

# **Influenza Testing:**

Lessons Learned in Collaborating with Physicians to Improve Utilization of Rapid Flu Tests to Meet the Goals of Better Patient Outcomes While Saving Patients Money

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# Objectives

- Describe the forms of influenza testing available
- Describe a physician advisory model for making clinical decisions to drive appropriate laboratory test utilization.
- Describe an alternative model for influenza testing within an integrated health system
- Understand how the laboratory can lead collaboration efforts to improve patient care and drive appropriate utilization outside of the laboratory.



# Program Description

- There are multiple testing approaches to rapid influenza testing
- Within HealthPartners, 2 very different approaches to testing evolved over time.
- Development of a Physician Advisory Panel across the Care Group to assist in standardizing and optimizing clinical care.



# HealthPartners

- Integrated health care organization providing health care services and health plan financing and administration
- Founded in 1957 as a cooperative
  - The largest consumer governed nonprofit health care organization in the nation - serving more than 1.8 million medical and dental health plan members nationwide
- Merged with Park Nicollet Health Services in 2013
- Care Group system includes a multi-specialty group practice of more than 1800 physicians



# HealthPartners



clinics and hospitals



states where we offer  
health insurance



dedicated employees



million patients



million insured  
members



research studies each  
year





**Park Nicollet**  
*Clinic & Specialty Center*

HealthPartners®



**HealthPartners**  
*Clinic*



**Regions Hospital**

HealthPartners®



**HealthPartners**  
*Stillwater Medical Group*



**Methodist Hospital**

HealthPartners®



**TRIA**

ORTHOPAEDIC CENTER



**HealthPartners**  
*North Suburban Family Physicians*



**HealthPartners**  
*Riverway Clinic*



**Lakeview Hospital**

HealthPartners®



**HealthPartners**  
*Central Minnesota Clinic*



**Melrose Center**



**Park Nicollet**  
*Frauenshub Cancer Center*

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**Hutchinson Health**

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**virtuwell**

by HealthPartners®



**Amery Hospital & Clinic**

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**Hudson Hospital & Clinic**

HealthPartners®



**Capitol View**  
*Transitional Care Center*

HealthPartners®



**Westfields Hospital & Clinic**

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# Total Cost of Care

- Total Cost of Care, or TCOC, is a name for a method of measuring health care affordability
- Supports HealthPartners commitment to achieve the IHI Triple Aim
- System goal: 10% below market or 90% of median



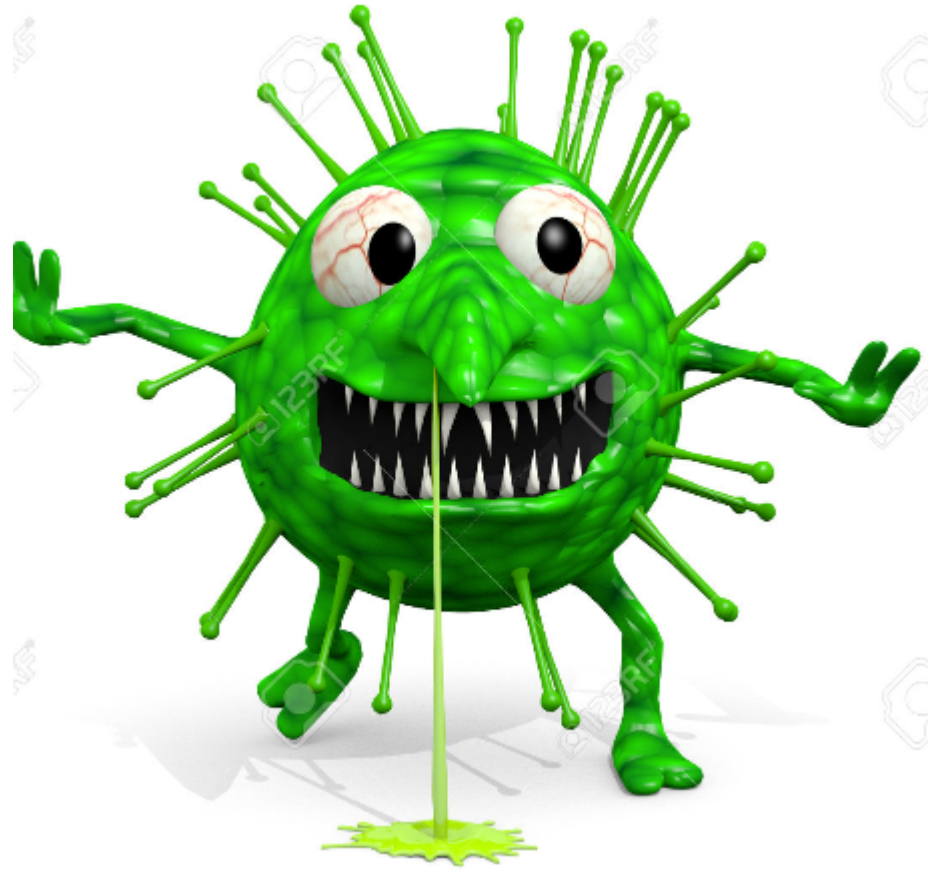
# TCOC and Lab Test Utilization

- Laboratory Total Cost of Care work groups
  - HealthPartners – System wide laboratory view of opportunities to improve the Triple Aim
  - Park Nicollet – Primary Care, Urgent Care, Pediatrics, Specialty clinician champions
  - Recent Topics – A1c, Vitamin testing, screening, Choosing Wisely recommendations, Tick Borne diseases, Influenza testing, frequency of testing, standing orders





