

Workforce Planning for Family Medicine: A Social & Mortality Adjusted Needs-based Model

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Study Purpose

- **Create a needs-based model for physician workforce demand applicable to Family Physicians and General Practitioners and in the USA**
 - National model with States as geographic unit
 - Based on work activity: outpatient visits
 - Modified by population characteristics
 - Age & Gender
 - Socioeconomic factors
 - Premature mortality rate



Study Purpose, con't

- **Modify physician supply based on:**
 - Part-time providers
 - Lifestyle choice
 - Academic or administration
 - Practice Characteristics
 - Practice efficiency
 - New primary care models
- **Convert number of physician FTEs needed to number of physicians needed**



Model Background

- **Origin of *Needs-Based Model***
 - Roos NP et al. **Needs-Based Planning for Generalist Physicians.** Medical Care Jun-1999 Suppl; 37(6):JS206-JS228
 - Mustard CA & Frohlich N. **Socioeconomic Status and the Health of the Population.** Medical Care 1995 Suppl; 33(12):DS43-DS54



Model Overview

- Determine visits per year stratified by age and gender
- Adjust visit number by state-specific socioeconomic factor indices and premature mortality rate (death < age 75)
- Base the number of needed physician FTEs on MGMA rate of visits per physician FTE in field
- Translate number of FTE physicians needed to number of actual physicians needed



Data Sources

- *Area Resource File* (HRSA)
 - National county-level health resource database
- *US Census Bureau*
- *National Ambulatory Medical Care Survey* (NCHS)
- *National Hospital Ambulatory Medical Care Survey* (NCHS)
- *MGMA Production Survey* (physician productivity)



Methodology

1. Used US Census data for population trends by state by age and gender
2. Used NAMCS data to determine ambulatory visit rates by age-range and gender for primary care
3. Adjusted visit rates by SEFI and PMR
4. Calculated needed visits for each state
5. Adjusted visits to FTE using MGMA data and projecting linear increase in efficiency
6. Adjusted FTE to number of physicians for lifestyle, part-time physicians per assumptions
7. Determine number of physicians needed for each state



Socio-economic Variables

- **Tested 34 variables; 18 variables included**
 - Housing (median home value; rent)
 - Education (high school or college education)
 - Employment (unemployment; type of employment)
 - Income (median income, %-in poverty, <17 in poverty)
 - Mobility (time to work, transportation, work in different county)
 - Household (female head of household, single parent)
 - Health Insurance
 - Foreign born



Analytical Methods

- Socioeconomic variables selected based on linear regression link to premature mortality rate – bases for Socioeconomic Factor Index (SEFI)
- Principle components analysis used to extract factor scores from socioeconomic variables to create SEFI
- SEFI plus standardized premature mortality ratio used for modeling number of FTE generalist physicians needed



Key Assumptions

- **Premature mortality rate (PMR) can be used to adjust number of generalist physicians needed**
 - Higher PMR need areas require more physician access and services (greater demand)
 - Lower PMR need areas keep current physician workforce (no reduction in demand)
- **40% increase in office-based efficiency from 2000 to 2020 (3400visits/FTE to 4080/FTE)**



Key Assumptions

- **Adjustments to FTE contribution**
 - Residents in workforce
 - 1 resident = 0.15FTE in Family Medicine
 - 10% of workforce
 - Administration and non-Patient Care: 6%
- **Lifestyle Adjustment: 1.15 physicians to generate 1.0-FTE in the workforce**



Findings

- **Major variables**

- Percent of primary care visits by FP physicians
- Efficiency
- SEFI
 - effect ranged from a 20.6% (+364) increase by 2020 in LA to -40.6% decrease (-2,255) in VA
- PMR affected 22 states ranging from 2,173 in FL (23.3%) to 23 (4.1%) in ME
 - States with negative standardized PMR were not adjusted

