



Minnesota Hospital Association

TOWERS WATSON 

Registered Nurses and Primary Care Physicians:

How will Minnesota's talent pool fare in the next 10 years?



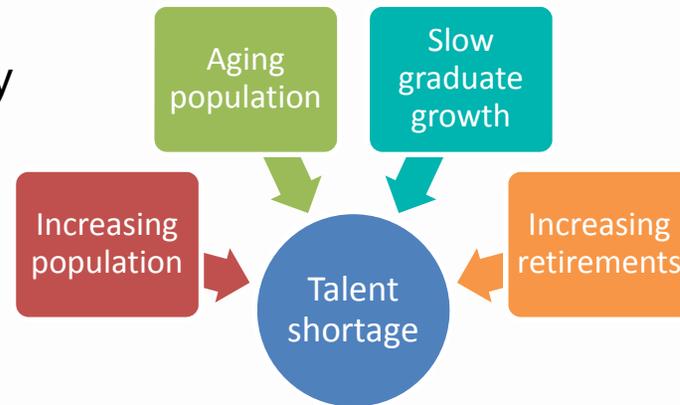
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Introduction

- Several factors are driving an impending talent shortage in the health care industry on a national level



- Future demand for health care labor will be based on a variety of factors, such as:
 - Population growth
 - Population age and health
 - Technological advances
 - Care-team delivery model

What does the future look like for Minnesota?

Plus, most health care systems already have difficulties attracting and retaining critical talent

74% of health care organizations have problems **attracting** critical skill employees

55% of health care organizations have problems **retaining** critical skill employees

Source: Towers Watson 2012 Talent Management and Rewards Study

About This Study

- Every year, the Minnesota Hospital Association (MHA) collects demographic data from the majority of the state's hospitals
- In response to requests for a comprehensive view of the state of key workforce segments, the MHA commissioned Towers Watson to supplement this unique dataset with other sources
- Three key variables were studied, and for each of them assumptions were made to draw inferences about the likely future state of the workforce:

Variable		Baseline Assumption
Rate of exits from the current workforce	→	The current workforce continues to retire as it has in recent history
Supply of new graduates	→	Recent trends in new graduate growth continue
Demand for health care labor	→	Demand is evolving in line with published governmental expectations

- While other studies for Minnesota have considered some of these variables, none to our knowledge have considered the three concurrently
- Results are presented specific to the state of Minnesota rather than the U.S. as a whole
 - Talent flows are assumed neutral for this purpose (i.e., Minnesota draws from its own graduate pool for talent)
- Detailed methodology definitions and assumptions can be found in the appendix

Executive Summary

RN Supply:

Likely ***Sufficient*** for the next 10 years

Assuming that RN educational programs continue to grow, the state-level supply of RNs will more than meet the demand

Absent growth in RN educational programs, a shortfall is very possible

PCP Supply:

Likely ***Insufficient*** for the next 10 years

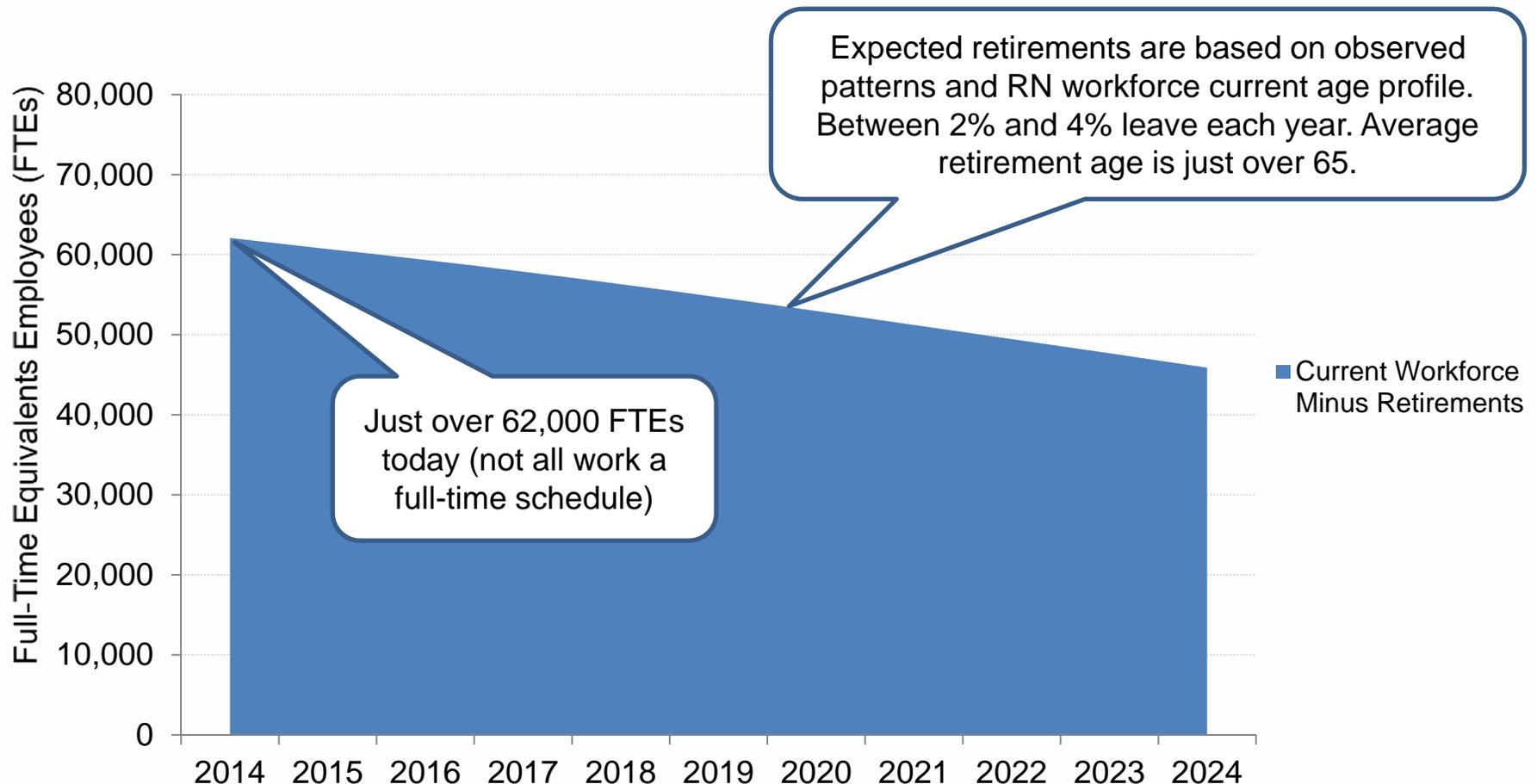
Unlike RNs, the current pipeline of graduates barely appears adequate to replace retirements as they occur

That, coupled with projected increases in demand, will result in a significant talent gap for physicians

Decreased demand, fewer retirements, more graduates or individuals working closer to a full FTE schedule are a few of the ways to bridge any gaps

