



Application of Basic Supply/Demand Concepts to CDW data to Optimize Staffing and Access at VHA Medical Centers

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Objectives



- Apply basic concepts of supply and demand to VA access issues
- Demonstrate how external data sources can be combined with CDW to create analytics files

Agenda

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- The market for VA health care
 - Supply and demand without prices
 - Is VA demand elastic or inelastic?
 - What's elastic?
- Combining data from different resources to create analytic files
 - CDW, VA, and CMS
- How to optimize resources (staffing levels)
 - Demand for mental health care
- Policy implications



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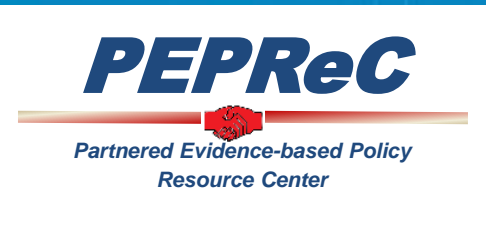


The Market for VA Health Care: Basic Facts

- VA health care is provided at low cost to Veterans
 - Premium is \$0
 - Drug copays are \$0, \$5, \$8, \$11
 - Outpatient and inpatient copays are \$0 for Priority 1-6
- But Veterans don't seek all care from VA



The Market for VA Health Care: Basic Facts



- Why not?
 - VA hospitals and clinics may not be convenient (distance)
 - Choice of VA providers and treatments is limited (choice)
 - VA appointments are not typically available without delay (waiting times)
- So Veteran must balance low financial cost against distance, choice, and waiting times, relative to his or her alternatives



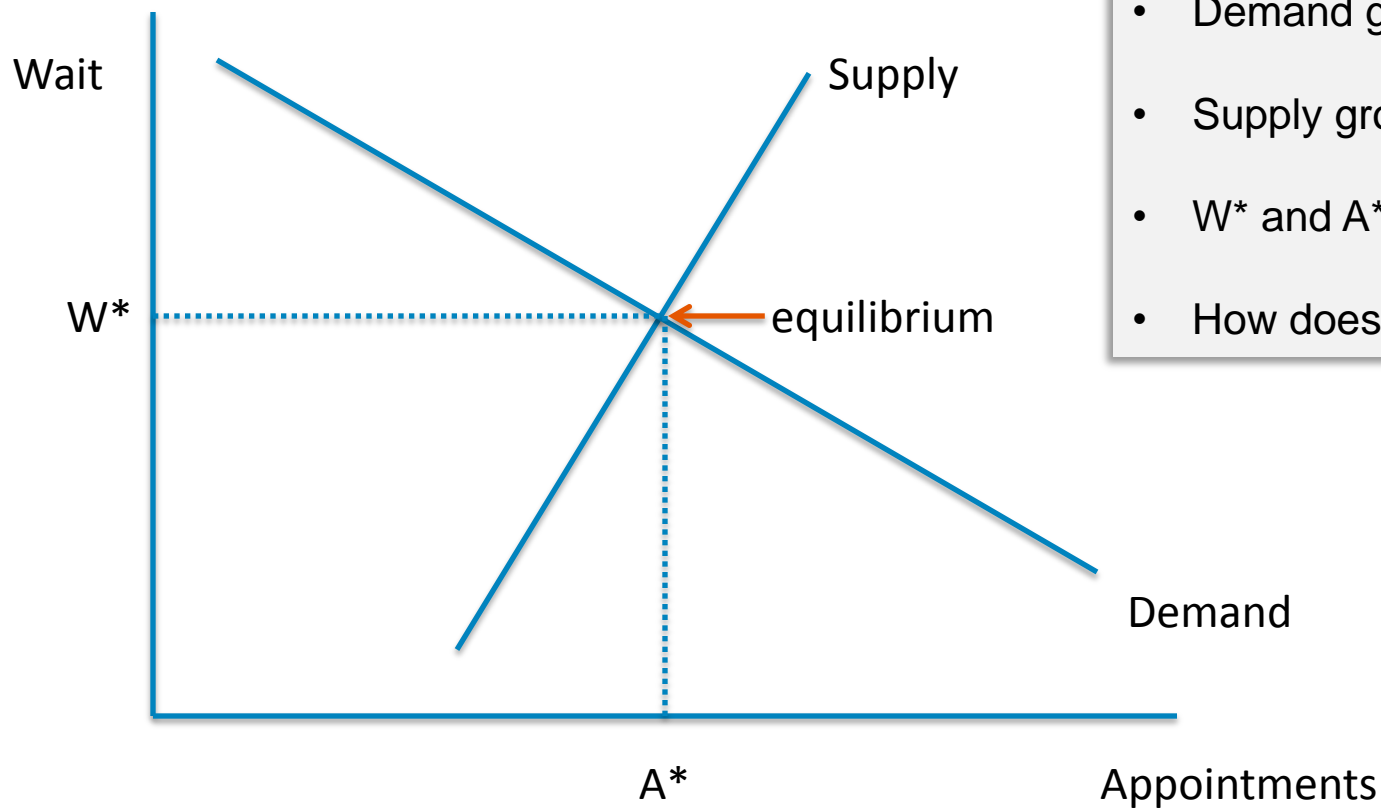
Partnered Evidence-based Policy Resource Center (PEPReC)