# Influenza!



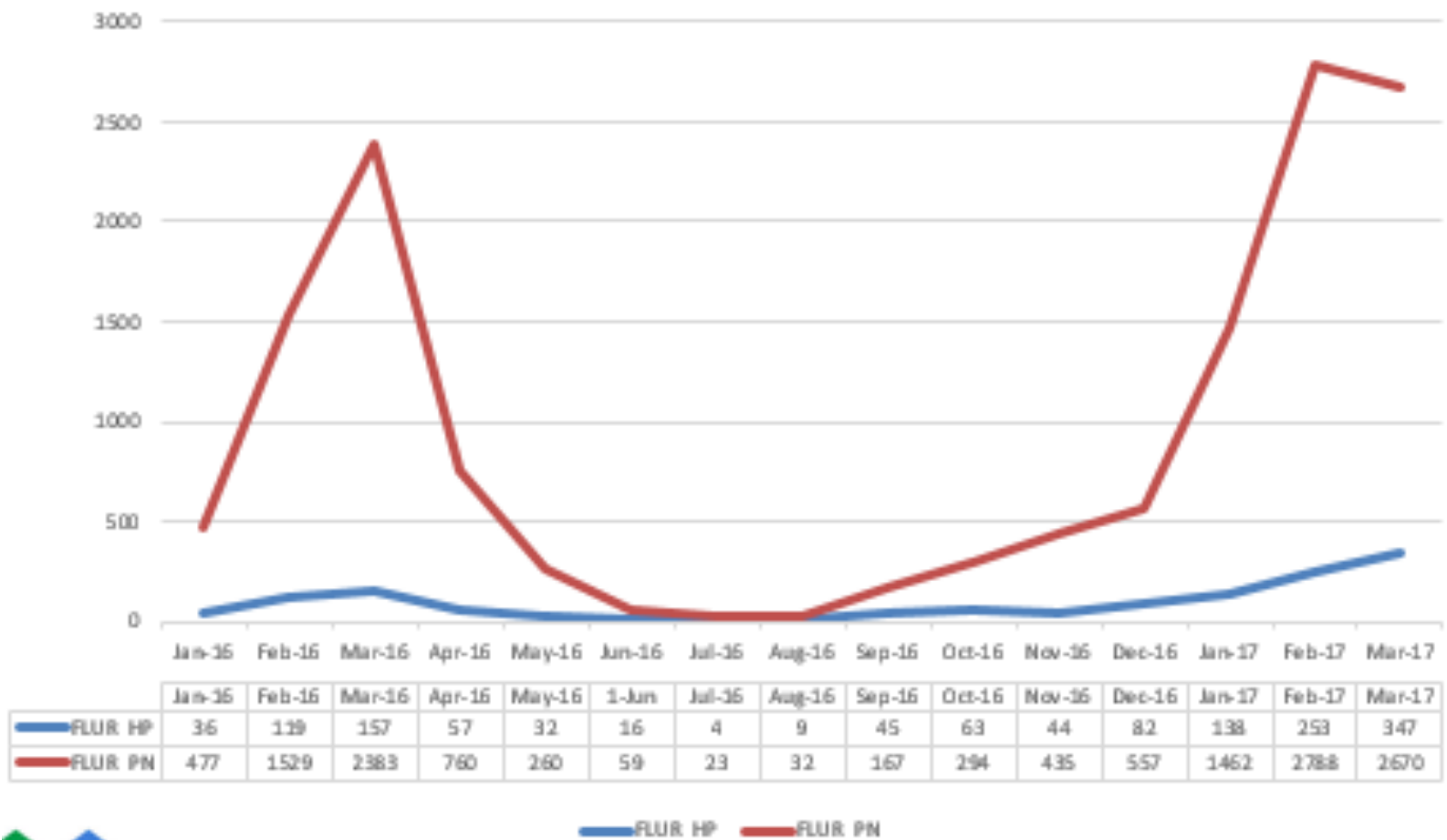
# Situation/Background

- Park Nicollet and HealthPartners Medical Groups have had different approaches to Influenza A & B diagnostic testing in the ambulatory setting.
  - Park Nicollet employed decentralized rapid antigen detection testing at 24 ambulatory locations.
  - HealthPartners employed a centralized testing approach with PCR performed at a single location at Regions hospital.
- This difference in testing approach resulted in Park Nicollet performing approximately 10x more testing than our counterparts at HealthPartners

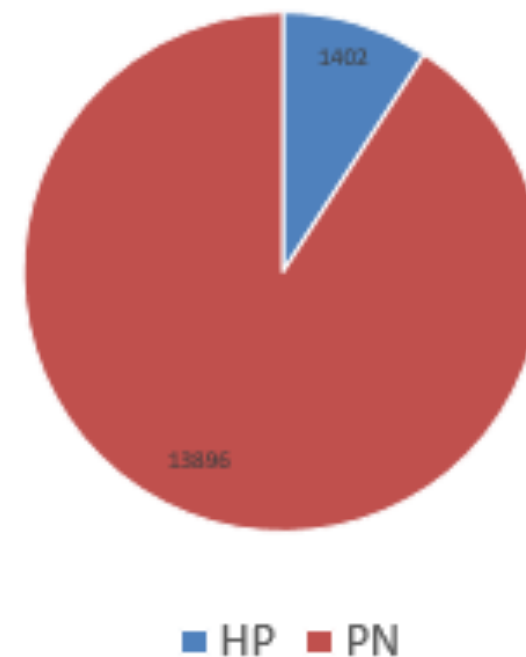


# Influenza Testing January 2016 - March 2017

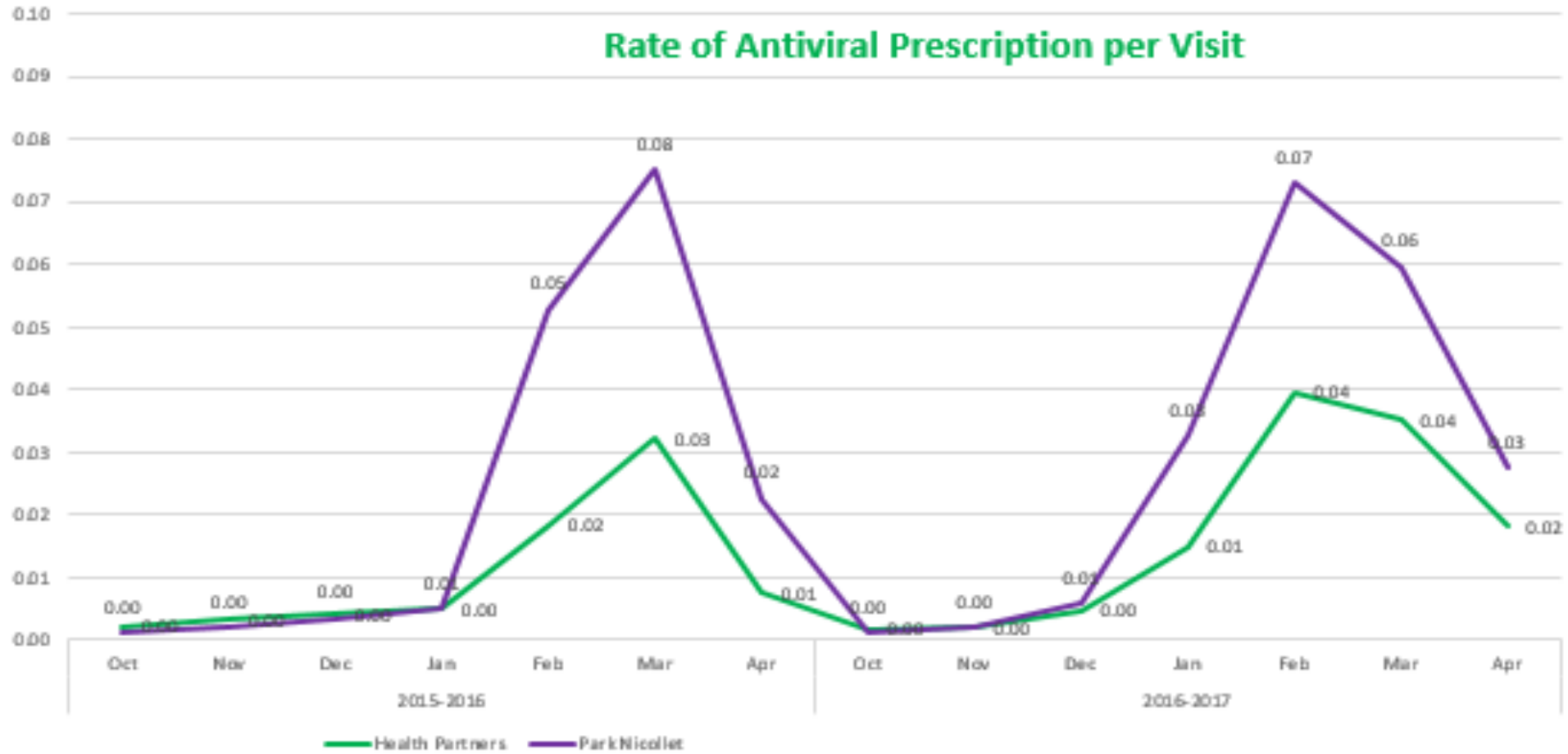
## Clinic Influenza Testing – HealthPartners vs Park Nicollet