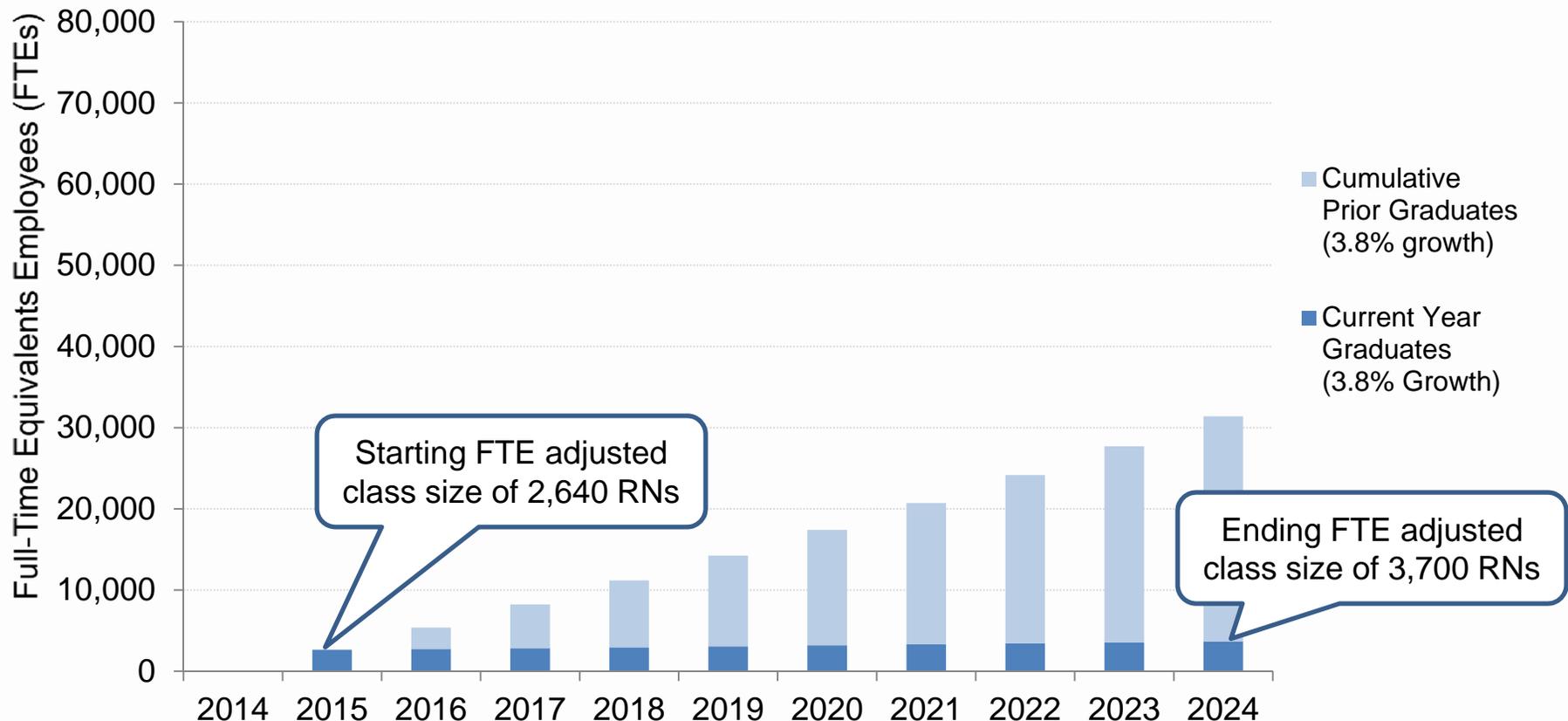
RN Existing Supply

- Just under **16,200 FTEs** are expected to permanently exit the Minnesota RN workforce over the coming decade



