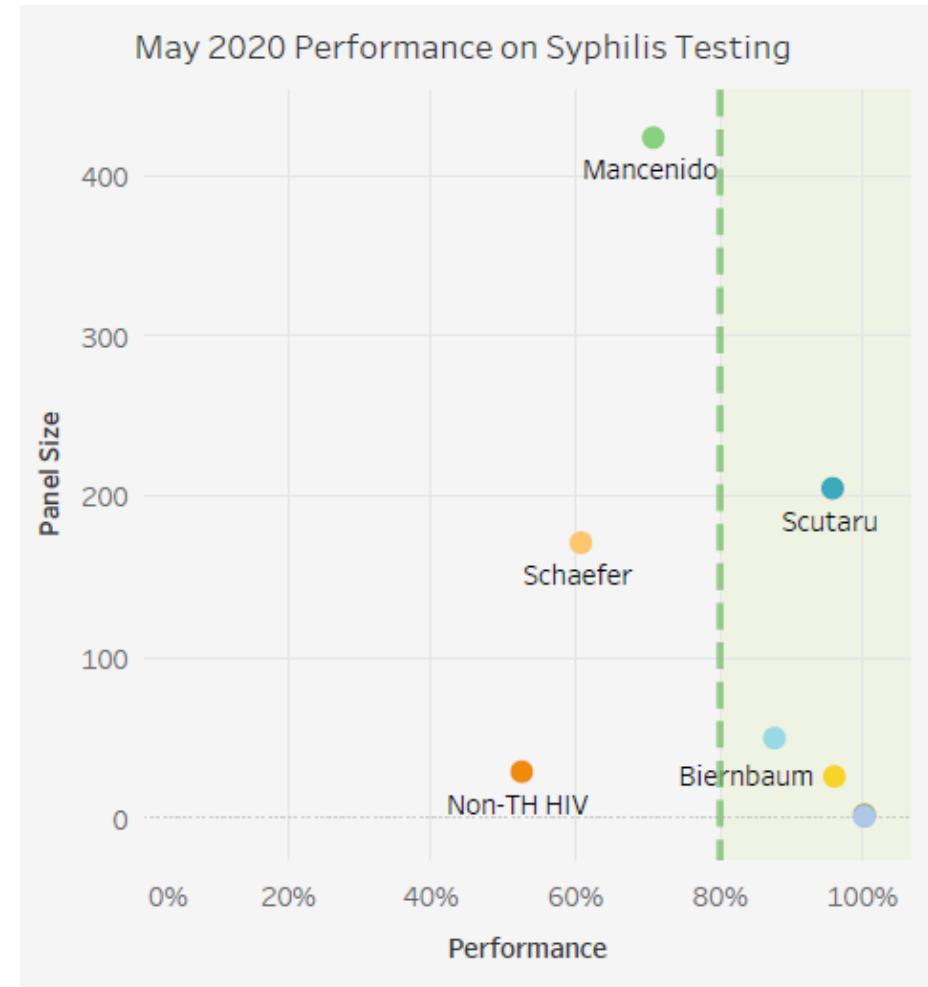
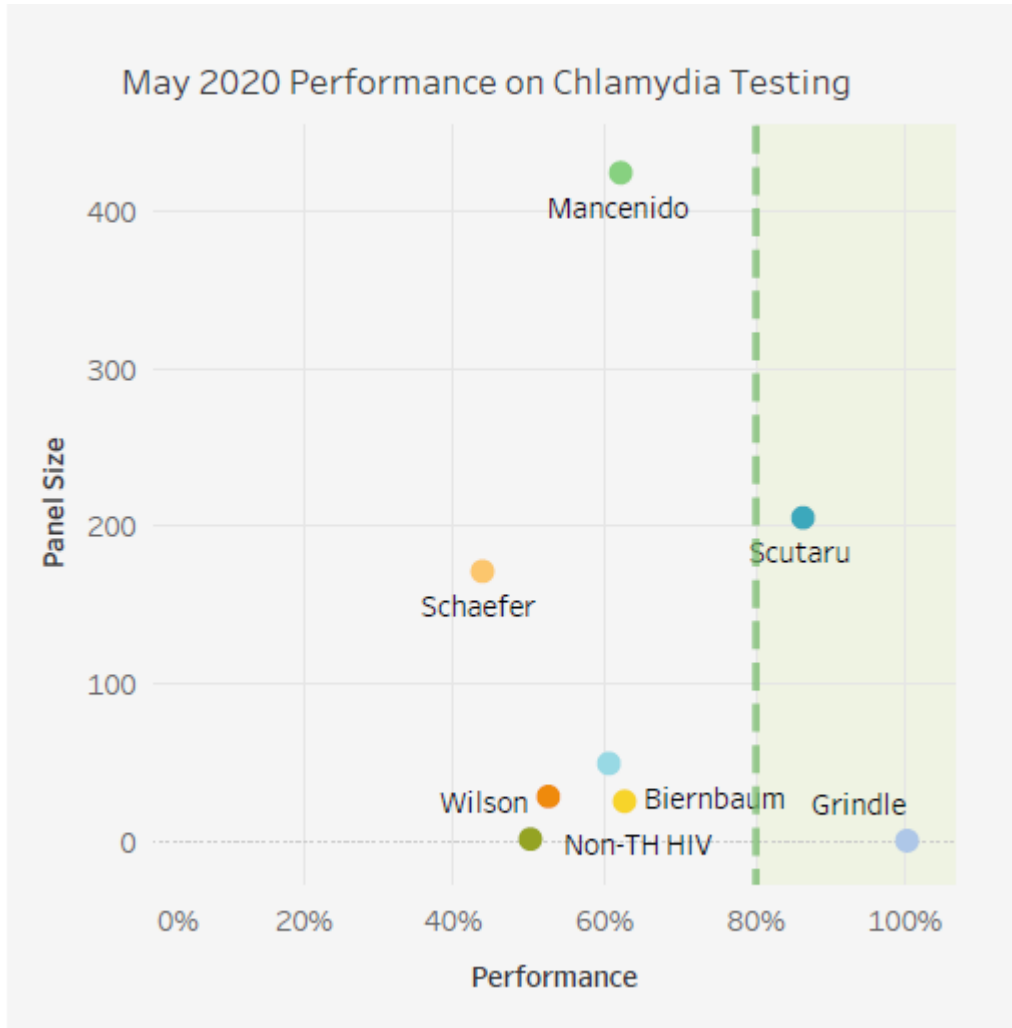


Syphilis Over Time



- Trendline starts in March 2018, last point is May 2020
- Helps for clinic wide goal setting and recognizing small changes