- Designed to provide timely, rigorous data analysis to support the development of high-priority policy, planning, and management
- Core Mission: Refine VA measurements of access to care, productivity, demand, and capacity
 - Explored the effects of a hiring initiative on wait times for mental health appointments using basic supply and demand concepts.
 - Identified appropriate VA data sources and merged CDW data with external data sources to create analytic datasets.
 - Suggest strategies to optimize the level of mental health clinician staffing to improve access to VHA medical centers.

The Market for VA Health Care: Supply and Demand

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- Demand grows when waits fall
- Supply grows when waits rise
- W^* and A^* are equilibrium
- How does supply grow?

The Market for VA Health Care: Does New Capacity Affect Demand?

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- If capacity expands, what happens?
 - Do waiting times come down, improving access?
 - Does demand grow to fill up the new capacity, leaving waiting times about the same?
 - Can VA satisfy demand?
 - How would we know?



Poll Question 1

What do you think would happen at your facility if capacity expanded?

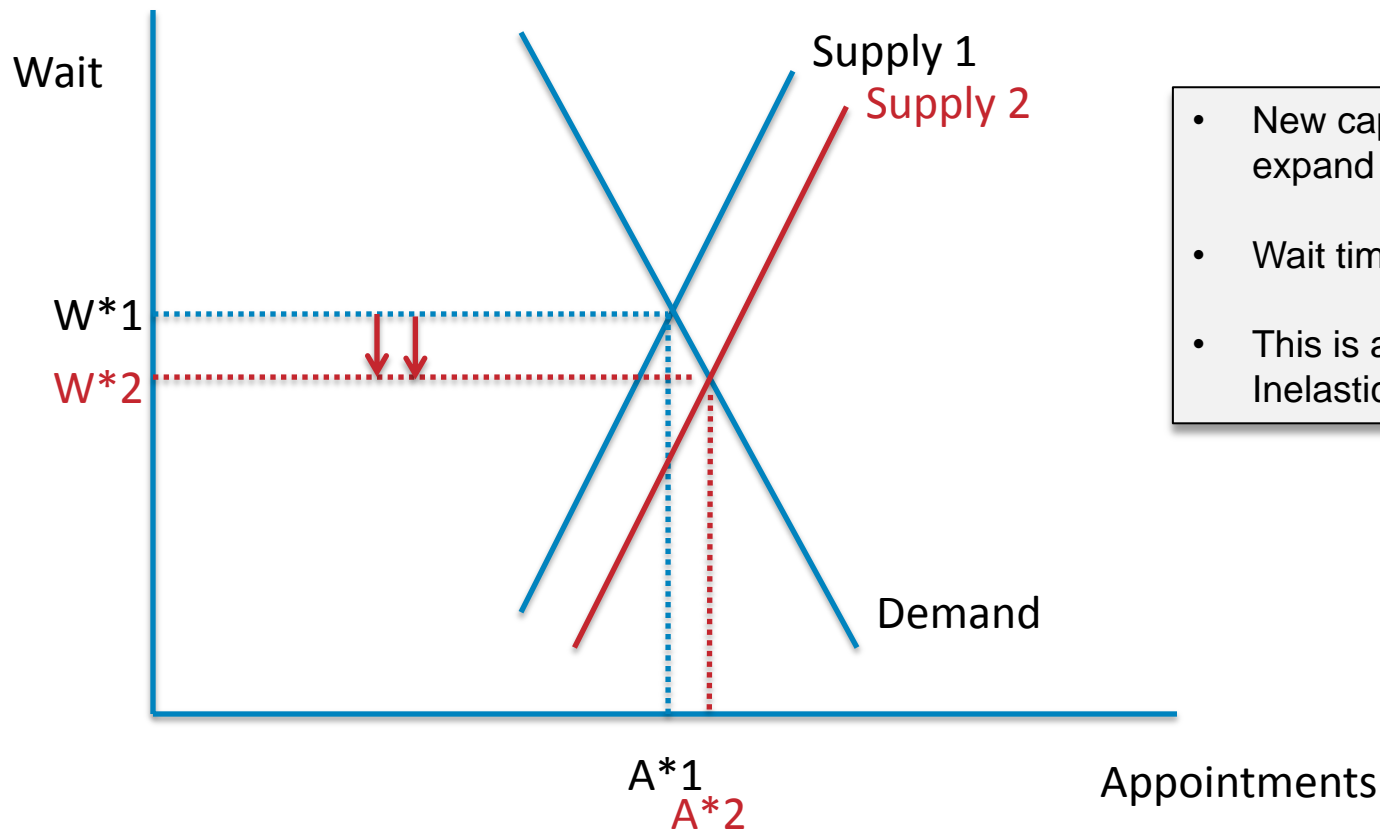
Answer options (Pick one answer)