## Influenza Test Totals:

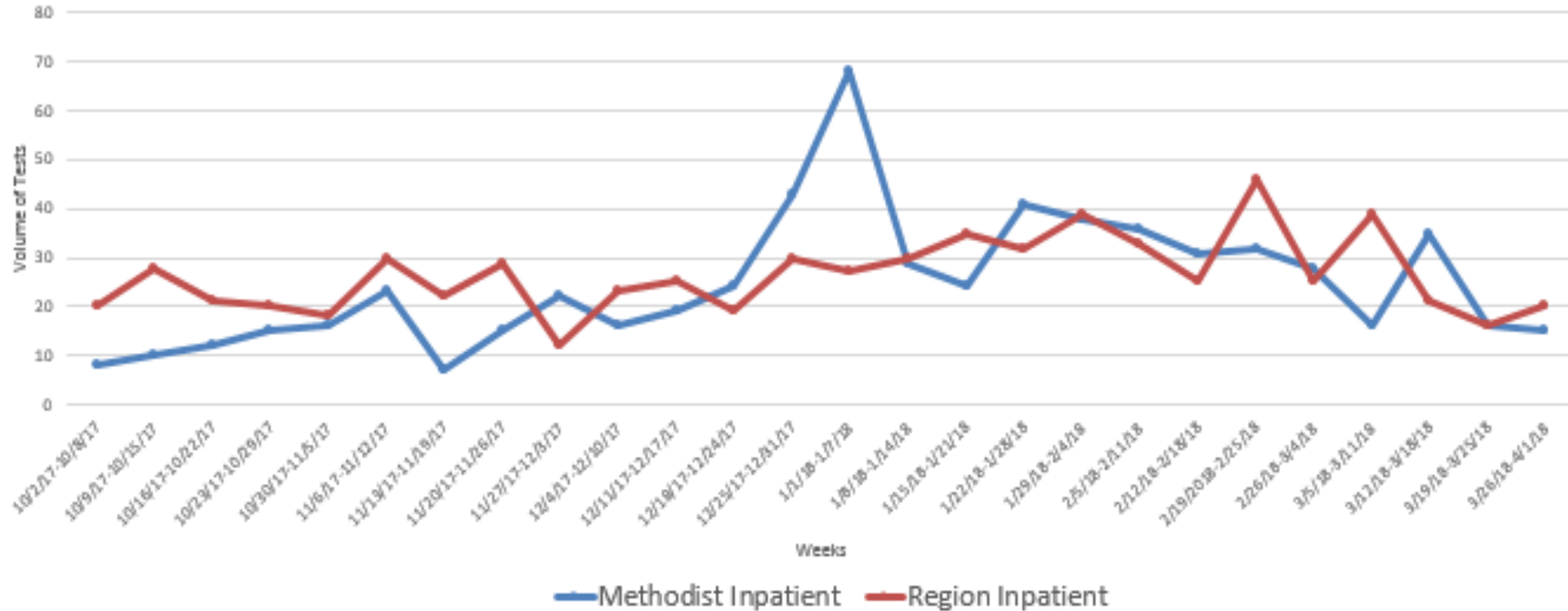


# Influenza Anti-Viral Rate Jan. 2016 - April 2017



# Inpatient Comparison – Methodist vs Regions

## Inpatient Influenza Testing - 2017-2018 Season





# Physician Advisory Group Format

- Identify a specific clinical need or issue
- Identify a group of physician content experts from across the organization
- Minimize time requirements by structuring a 45 minute open discussion
- Provide background information, literature and questions ahead of time to facilitate a focused discussion
- Develop a recommendation and bring to physician leadership



# Physician Advisory Group

- Members from Park Nicollet and HealthPartners Care Groups
  - Primary Care
  - Urgent Care
  - Pediatrics
  - Geriatrics
  - Infectious Disease
  - Pathology
  - Laboratory Operations





# Physician Advisory Group - Questions

1. Are you in agreement with the CDC influenza testing algorithm?
2. In what clinical settings do you most often need influenza test results in order to make a treatment decision?
3. Since rapid influenza testing is relatively insensitive, what value does rapid influenza testing add for patient care?
4. Should Rapid Influenza Testing be discouraged during periods of low influenza activity? Should it be offered at all?



# Physician Advisory Group - Questions

5. When Influenza testing is necessary, how quickly are results needed?
6. Can we limit testing to Hospital, Emergency and possibly Urgent Care settings?
7. Since treatment should be initiated within 48 hours of onset, can we discourage testing after 48 hours?



**1. PROJECT TITLE:**

Influenza Testing Algorithm - Standardize

**Sponsor:** Doug Olson, MD**Leader:** Jason Mayer**Coach/PM:****Date/Version#:****Team:** Laboratory, Primary Care, Pathology, Infectious Disease, Urgent Care, Pediatrics, Geriatrics,**2. PROBLEM STATEMENT:** *Describe the problem you are trying to solve. Keep it clear, succinct, and measurable.*

Park Nicollet (PN) and HealthPartners (HP) medical groups have different approaches to Influenza A & B diagnostic testing. PN performed 13,896 tests and HP 1,402 from January 2016 – March 2017 (excluding IP or ED). This advisory group would like to understand the difference in the clinical decision making to order testing.

**3. SCOPE:**

**In Scope:** Outpatient Influenza testing, Rapid and PCR testing

**Out of Scope:** Inpatient or Emergency Center Influenza testing

**4: TARGET STATEMENT/AIMS** *Describe X by Y in Z time*

Based on best science, this advisory group will make recommendations to primary and specialty care leadership on standardizing influenza testing.

**5. BACKGROUND/CURRENT SITUATION** *Observe and map the current process or condition; what issues are occurring*

- Park Nicollet (PN) and HealthPartners (HP) Medical Groups have different approaches to Influenza A & B diagnostic testing in the ambulatory setting.
  - PN employs decentralized rapid antigen detection testing at 24 ambulatory locations. The sensitivity of this test is between 65 and 72%. Other EIA tests on the market are as low as 54% sensitive. Results are generally available within 20-30 minutes of collection.
  - HP employs a centralized testing approach with PCR assay performed at a single location. The sensitivity of this test is >98%. Results are generally available in 4-6 hours of collection.

**6. PROBLEM ANALYSIS:** *What are the root causes for the key issues identified? What is the evidence?*

- Based on patient/member medical coverage, the approximate cost could be as high as \$90 for the current antigen test and \$260 for a PCR test.
- Reviewing influenza lab testing data between the different Care Groups demonstrated a notable difference in testing, approximately a 10 fold difference in testing at PN as compared to HP.
- We convened a Care Group Influenza Testing Advisory Group consisting of clinician representatives from both adult and pediatric medicine, geriatric medicine, urgent care, infectious disease, infection control/ prevention and laboratory medicine.
- Together we reviewed the most recent professional society guidelines and recent reviews/recommendations around ambulatory influenza testing, and present the following joint recommendations for leadership approval.

**7. FUTURE STATE/SOLUTIONS:** *Describe or map future state and identify solutions that address the root causes*

- Confirmed agreement with CDC influenza testing algorithm but recommend some clarification of definitions
- Adult Patients (18 years and older).
  - Eliminate the rapid influenza antigen testing
  - For patients that meet the appropriate CDC guidelines, recommend the PCR test.
- Pediatric Patients (0-17 years old).
  - For patients that meet the appropriate CDC guidelines, recommend the PCR test.
  - In limited situations, when rapid turnaround is essential, the rapid antigen assay may be acceptable.
- For patients to be admitted, recommend testing by PCR to be collected upon admission to the hospital to avoid duplication of testing.
- Recommend seasonal communication based on influenza activity from central infection control sources with guidance about when to test versus clinical diagnosis.