Panel Size and Screening



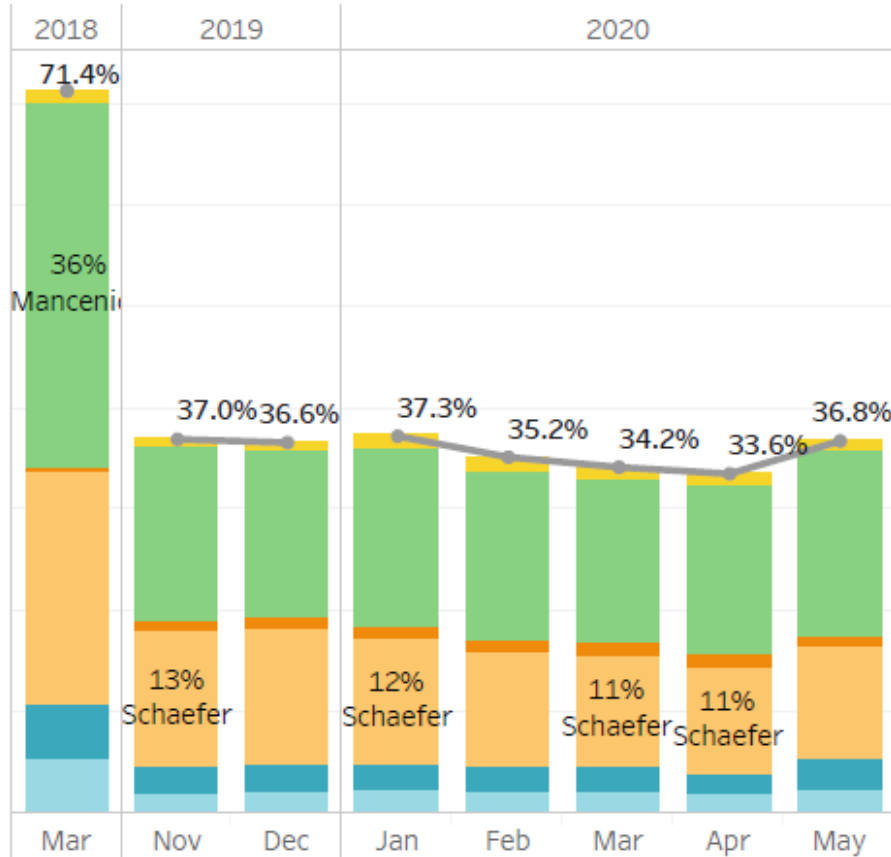
Influencer Analysis



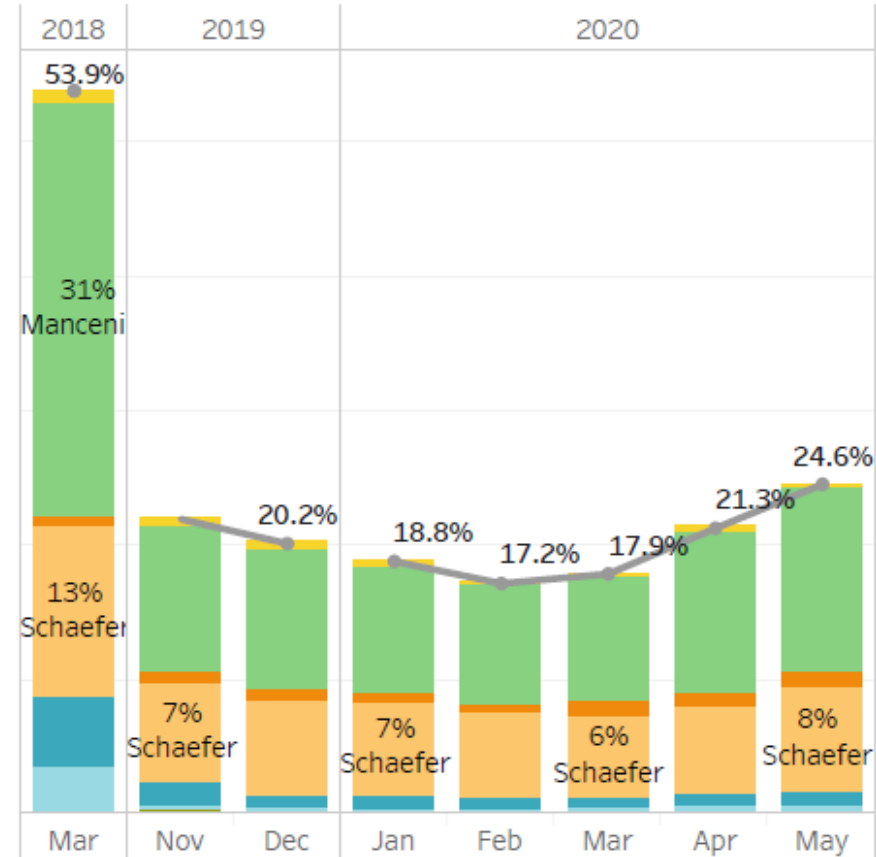
- Providers who can drive change
 - If _____ were to screen all of their patients, how much would our overall percentage increase?
 - For example, if a provider has very few patients or the majority of their patients are already screened, they have less impact on the overall screening rate
 - Allows us to look at providers who have the most influence over the scores