1. Wait time will improve
2. Demand will grow to fill the new capacity (same wait-times)

The Market for VA Health Care: Supply Growth With Inelastic Demand

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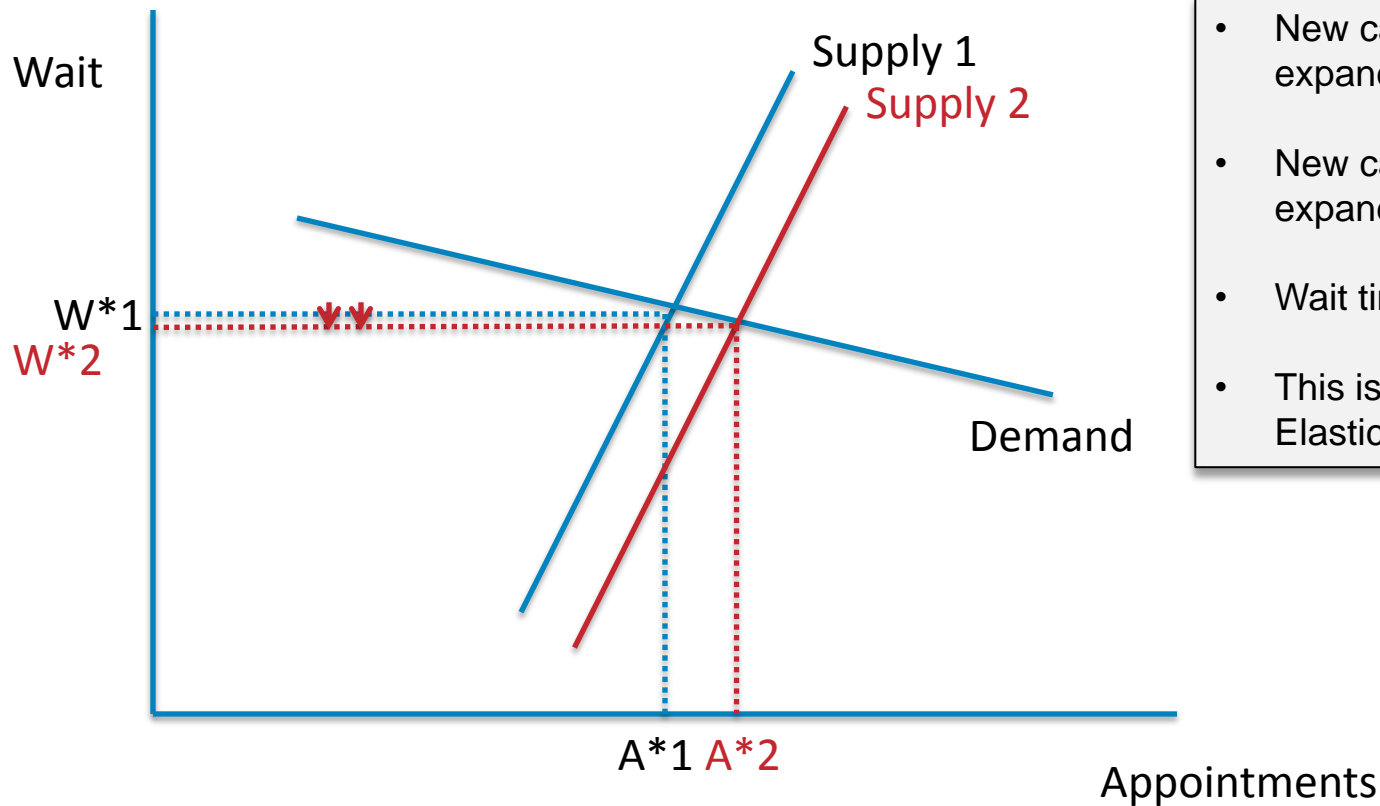