**8. IMPLEMENTATION** *List the major tasks, consider pilots as appropriate. Attach or link full project plans if needed.*

WHAT	WHO	WHEN	STATUS (R/Y/G/B/W)
1. Approve test changes from PN Leadership	Lab	11/2017	
2. Education of Clinicians and Care Teams	ID and Lab	12/2017	
3. Rapid Influenza removed from the Emergency Center	Lab	12/2017	
4. Communication of changes	Lab	1/2018	
5. Go Live with Epic changes and testing	All	2/2018	
6. Epic – Add Process Instructions	IS&T	11/2017	
7. Epic – Make PCR available to entire system	IS&T	11/2017	
8. Epic – Add Alternative test recommendation	IS&T	11/2017	
9. Epic – Change display name for Rapid (PEDS ONLY)	IS&T	11/2017	
10.			

**9: FOLLOW UP:** *How do you plan to sustain the gains? What are three key metrics? Include pilot metrics if applicable*

Key Measures	(insert date)	(insert date)	(insert date)
1.			
2.			
3.			

Does the patient have signs and symptoms suggestive of influenza, including atypical clinical presentation, or findings suggestive of complications associated with influenza?<sup>2,3</sup>

Yes

No

Is the patient being admitted to the hospital?

Yes

No

Will influenza testing results influence clinical management?<sup>4</sup>

Yes

No

Test for influenza; start empiric antiviral treatment for hospitalized patients while results are pending (molecular assays should be used for influenza testing of hospitalized patients.)<sup>4,5,6,7,8</sup> Proper interpretation of testing results is important.

Influenza testing probably not indicated; consider other etiologies

Influenza clinically diagnosed; start empiric antiviral treatment if the patient is in a high-risk group for influenza complications<sup>7,8</sup>, or has progressive disease, advise close follow-up if worsening



# Accuracy of Testing

- Traditional rapid antigen detection tests
  - 53.2% pooled sensitivity
- Digital immunoassay tests
  - 76.8% pooled sensitivity
- Rapid PCR tests
  - 95.4% pooled sensitivity



# Accuracy of Testing

## The FLU



# Advisory Group Recommendations

- Confirmed agreement with CDC influenza testing algorithm but recommend some clarification of definitions
- Adult Patients (18 years and older).
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# Test Changes

- November 2017
  - Received approval from Park Nicollet Primary Care Leadership
- December 2017
  - Education of clinicians and care teams began
  - Rapid Influenza removed from the Emergency Center
    - All PCR
- February 2018 - Implementation
- Did not eliminate the rapid test, but provided alternatives –  
Soft intervention





# Epic Order Changes

Preference List Search - Adttest,Sue Dec

INFLUENZA

Medications  Procedures  Order Panels  Split

Name	Code	Dose	Freq	Type	Pref List	Px Code
Influenza Virus A and B By PCR			ONCE	Micro	IRELAND, ( 5268	
Influenza Virus Rapid Antigen (PEDI ONLY)			ONCE	Micro	IRELAND, ( 3644	
POCT Influenza A/B (PEDI ONLY)			ONCE	POCT	IRELAND, ( POC66	

Changed the Name to deter ordering on Adults

Added Decision Support to each test

Influenza Virus A and B By PCR  Accept  Cancel

Priority:

Frequency:

Starting:    At:

First Occurrence: **Today 0840**

Scheduled Times: [Hide Schedule](#)

1/2/18 0840

Comments (F6): [Click to add text](#)

Process Inst: In most circumstances the clinical diagnosis of influenza is sufficient when influenza is known to be circulating in the community. When test results will directly impact treatment decisions, PCR is recommended.



# Epic Order Changes – Best Practice Alert

Alternative Selection

**Influenza Virus Rapid Antigen: Routine, ONCE First occurrence Today at 0826**

**Rapid antigen assays are not recommended for Influenza testing.**

The clinical diagnosis of influenza is equivalent or superior to antigen based assays and should be the primary approach to diagnosis when influenza is circulating in the community. When test results will directly impact treatment decisions, PCR is recommended.

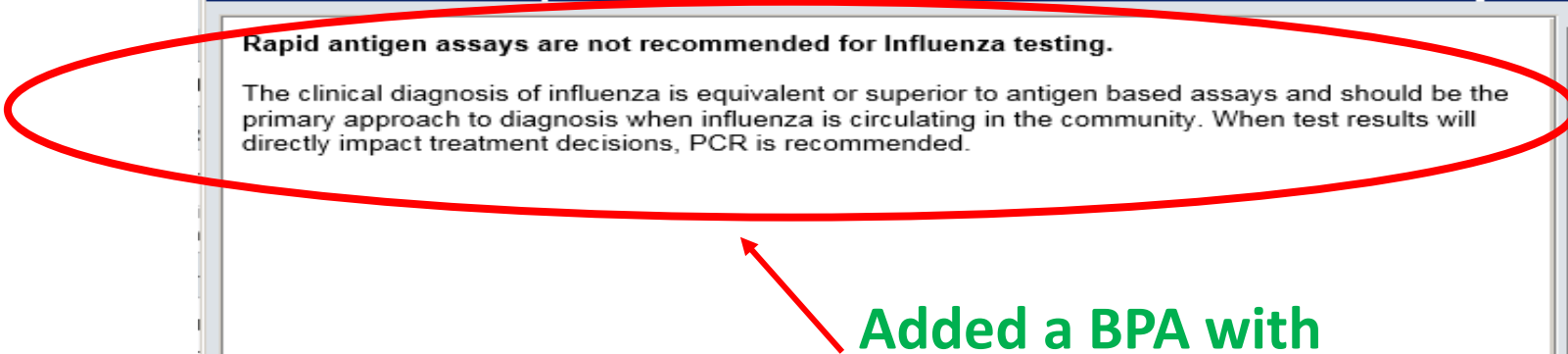
**Web Links**

- [Advisory group recommendations for influenz...](#)
- [CDC Guideline for influenza testing](#)

Alternative | Details | Cost

Alternative	Details	Cost
Influenza Virus A and B By PCR		

Accept Alternative | Continue With Original Order | Cancel



**Added a BPA with Decision Support**



# Epic Order Changes

Alternative Selection

**Influenza Virus Rapid Antigen: Routine, ONCE First occurrence Today at 0825**

**Rapid antigen assays are not recommended for Influenza testing.**

The clinical diagnosis of influenza is equivalent or superior to antigen based assays and should be the primary approach to diagnosis when influenza is circulating in the community. When test results will directly impact treatment decisions, PCR is recommended.

**Added a BPA with Decision Support – Links to Guidelines**

**Web Links**

- [Advisory group recommendations for influenz...](#)
- [CDC Guideline for influenza testing](#)

Alternative	Details	Cost
Influenza Virus A and B By PCR		

Accept Alternative    Continue With Original Order    Cancel



# Epic Order Changes

**Alternative Selection**  
**Influenza Virus Rapid Antigen: Routine, ONCE First occurrence Today at 0826**


**Rapid antigen assays are not recommended for Influenza testing.**

The clinical diagnosis of influenza is equivalent or superior to antigen based assays and should be the primary approach to diagnosis when influenza is circulating in the community. When test results will directly impact treatment decisions, PCR is recommended.