Influencer Analysis

Rates of patients not screened for Gonorrhea

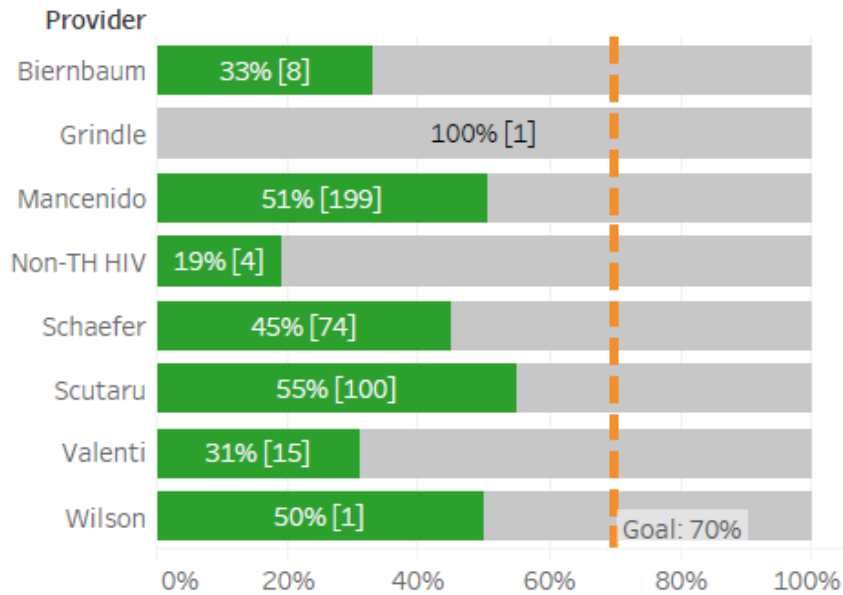


Rates of patients not screened for Syphilis

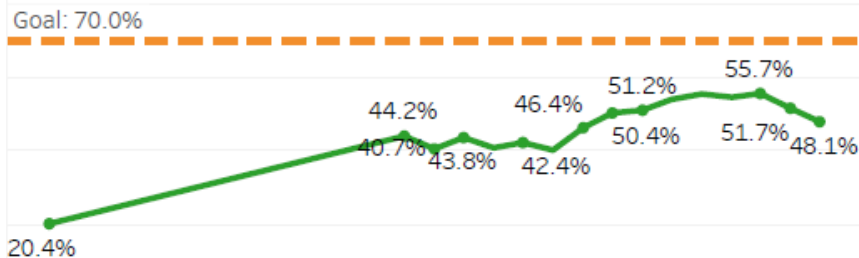


Anal Cancer Screening

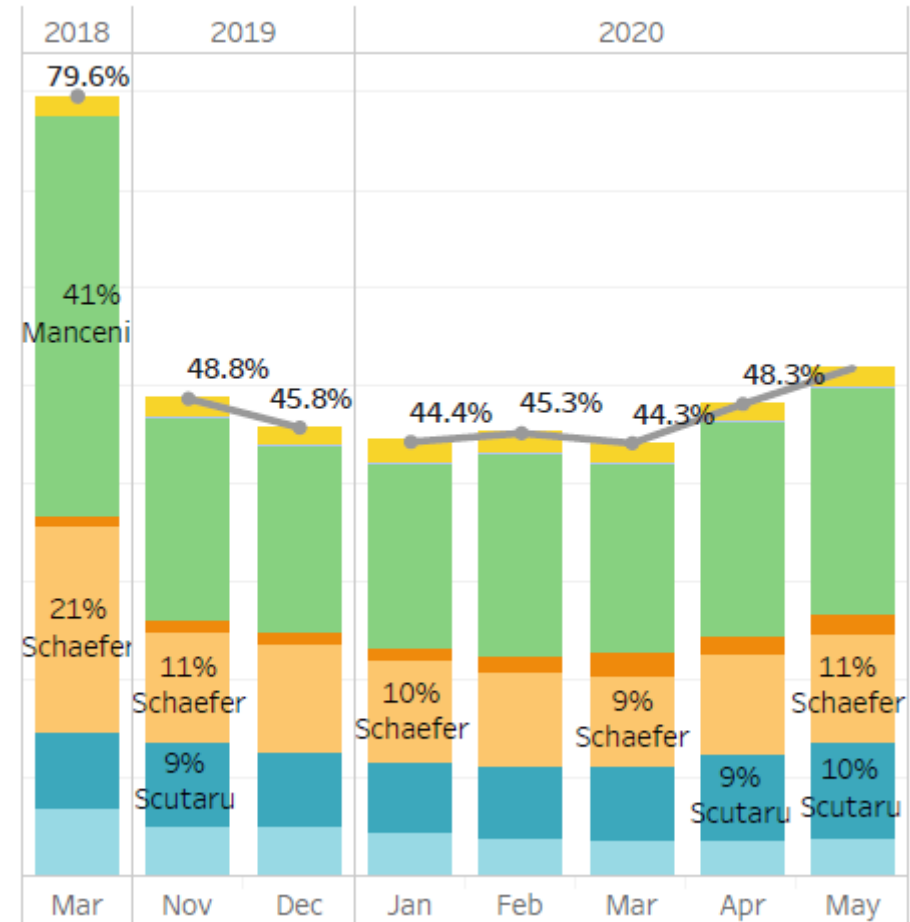
Anal Pap Taken



Anal Pap Over Time



Rates of patients not screened for Anal Cancer

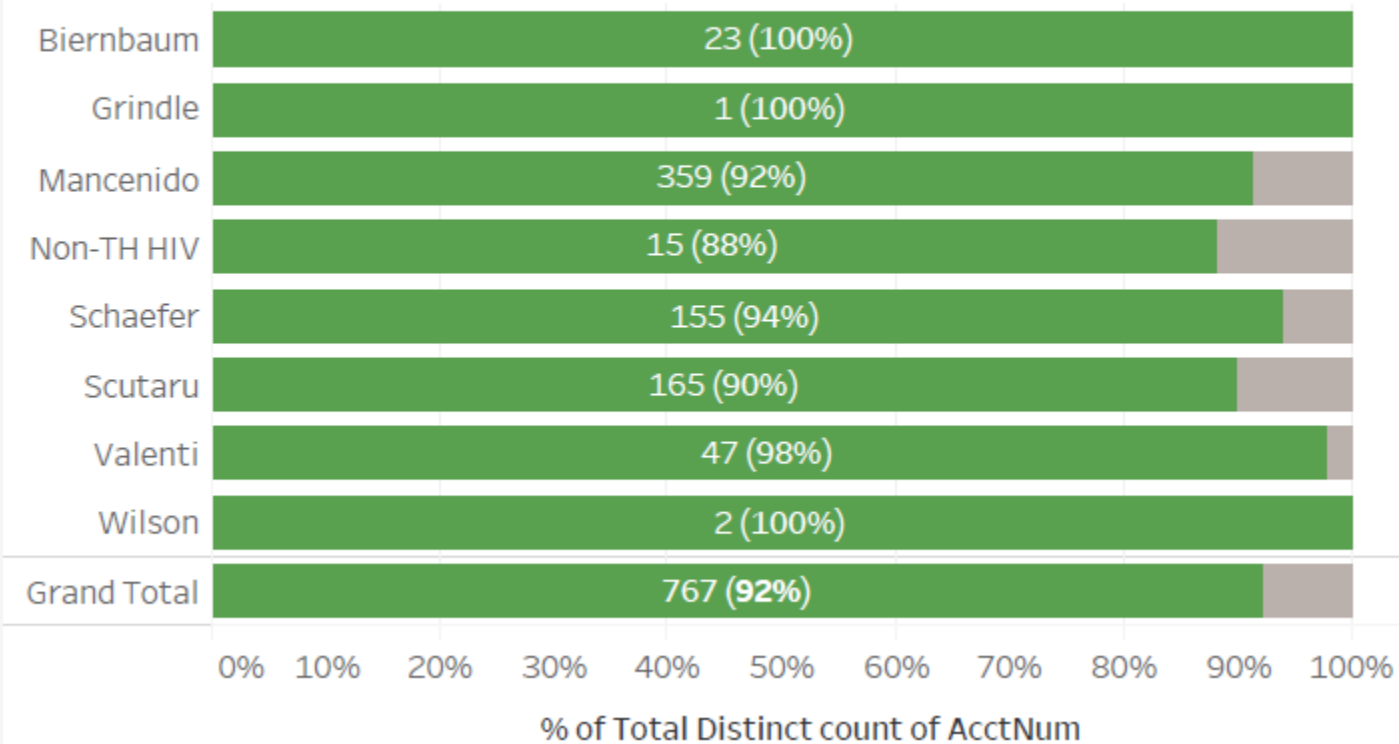


Viral Load Suppression



Provider Suppression Rates

Hover over provider names to see panel in scatterplot



Drug Overview and Regimen Analysis (DORA)



DORA (Drug Overview & Regimen Analysis) THE ART REGIMEN EXPLORER

Select Drug

Biktarvy

Patient Panel Month

June 2020

342
total
patients

Count of patients prescribed other
drugs along with Biktarvy

Description	Count
Pifeltro	2
Prezcobix	1
Selzentry	1
Grand Total	4

Providers responsible for patients on
Biktarvy

Biernbaum	11
Mancenido	167
Non-TH HIV	4
Schaefer	41
Scutaru	104
Valenti	10
Wilson	1