- New capacity causes supply to expand from A^*1 to A^*2
- Wait times fall from W^*1 to W^*2
- This is an example of Inelastic Demand

The Market for VA Health Care: Supply Growth With Elastic Demand

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- New capacity causes supply to expand from 1 to 2
- New capacity causes supply to expand from A^*1 to A^*2
- Wait times barely change
- This is an example of Elastic Demand

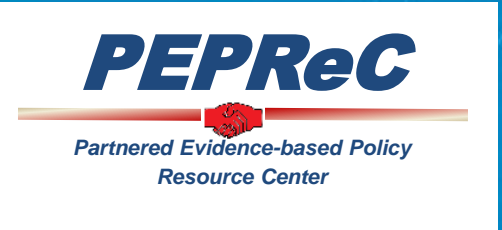
Poll Question 2

From the perspective of reducing wait-times, which kind of elasticity would be better?

Answer options (Pick one answer)

1. Inelastic demand
2. Elastic demand

The Market for VA Health Care: Classic Reasons for Elastic Demand



- More alternatives leads to more elastic demand
 - Medicare Advantage plans
 - Medicaid expansion states
 - Higher income Veteran population
- More mental health VA providers relative to enrollees leads to more elastic demand
 - VA facilities with many MH providers are in places with lots of non-VA MH providers
- Longer time to adapt leads to more elastic demand
 - Expect VA demand to grow over time in response to capacity expansions
- Is demand for VA care elastic?

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Data Types

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- Mental Health Clinic Wait Time
- VA enrollment and demographics
- Staffing and hiring data
- Facility Locations
- Medicare Advantage Penetration Rates by State
- Medicaid Expansion States

Data Resource Types

- CDW
 - Appointments and Visits table to create “wait-times”
- VSSC
 - Current Enrollment Cube
- Physician Productivity BioXL
 - Mental Health Clinical Staff
- Other VA Data Resources
 - Hiring data to meet President’s 2012 Executive Order to improve access to mental health services
- Center for Medicare and Medicaid Services (CMS)
 - Medicare Advantage State/County Penetration
 - Medicaid Enrollment Generosity Index by State

Data Challenges

- Technical
 - VA administrative data are not collected for data analysis use
 - New tables, column names can change at any given time
 - Need experience and in-depth knowledge of what are “unique” identifiers
 - e.g. Counting a unique visit per patient – outpatient.visit table can have multiple entries for a single patient for the same stop code within a single day
- Methodological
 - Different Data Collection Intervals
 - VA administrative data (appointments and visits) are collected daily
 - Staffing data in facility-month reports
 - Enrollment data in facility-annual reports
 - Medicare/Medicaid data are typically monthly or annual updates
 - Different Geographic Levels
 - VA facilities – City/State level
 - Medicare/Medicaid – County/State level

Creating Wait-times

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- CDW “Appointment” and “Outpatient.Visit” table
- New patient create date
 - [AppointmentMadeDateTime] – [VisitDateTime]
 - Stronger correlation with patient satisfaction survey compared to patient desired date (Prentice 2014; Which outpatient wait-time measures are related to patient satisfaction?)