**Web Links**  
[Advisory group recommendations for influenz...](#)  
[CDC Guideline for influenza testing](#)

Alternative	Details	Cost
Influenza Virus A and B By PCR		

**Added alternative testing options**



# Decision Support

Feb 2018 - May 2018	TESTS	% USE
CONTINUE WITH RAPID TESTING	1811	88.26%
CANCEL ORDER	156	7.60%
ACCEPT ALTERNATIVE PCR TEST	85	4.14%
<b>Grand Total</b>	<b>2052</b>	<b>100.00%</b>

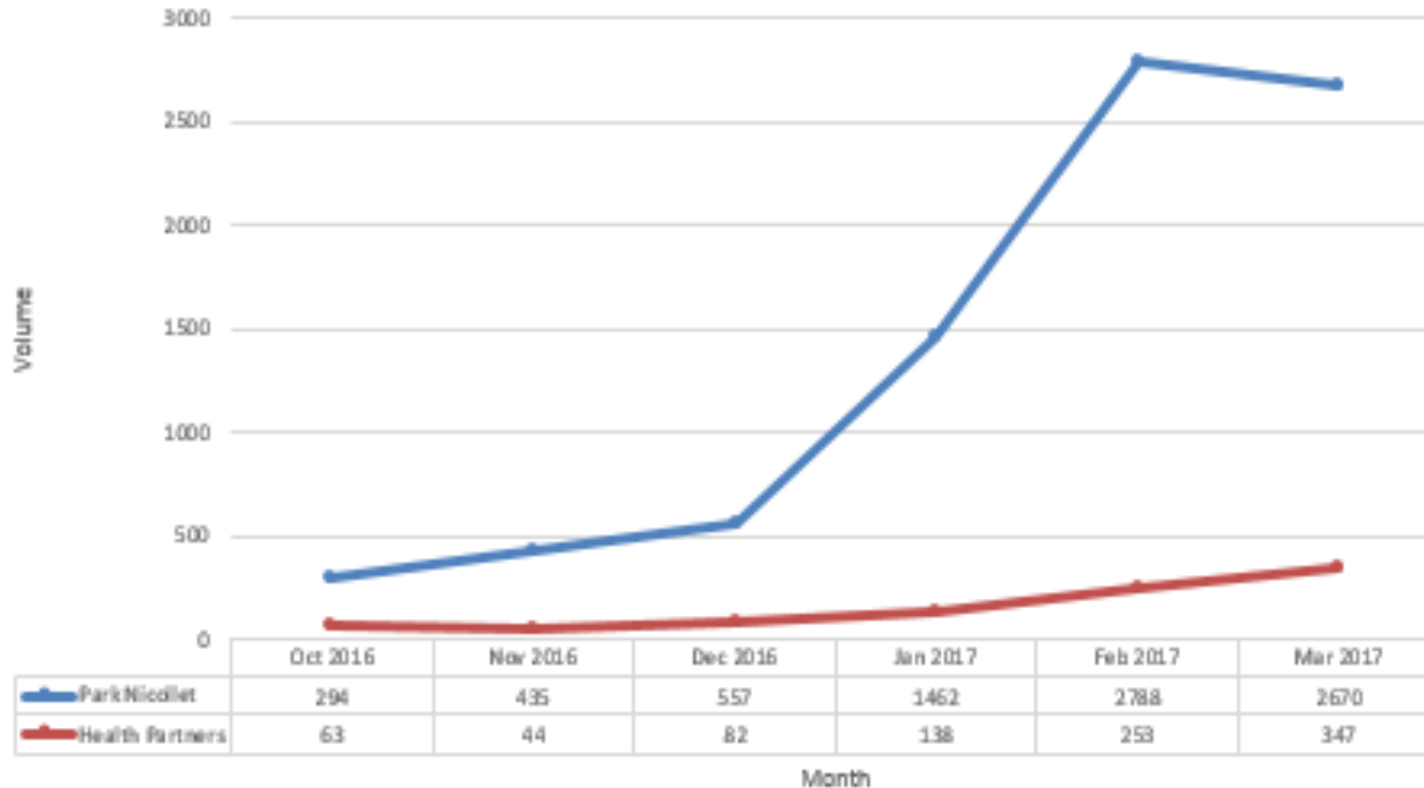
June 2018 - May 2019	TESTS	% USE
CONTINUE WITH RAPID TESTING	2794	86.34%
CANCEL ORDER	247	7.63%
ACCEPT ALTERNATIVE PCR TEST	195	6.03%
<b>Grand Total</b>	<b>3236</b>	<b>100.00%</b>