Patients prescribed Biktarvy in a
multi-drug regimen

Pifeltro	Mancenido	1
Pifeltro	Mancenido	1
Prezcobix	Scutaru	1
Selzentry	Mancenido	1
Grand Total		4

Number of drugs in regimen



All patients prescribed
Biktarvy

Biktarvy	1
Biktarvy	1
Biktarvy	1
Biktarvy	1
Biktarvy	1
Biktarvy	1
Biktarvy	1
Biktarvy	1
Biktarvy	1
Biktarvy	1
Biktarvy	1
Biktarvy	1

Patient panels are current through: 6/30/2020

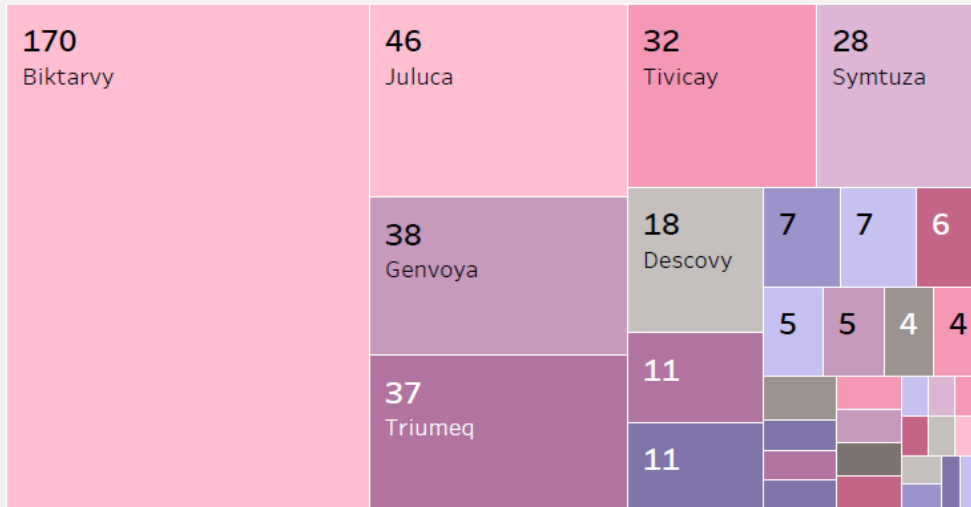
Prescriptions are current through: 7/3/2020

DORA by Provider



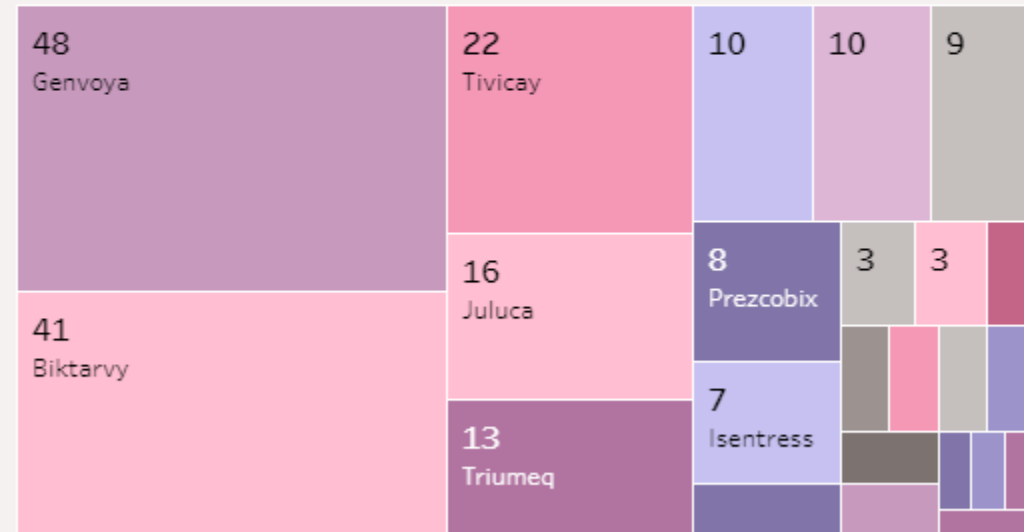
Review by Provider

Tree Map - Mancenido



Review by Provider

Tree Map - Schaefer



DATA JOURNEY

We found data in a hopeless place

What are you talking about?!?



- Tableau: data visualization software
- Business Intelligence (BI): branch of IT that works specifically to analyze data and bring insights and updates to teams “on the ground”
- Data Warehouse or DataMart: a database “home” for data. Could be established in a SQL environment, Access, etc.
 - Data warehouse = huge
 - DataMart = smaller

How it used to work



- Labor-intensive, ad-hoc model
 1. Somebody realizes they need to calculate measure performance
 2. They would contact a BI team member and we would write a report in MEDENT, export to Excel, clean data as needed in order to generate measure
 3. BI team member emails the patient registry or plain percentage to requester
 4. Repeat – over – and over – and over again
 - “Can you add gender identity to this”
 - “I need this list only for Dr. So-and-so’s patients”
- Limited to Excel-based solutions, takes a long time, repetitive

How it works now



- Self-service using Tableau server!
 1. Somebody wants measures or to understand a known clinical issue
 2. A BI team member meets with them to design a solution that runs as programmatically as possible
 3. BI develops what's needed
 4. It is posted on Tableau leveraging connections to data warehouse
- Everybody wins! BI is working at top of scope and requester can access data at their convenience and explore as much as they want

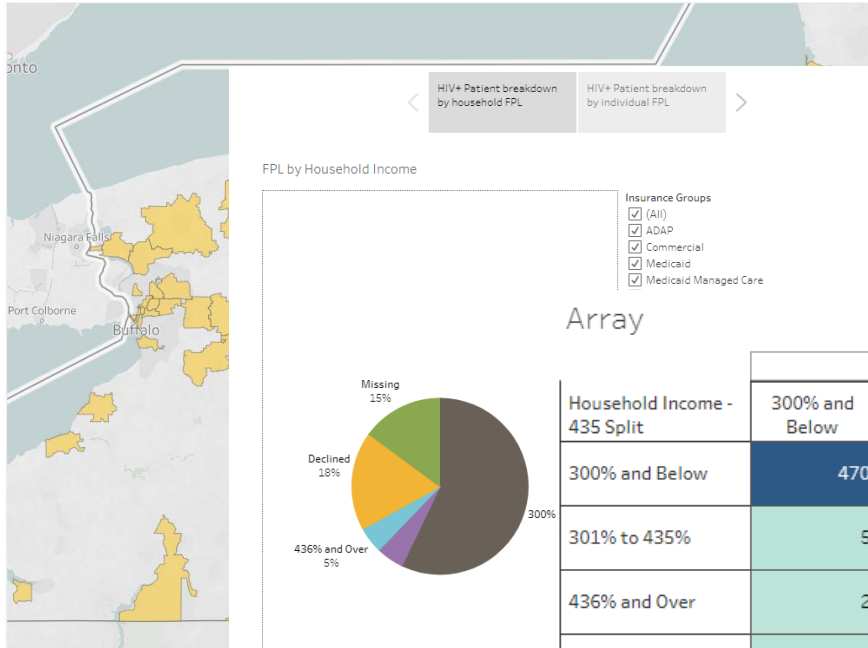
- EHR 2010 – 2017: eMDs
 - Full SQL-based data warehouse refreshed nightly
 - Lots of registry-type reports for stakeholders available on-demand through Report Manager
- Switch: April 3rd, 2017
- New EHR: MEDENT
 - No backend data warehouse
 - Need to write reports in EHR's proprietary language and export to Excel for further refinement
 - Not as simple to manipulate records and create user-friendly reporting solutions