Veterans



Call for
Appointment

VHA



System create date

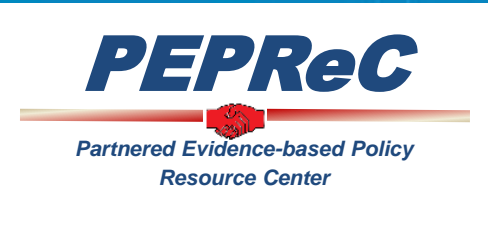


Patient desired date

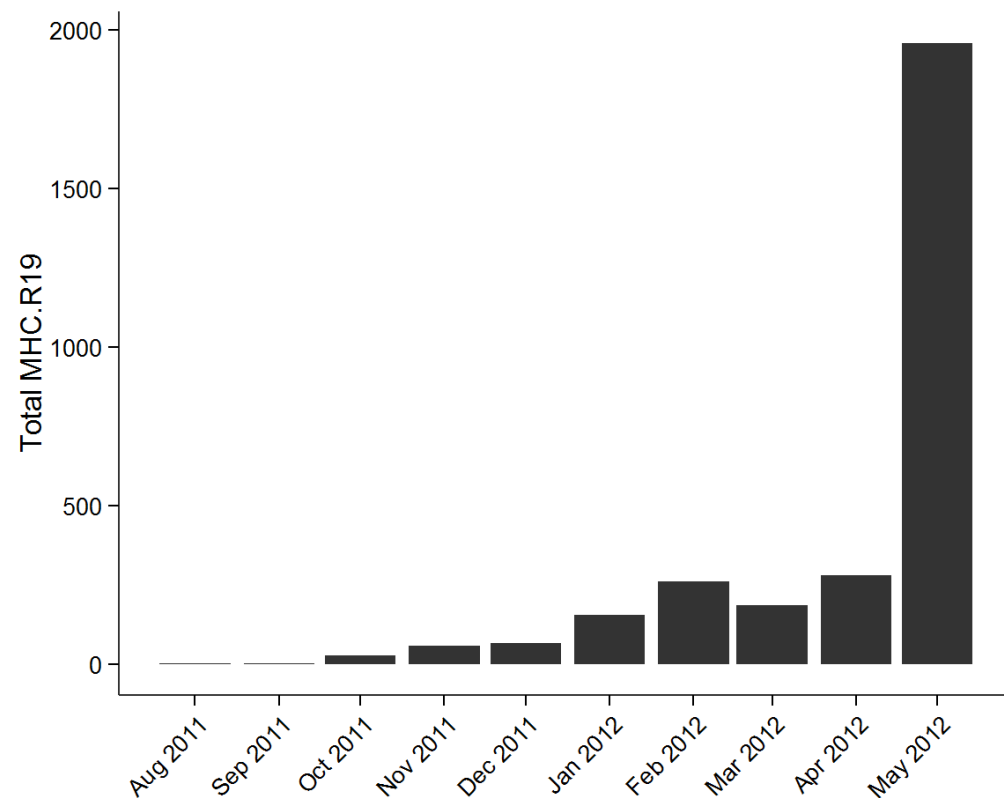


Appointment
Date

Mental Health Clinician Staffing



- 2012 President's Executive Order
- Hired over 1,600 mental health clinicians to improve access