Cancelled tests saved patients over  
**\$36,000!**

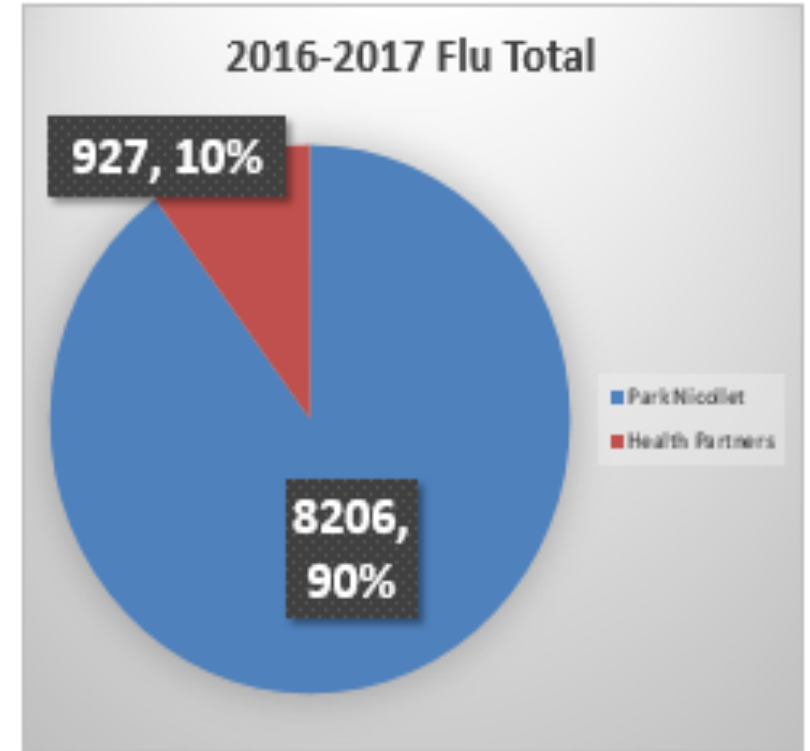


# Data Prior to Go-Live

## 2016-2017 Outpatient Flu Tests

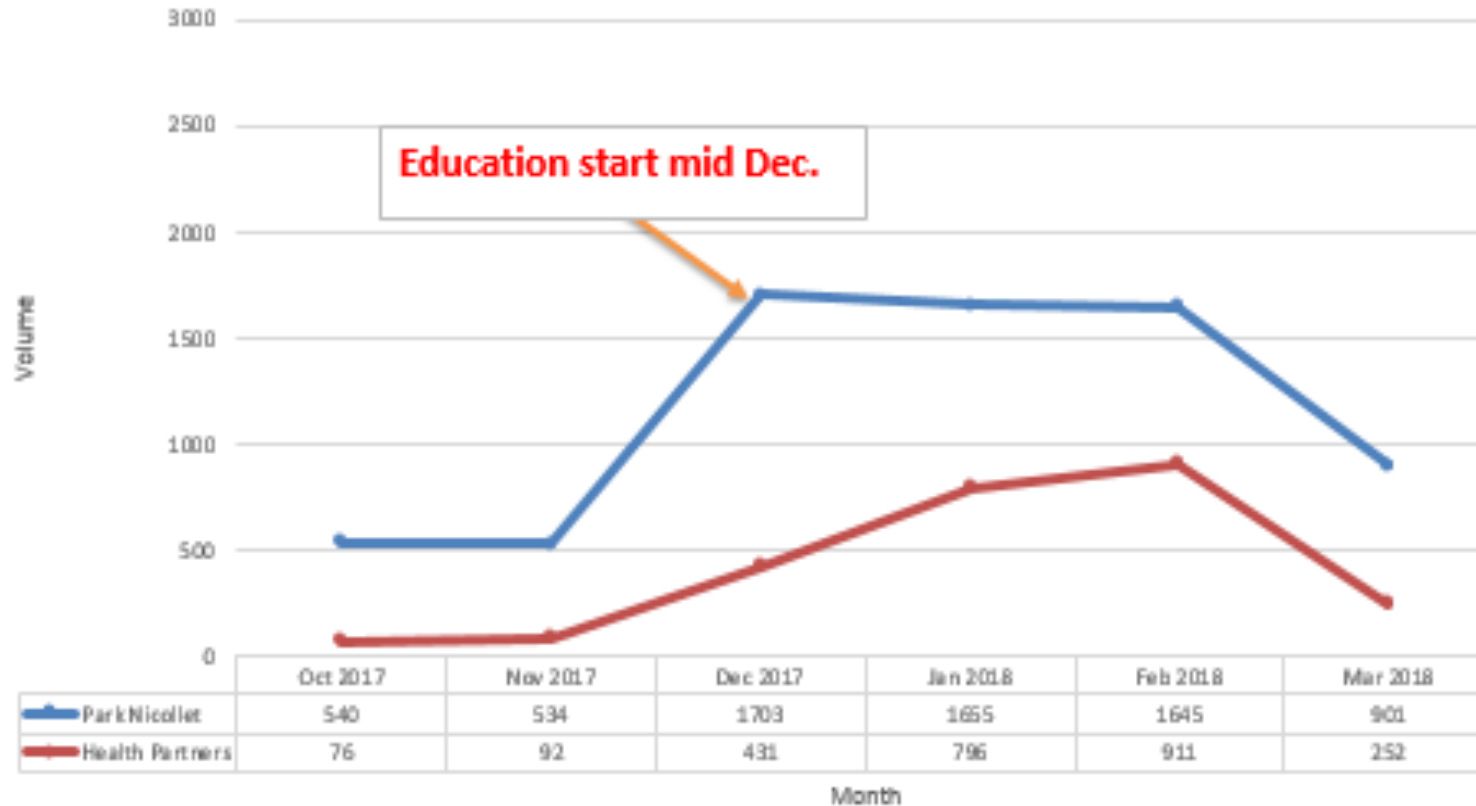


— Park Nicollet — Health Partners

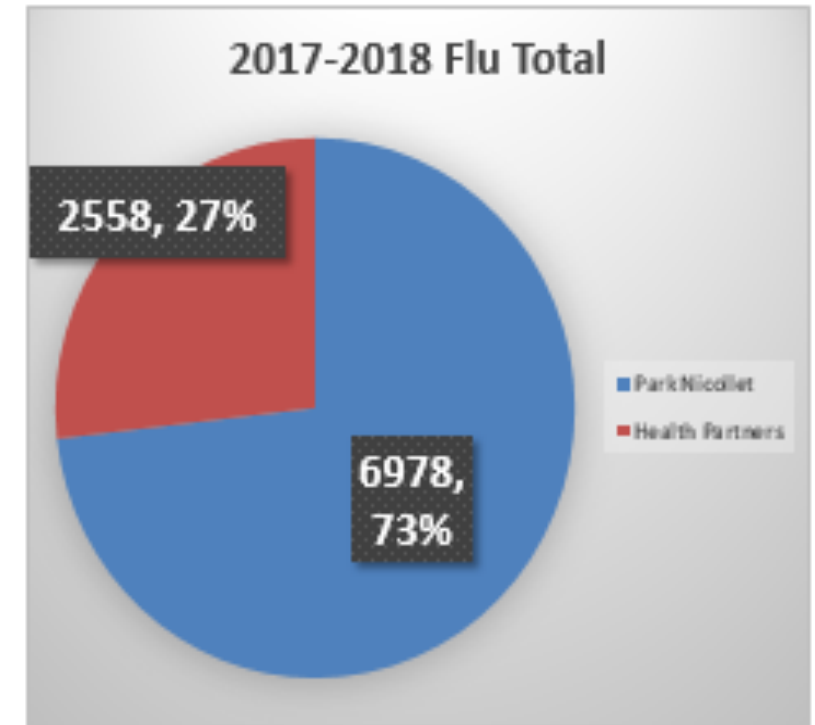


# Data Post Go-Live

## 2017-2018 Outpatient Flu



— Park Nicollet — Health Partners



# Data Post Go-Live

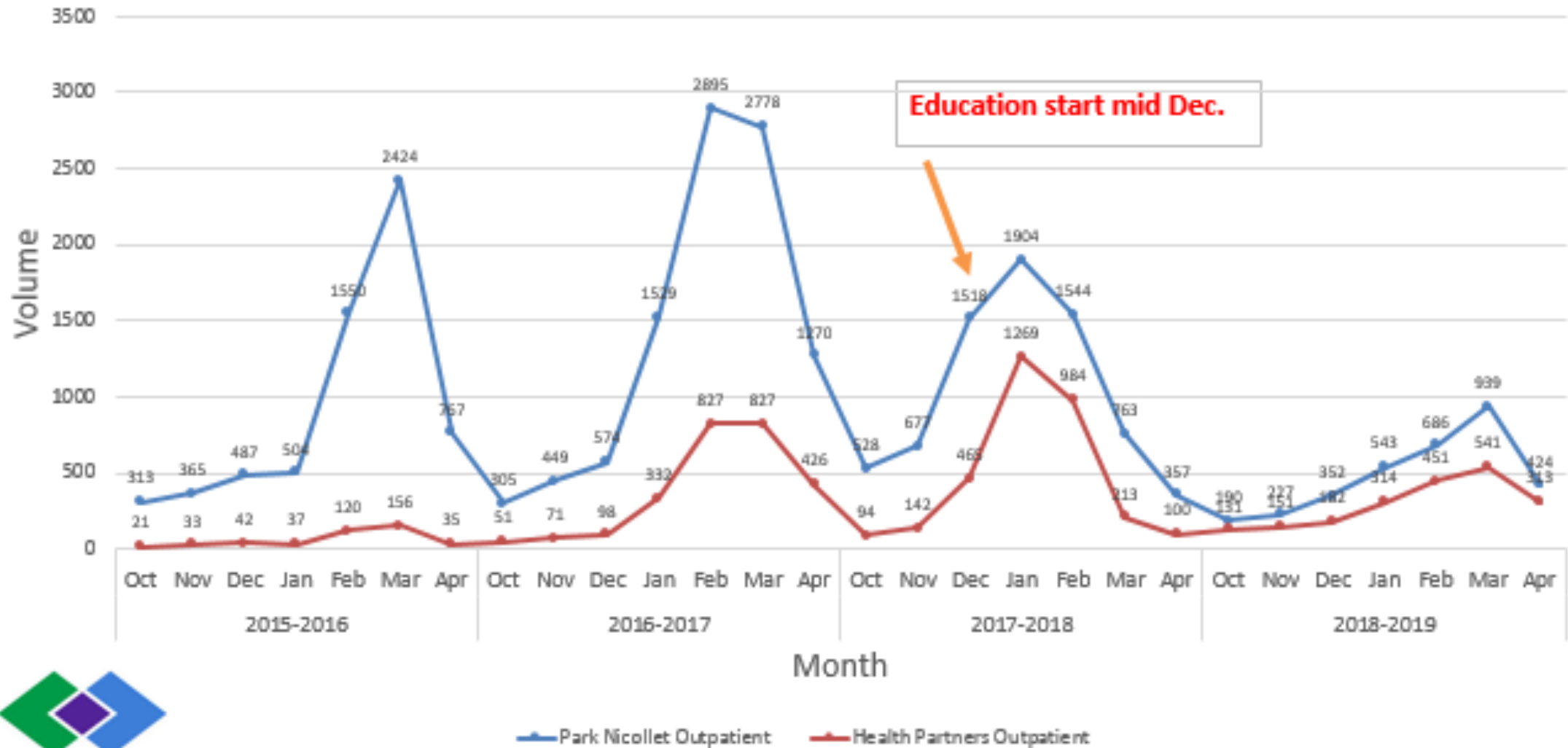
- Park Nicollet Clinics
  - **15% reduction year over year**
  - **28% reduction in peak 3 months year over year**
- HealthPartners Clinics
  - 176% increase year over year
  - High level severity flu season