- 2017-2018:
 - Trillium continues to grow rapidly and so do our reporting needs
 - Running ad hoc Excel reports was taking up time that would be better spent crafting real, long-lasting information solutions
- Summer 2018:
 - We need a user-friendly product that can handle multiple data sources
 - Agency purchases 2 Tableau Desktop licenses
 - Analysts begin learning and building views
- 2019
 - Launched Tableau Server, began publishing views for small group

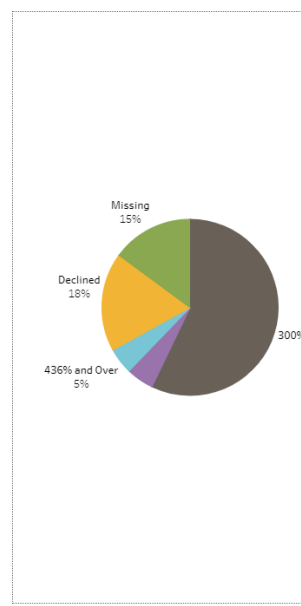
Early Projects

2018 Patient Zip Codes



HIV+ Patient breakdown by household FPL HIV+ Patient breakdown by individual FPL

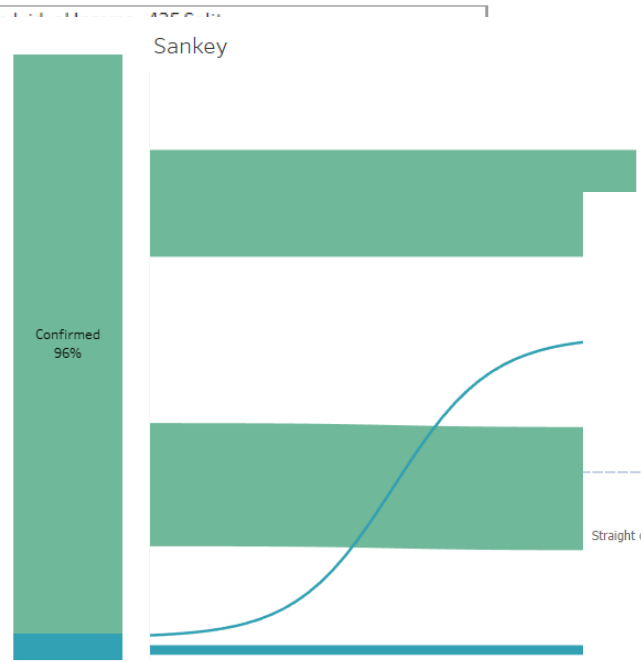
FPL by Household Income



- Insurance Groups
- (All)
 - ADAP
 - Commercial
 - Medicaid
 - Medicaid Managed Care

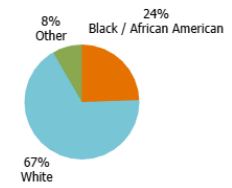
Array

Household Income - 435 Split	300% and Below	301% to 435%
300% and Below	470	6
301% to 435%	5	30
436% and Over	2	1
Declined	6	1
Missing	37	3
Grand Total	520	41