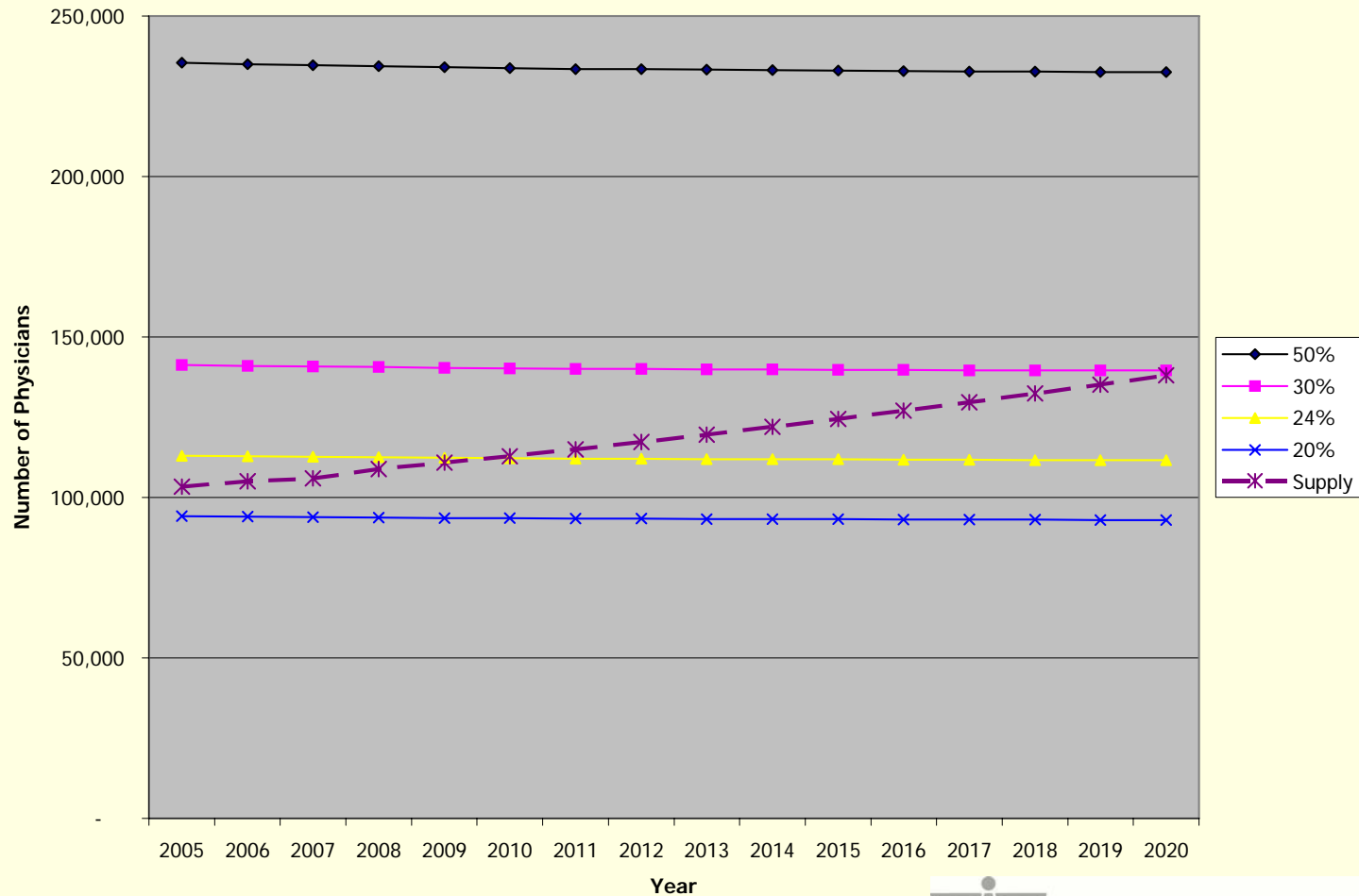


Implications

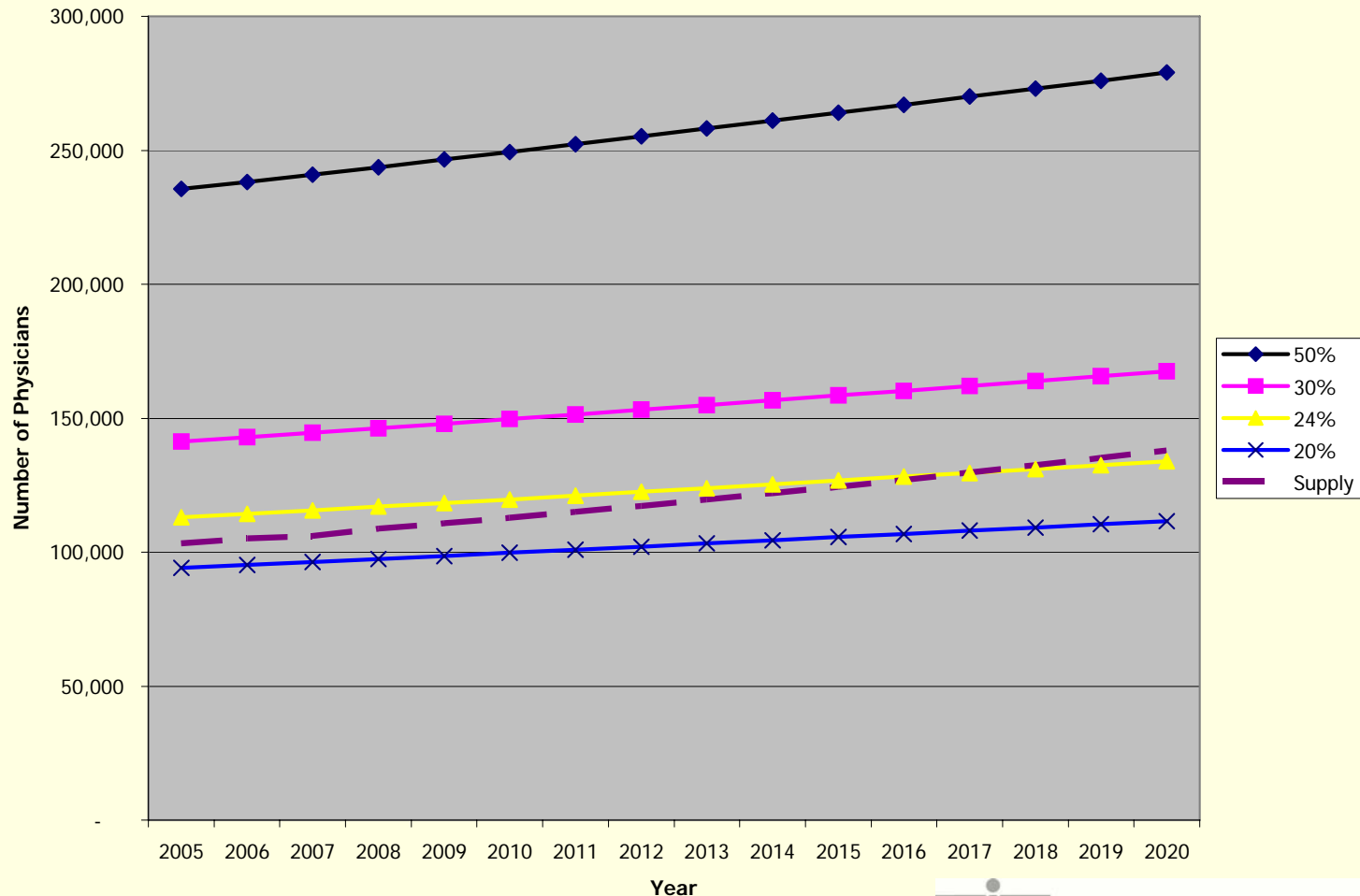
- **Shortage of GP/FM by 2020**
 - Supply estimates
 - 2.26% attrition rate
 - Included DO and MDs entering GP/FM
 - By 2020, 3,716 allopathic graduates/714 DO graduates entering GP/FM
- **SEFI and PMR adjustments led to increase in numbers of GP/FM**
 - By 2020
 - Unadjusted USA need 126,956
 - Adjusted USA need 139,531



Supply and Need Projections- Includes Efficiency Factor



Supply and Need Projections- No Efficiency Factor



Future Steps

- **Expand model**
 - Use county as geographic unit, not state
- **Explore socioeconomic factors**
 - State-level
 - County-level
- **Create model for other physician specialties**