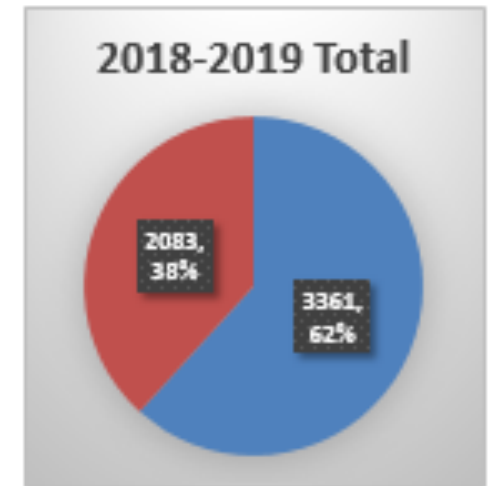
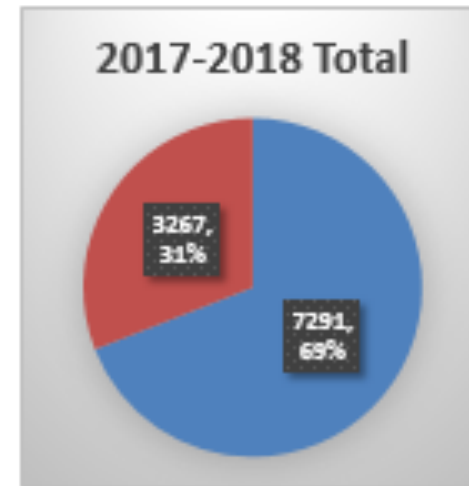
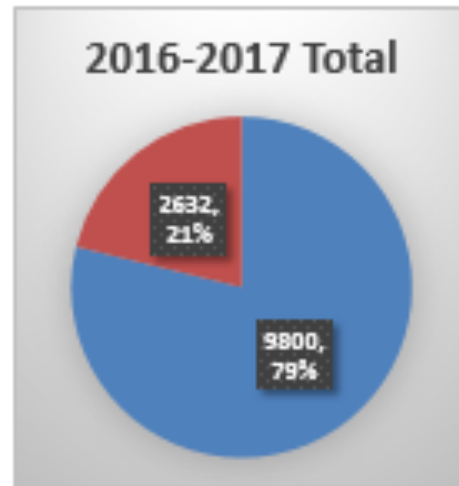
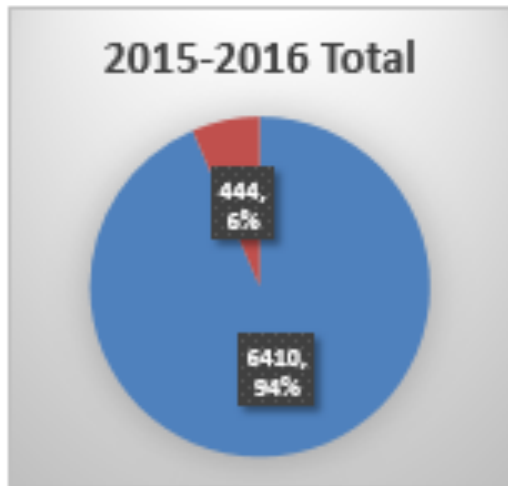