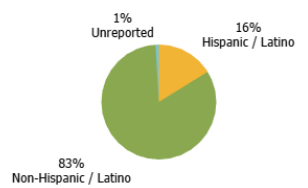


No Show

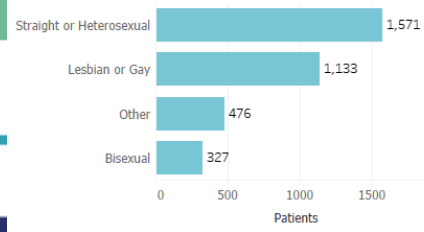
Race



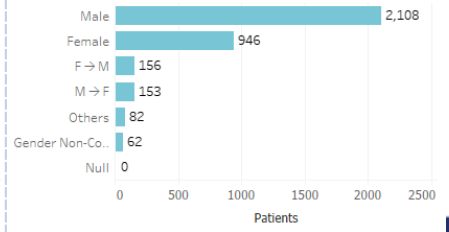
Ethnicity



Sexual Orientation



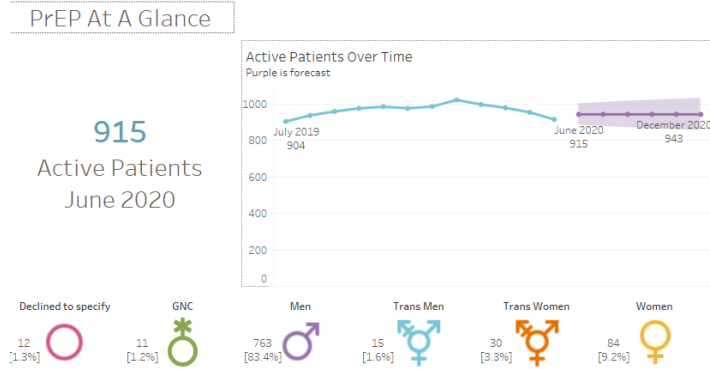
Gender Identity



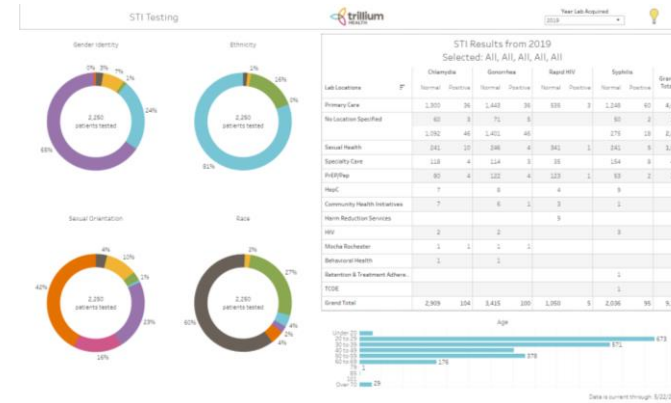
Current Tableau use cases



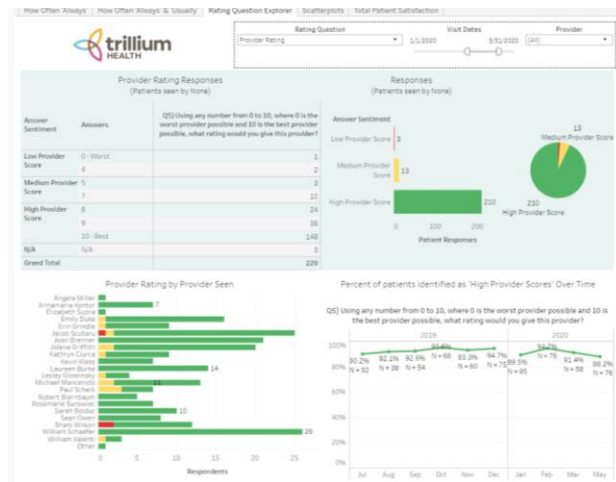
- PrEP monitoring



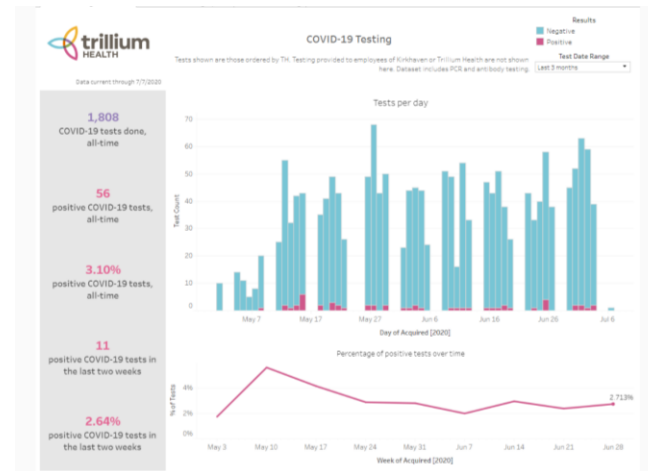
- Rapid testing rates



- Patient Satisfaction



- COVID-19 testing volume



Best practices



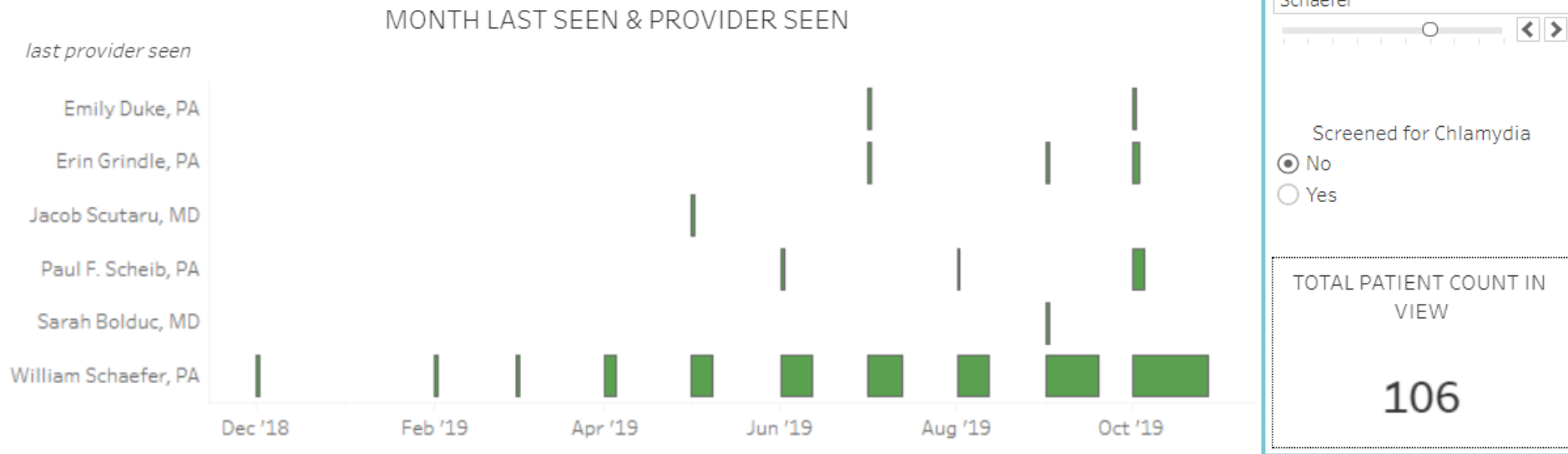
- Have analysts sit in on clinic or quality discussions
 - An integrated analyst knows what the team needs
- Anticipate clinical needs
 - DORA tool was built because we knew cleaning up med lists was a continuous task for team
- Start simple, then improve over time
 - You or your data customers may want the Cadillac, but it's ok to build a go kart first

Questions come up, analysts can answer

- Hypothesis: Patients aren't getting labs done because they are being seen by providers who are not their "own" and/or they aren't coming in
- Answer: Nope – most patients are seeing their assigned HIV care provider and most had been seen within the last several months

Chlamydia Breakdowns

Patients who were not screened for Chlamydia in the last 12 mos as of November 2019
Patients assigned to Schaefer