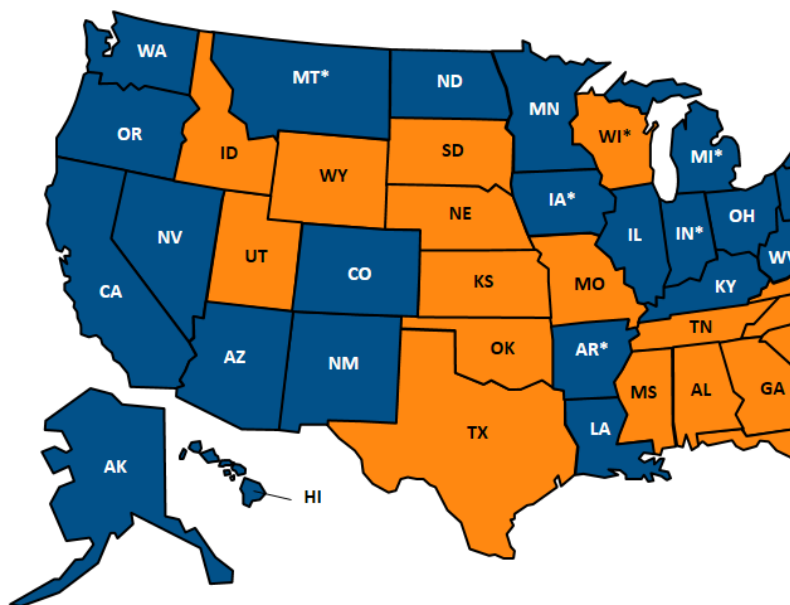


Medicaid and Medicare Data

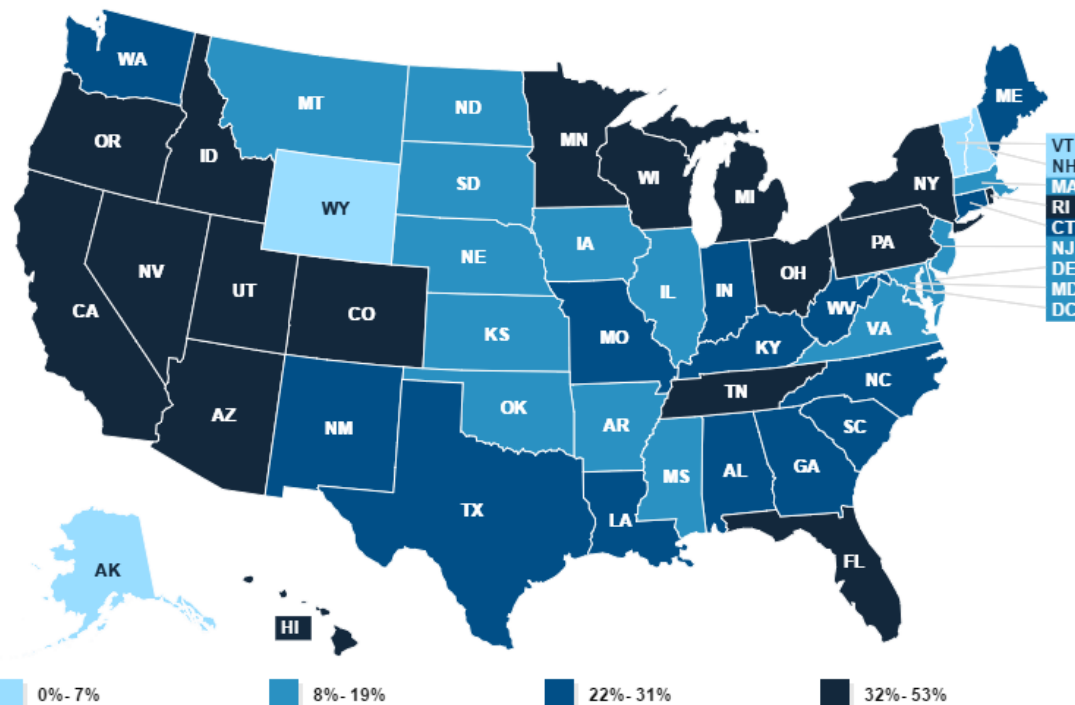
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Current Status of State Medicaid Expansion Decisions



Medicare Advantage Enrollees as a Percent of Total Medicare Population: Overall, 2015



NOTES: Current status for each state is based on KCMU tracking and analysis of state executive activity, approved Section 1115 waivers. WI covers adults up to 100% FPL in Medicaid, but did not adopt the AC. SOURCE: "Status of State Action on the Medicaid Expansion Decision," KFF State Health Facts, updated. <http://kff.org/health-reform/state-indicator/state-activity-around-expanding-medicare-under-the-affor>