# Data Post Go-Live

## HP & PN Outpatient Influenza 2015-2018



# Data Post Go-Live

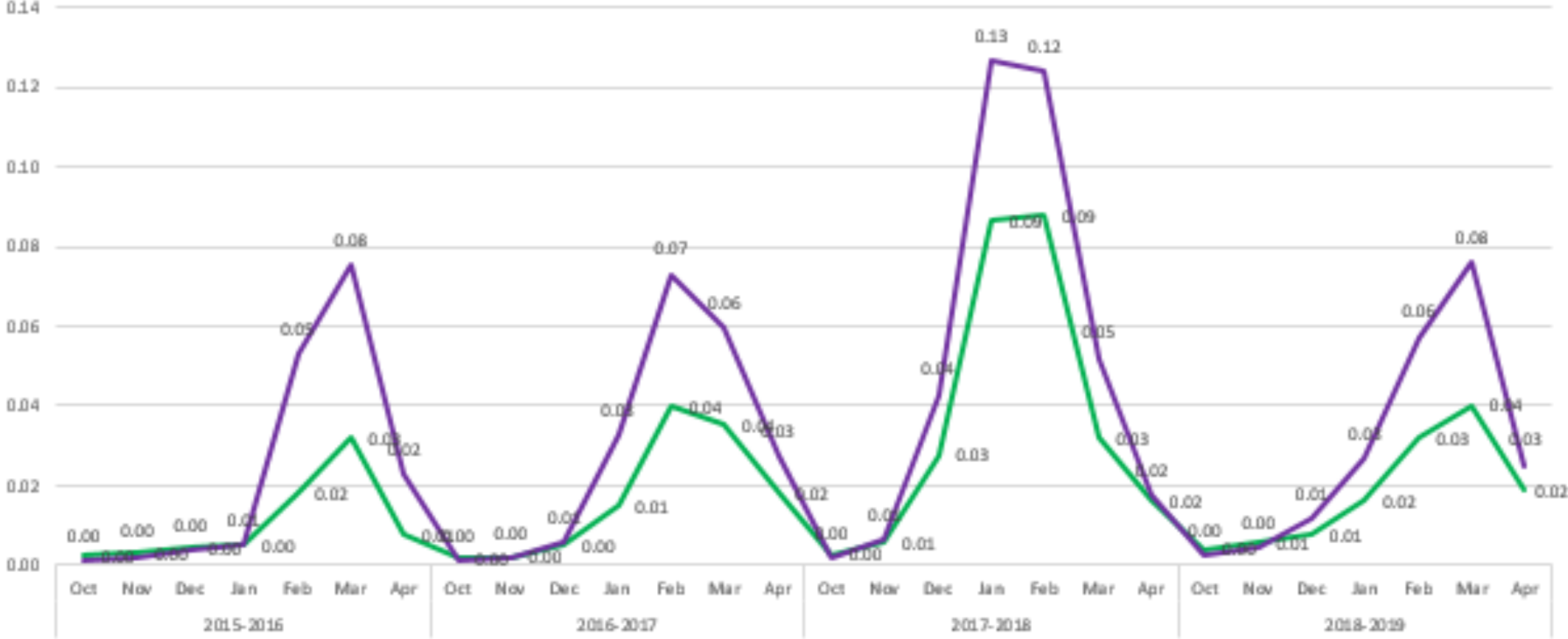


 Park Nicollet Medical Group  
 HealthPartners Medical Group



# Patient Outcomes – Anti-Viral Usage

## Rate of Antiviral Prescription per Visit



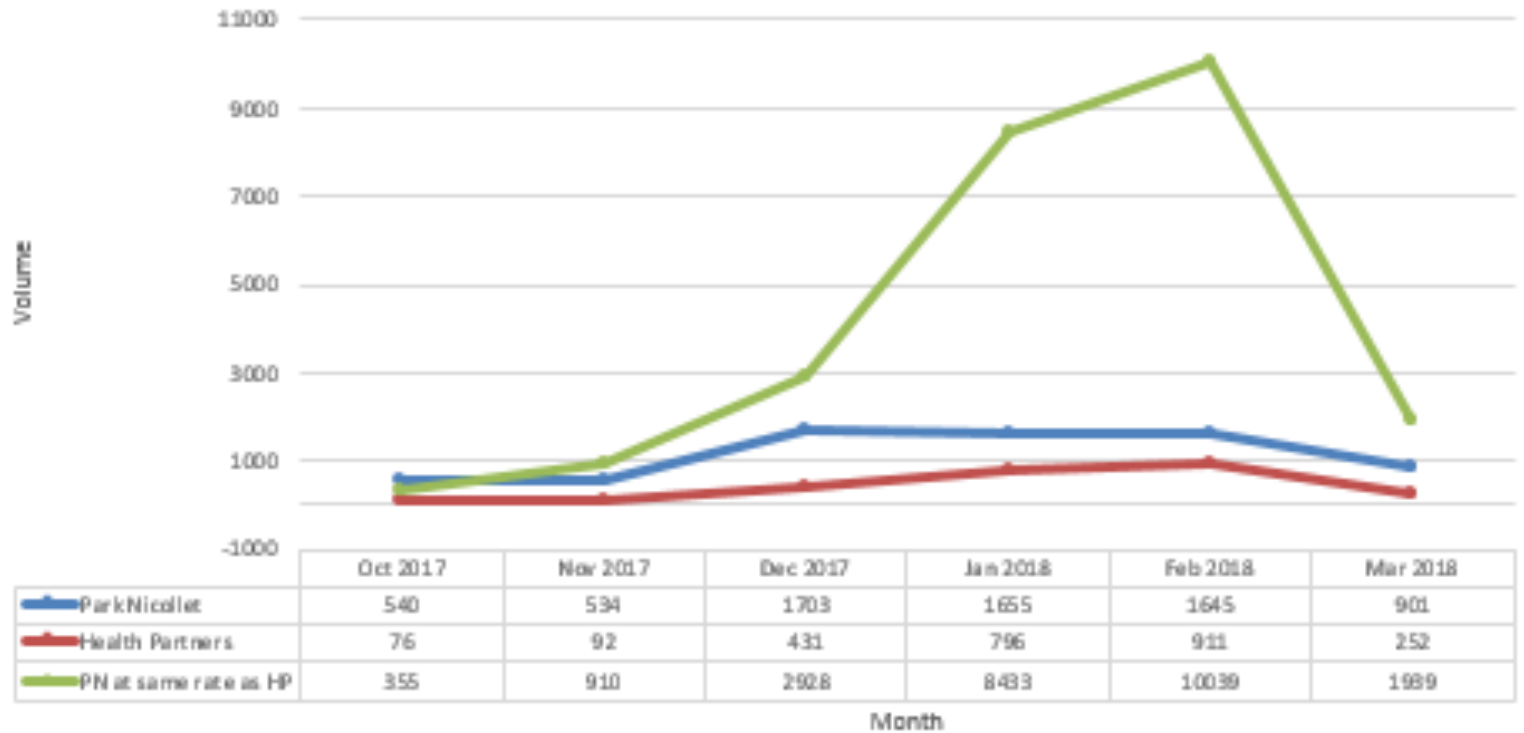
— Health Partners      — Park Nicollet



# Patient Outcomes - Financial

- Compared to 2016-2017:
  - **\$190,000** reduction in patient charges
  - 1915 fewer tests
- Theoretical -
  - **\$1,740,000** reduction in patient charges
  - 17,625 fewer test

## Estimated Test Volumes in Absence of an Advisory Group – 2017-2018 Influenza Testing



■ Park Nicollet    
 ■ Health Partners    
 ■ PN at same rate as HP

# Patient Outcomes – Financial Last 2 Seasons

Rapid testing: ↓ 9282 tests

PCR Testing: ↑ 1954 tests

Per patient cost: ↑ \$30.50

Overall 7328 fewer patient tested

Patient charges ↓ **\$164,114**



# Triple Aim Summary

## **Health**

- Improve clinician decision support to ensure the right test is used at the right time to improve patient care.



## **Quality Improvement**

## **Experience**

- Patients only receive testing when clinically relevant.
- Supported our clinicians regarding the appropriate use of influenza testing

## **Affordability**

- Limited testing that did not impact clinical management
- Reduction of over 10000 billable tests.





FUTURE AHEAD

# Often the end of a project is just the beginning of other projects and opportunities...

- Continue to evaluate need for rapid testing
  - Can we get closer to the recommendation to eliminate rapid testing altogether?
  - Do we further restrict the rapid test to Urgent Care and Pediatric locations?
  - Evaluate and leverage Epic ordering and decision support tools even further. Utilize age based decision support.
  - Do we expand PCR testing to ambulatory sites (decentralize)?





# Supporting Documentation and Resources

- Diagnostic Accuracy of Novel & Traditional Rapid Tests for Influenza Infection Compared with RT-PCR.  
<http://annals.org/aim/article/2652566/diagnostic-accuracy-novel-traditional-rapid-tests-influenza-infection-compared-reverse>
- Guide for Considering Influenza Virus Diagnostic Testing when Influenza Virus is Circulating  
[https://www.uptodate.com/contents/image?imageKey=ID%2F74504&topicKey=ID%2F15871&rank=1~150&source=see\\_link&search=influenza%20testing](https://www.uptodate.com/contents/image?imageKey=ID%2F74504&topicKey=ID%2F15871&rank=1~150&source=see_link&search=influenza%20testing)
- IDSA Guideline on Influenza Testing  
[http://www.idsociety.org/Guidelines/Patient\\_Care/IDSA\\_Practice\\_Guidelines/Infections\\_By\\_Organism-28143/Viruses/Influenza/#recommendations](http://www.idsociety.org/Guidelines/Patient_Care/IDSA_Practice_Guidelines/Infections_By_Organism-28143/Viruses/Influenza/#recommendations)
- WHO recommendations on the use of rapid testing for influenza diagnosis  
[http://www.who.int/influenza/resources/documents/RapidTestInfluenza\\_WebVersion.pdf](http://www.who.int/influenza/resources/documents/RapidTestInfluenza_WebVersion.pdf)
- Guide for considering Influenza testing when Influenza viruses are circulating in the community  
<https://www.cdc.gov/flu/professionals/diagnosis/consider-influenza-testing.htm>
- Rapid Diagnostic Testing for Influenza: Information for Clinical Laboratory Directors  
<https://www.cdc.gov/flu/professionals/diagnosis/rapidlab.htm>
- HealthPartners Total Cost of Care Information  
<https://www.healthpartners.com/hp/about/tcoc/index.html>
- HealthPartners Total Cost of Care White Paper  
[https://www.healthpartners.com/ucm/groups/public/@hp/@public/documents/documents/dev\\_057649.pdf](https://www.healthpartners.com/ucm/groups/public/@hp/@public/documents/documents/dev_057649.pdf)



# Questions?

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