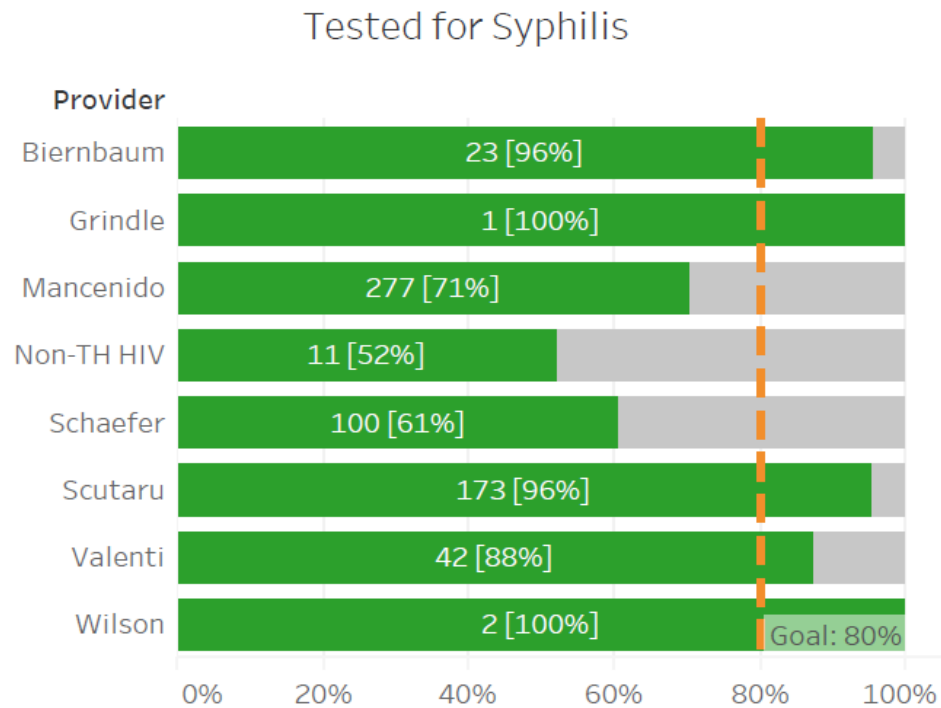


Ingredients for Successful Visualizations



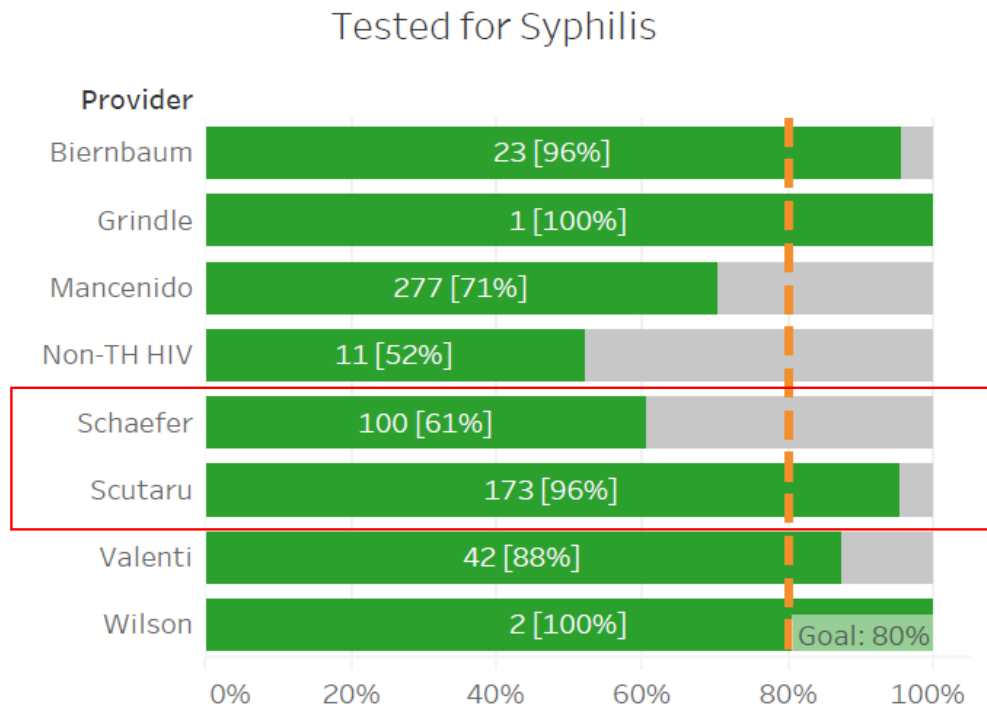
- Access to data
 - Had to take many steps to build new structured fields in EHR to capture data elements
 - No longer doing manual exports from Excel to build visualizations
 - Worked with EHR to establish nightly feeds for common data elements into SQL DataMart
- Data consumers
- Discuss data definitions and assumptions beforehand

Provider Perspective and Motivation



- Early goals were national standards.

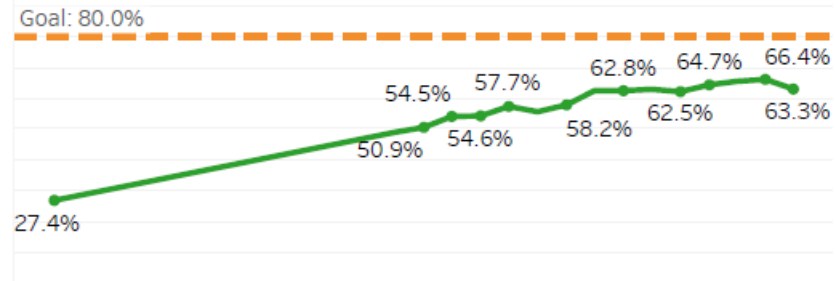
Data Visualization



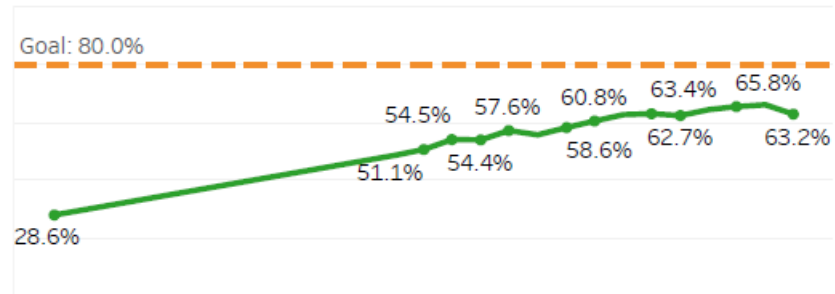
- Early goals were national standards.
- Identify deficits and brainstorm compensatory techniques.