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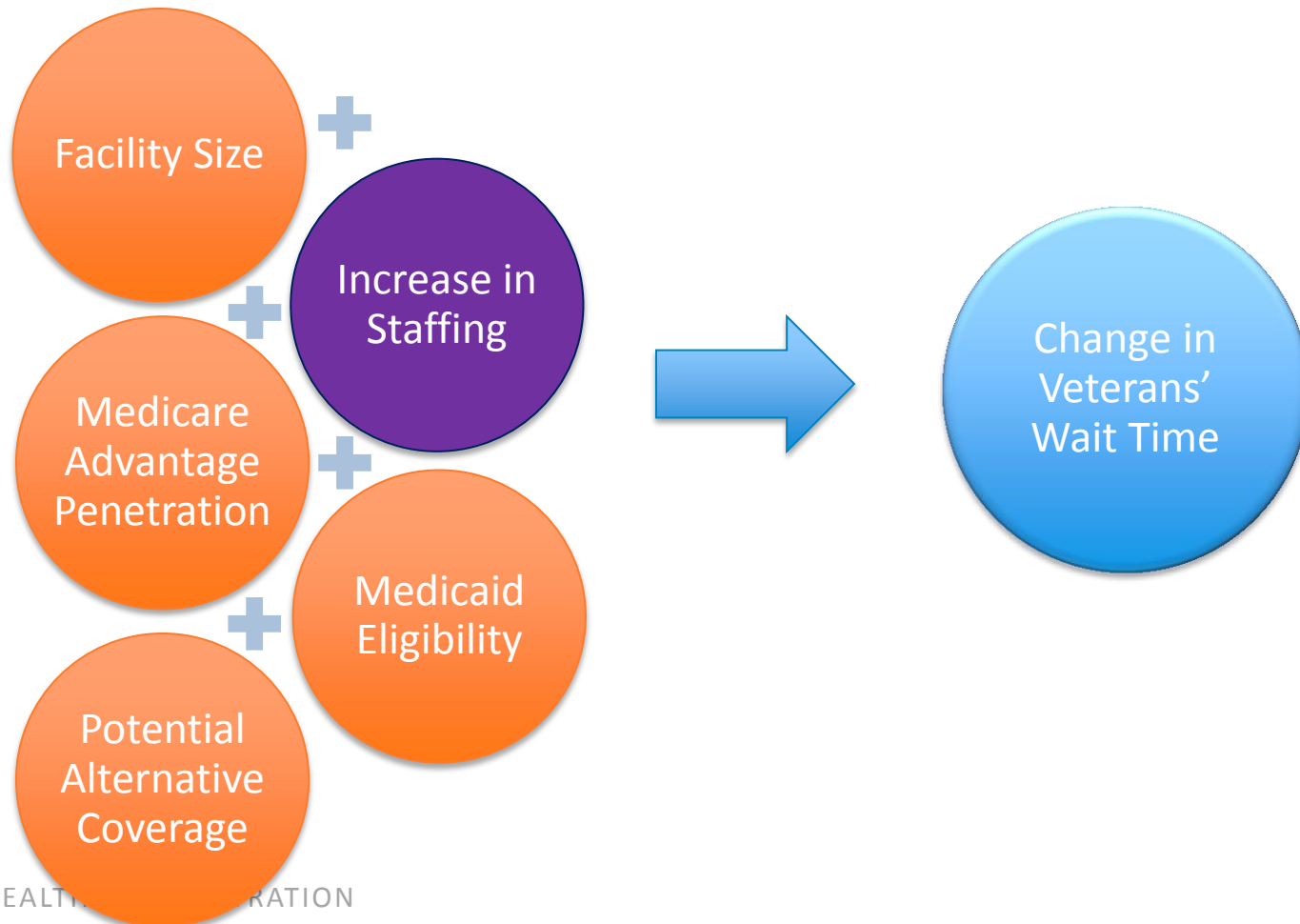
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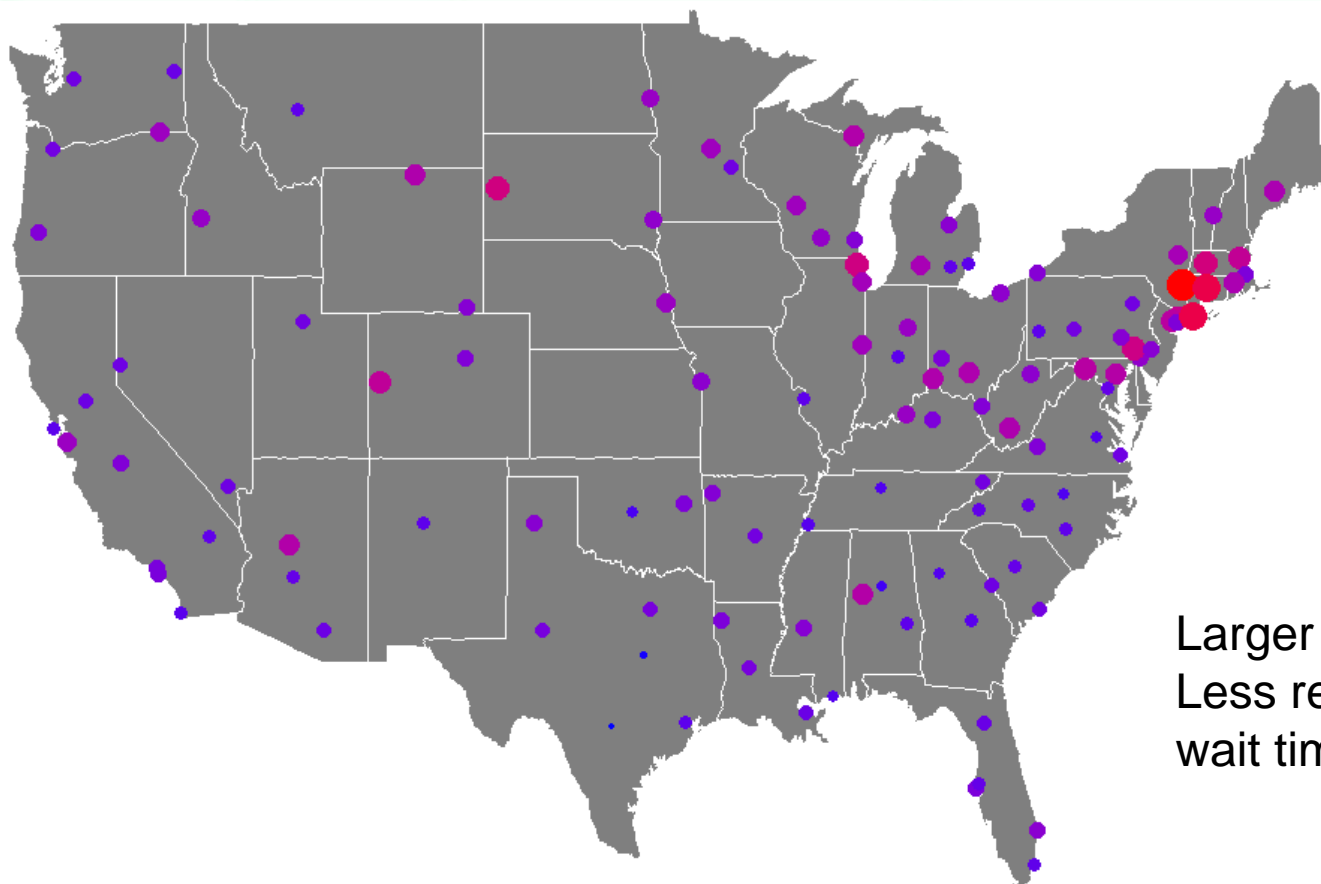
Basic Analytic Concept