Data Visualization

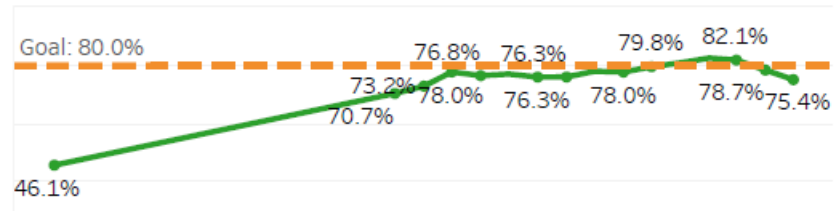
Chlamydia Over Time



Gonorrhea Over Time

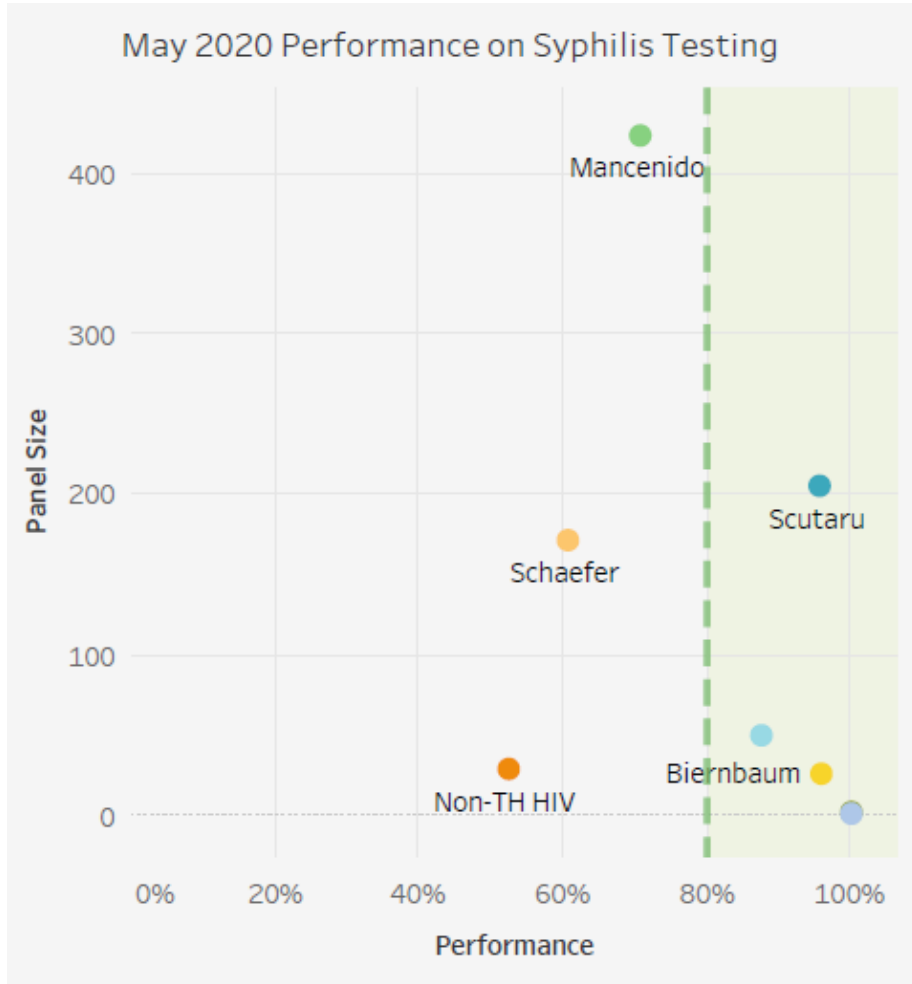


Syphilis Over Time



- Early goals were national standards.
- Identify deficits and brainstorm compensatory techniques.
- Assess changes over time.

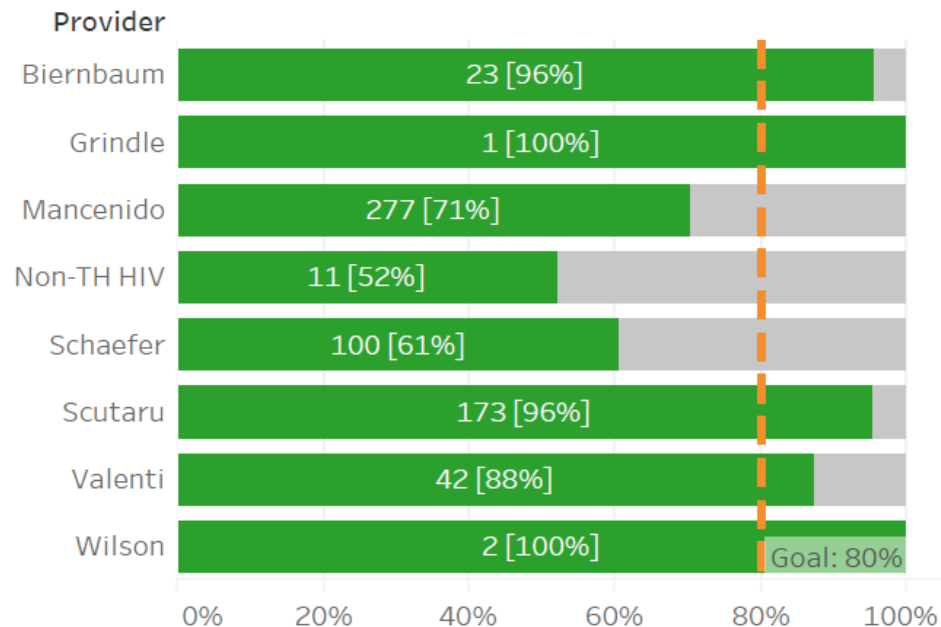
Data Visualization



- Early goals were national standards.
- Identify deficits and brainstorm compensatory techniques.
- Assess changes over time.
- Compare apples to apples.

Data Visualization

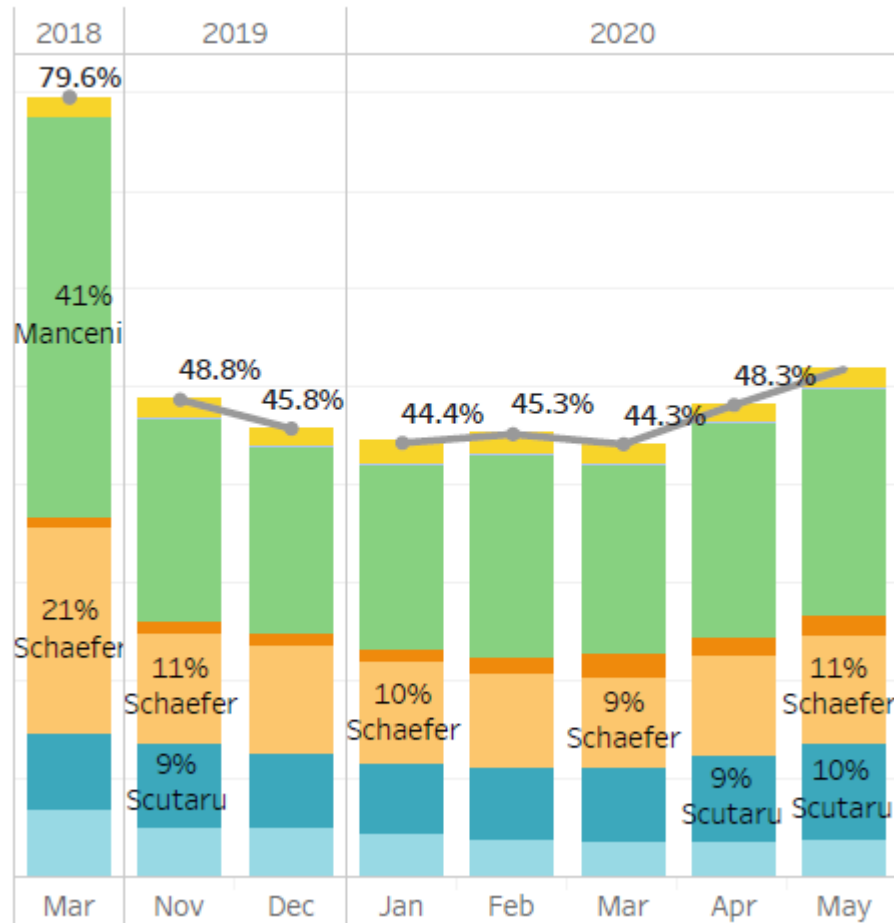
Tested for Syphilis



- Early goals were national standards.
- Identify deficits and brainstorm compensatory techniques.
- Assess changes over time.
- Compare apples to apples.
- Follow-up and Reinforcement.

Goal-Oriented Reinforcement

Rates of patients not screened for Anal Cancer



- Early goals were national standards.
- Identify deficits and brainstorm compensatory techniques.
- Assess changes over time.
- Compare apples to apples.
- Follow-up and Reinforcement.

Embedded Alarms

- Group: Qapi HIV Measures

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Not Due	Date	Re
HIV:Pneumoc	12/05/13	907
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- Early goals were national standards.
- Identify deficits and brainstorm compensatory techniques.
- Assess changes over time.
- Compare apples to apples.
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Reinforcement



- Early goals were national standards.
- Identify deficits and brainstorm compensatory techniques.
- Assess changes over time.
- Compare apples to apples.
- Follow-up and Reinforcement.

The Golden Swab



Questions?



Alex Danforth (adanforth@trilliumhealth.org)

Grace Jividen (gjividen@trilliumhealth.org)

Jacob Scutaru (jscutaru@trilliumhealth.org)