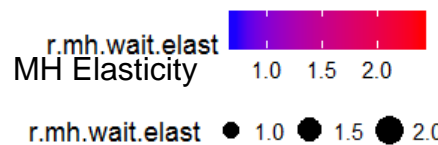
Results: Mental Health Estimated Elasticities of Demand, FY14

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Larger red dot =
Less responsive
wait time



Mental Health Sample Calculations



Cincinnati, OH (FY09)

104 FTE

44,884 Enrollments

21.3 days wait

23 MH FTE/10,000
Enrollees



Birmingham, AL (FY09)

60.9 FTE

88,492 Enrollments

22.3 days wait

6.9 MH FTE/10,000
Enrollees

Simulated Increase in Capacity by +10% FTE

FY14

Elasticity
 Δ Wait

-1.28
7.8%

21.3 days wait  19.7 days wait

-1.7 days

Elasticity
 Δ Wait

-0.75
13.3%

22.3 days wait  19.3 days wait

-3.0 days

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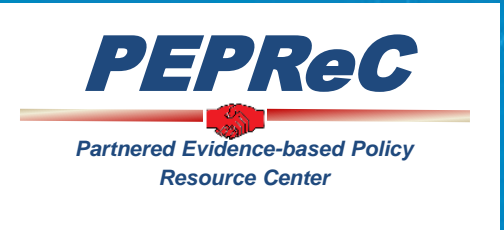


Policy Implications

- VA demand is more elastic when VA is competing more with private providers
- VA facilities with large MH services have more elastic demand
- If we invest in new capacity where VA demand is elastic, appointment volume may increase but waiting times don't change
- **The market is telling us we can reduce waits by targeting resources where demand is inelastic, but that won't help large MH facilities**



Take-aways



- Data analysis can be creative!
 - Many other sources can be joined to the VHA data
- Supply and demand framework can apply to VHA care
 - Model predictions can be used to predict the impact of policy on wait times
 - Veterans' use of VHA care is sensitive to alternative coverage options and local market environment

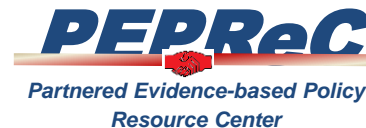
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Partnered Research Resources





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