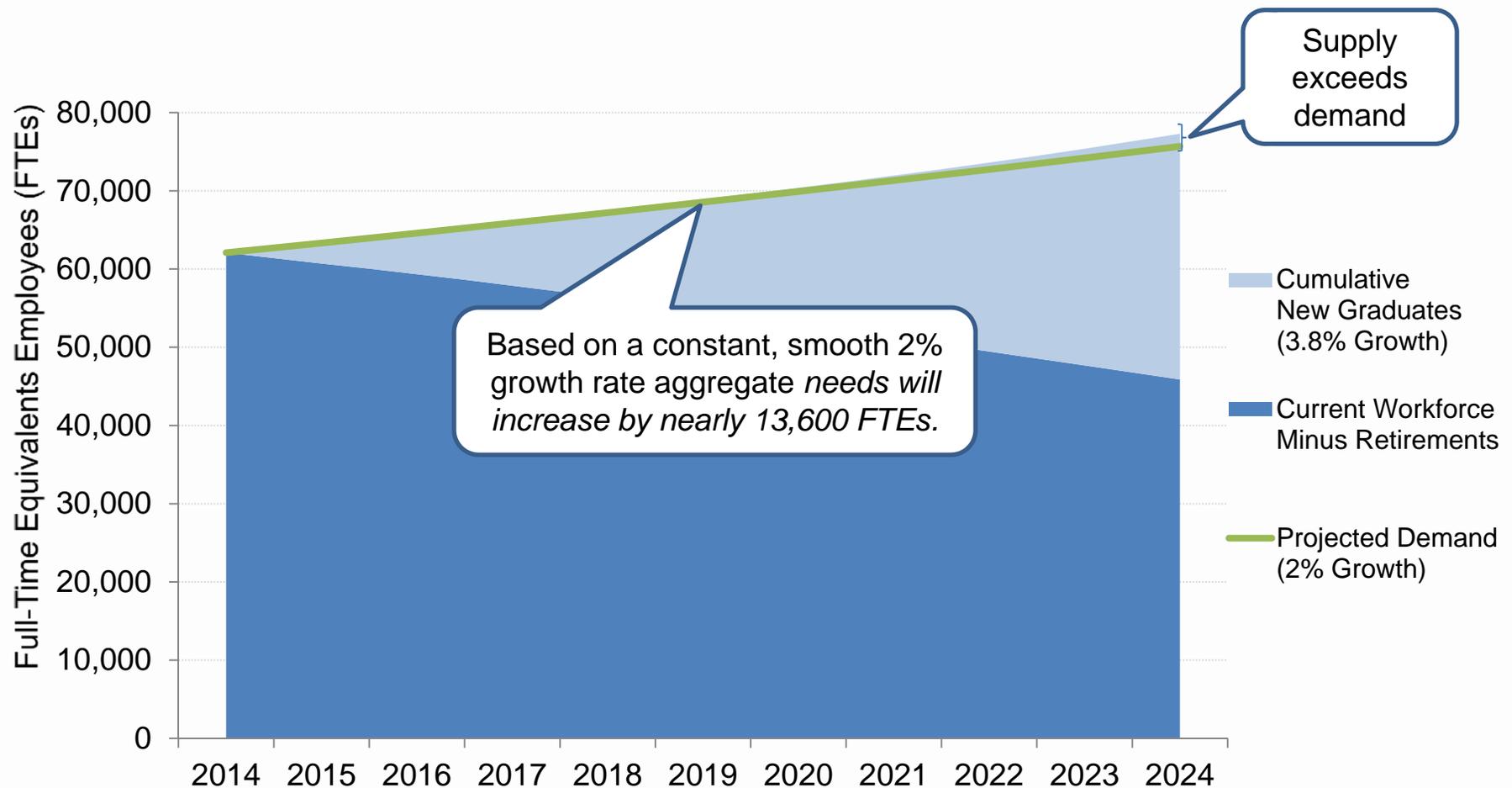
RN Future Supply

- Roughly **31,400 new RN FTEs** are expected to enter the Minnesota workforce over the next decade
- Based on a 3.8% annual growth rate in Minnesota educational programs



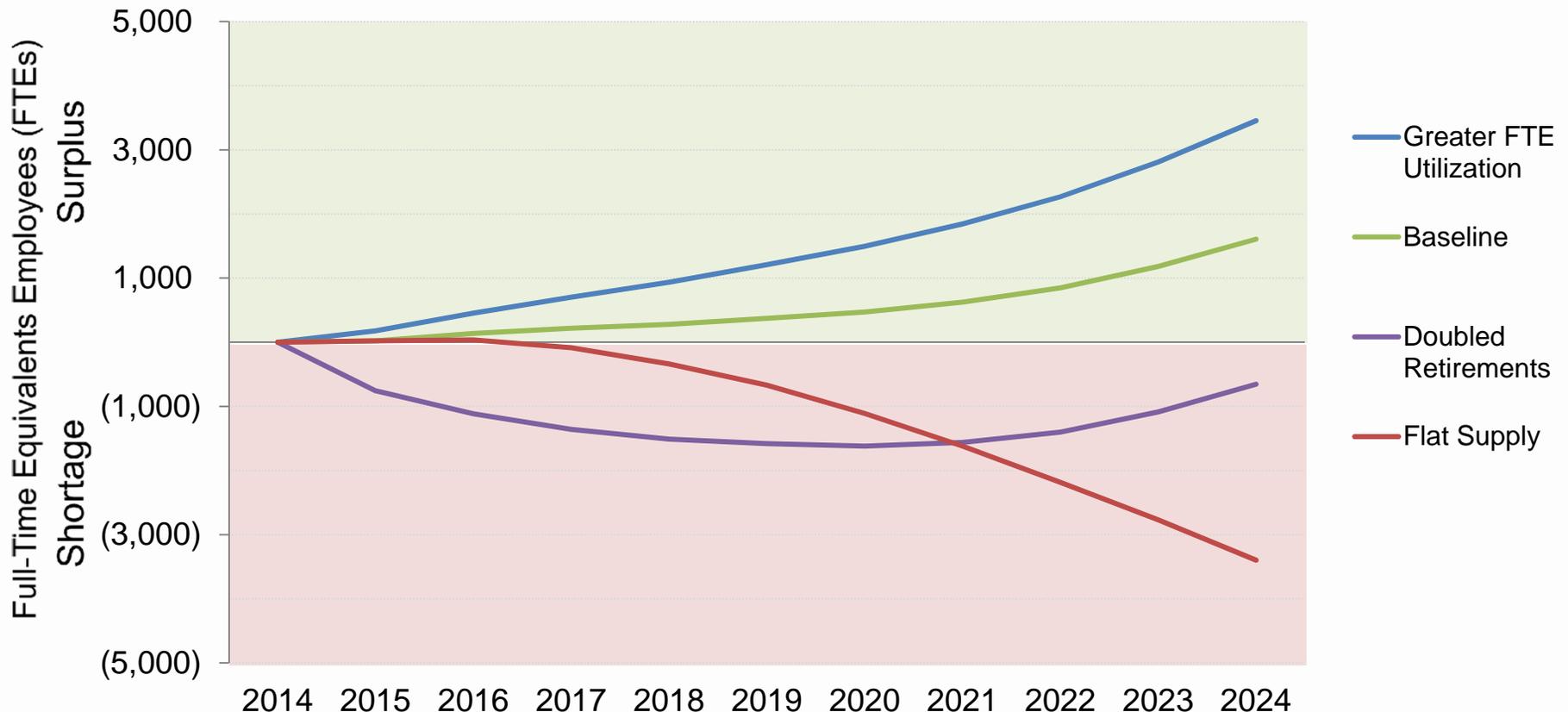
RN Projected Surplus

- A cumulative **surplus of roughly 1,600 RN FTEs** is projected for the Minnesota workforce by 2024



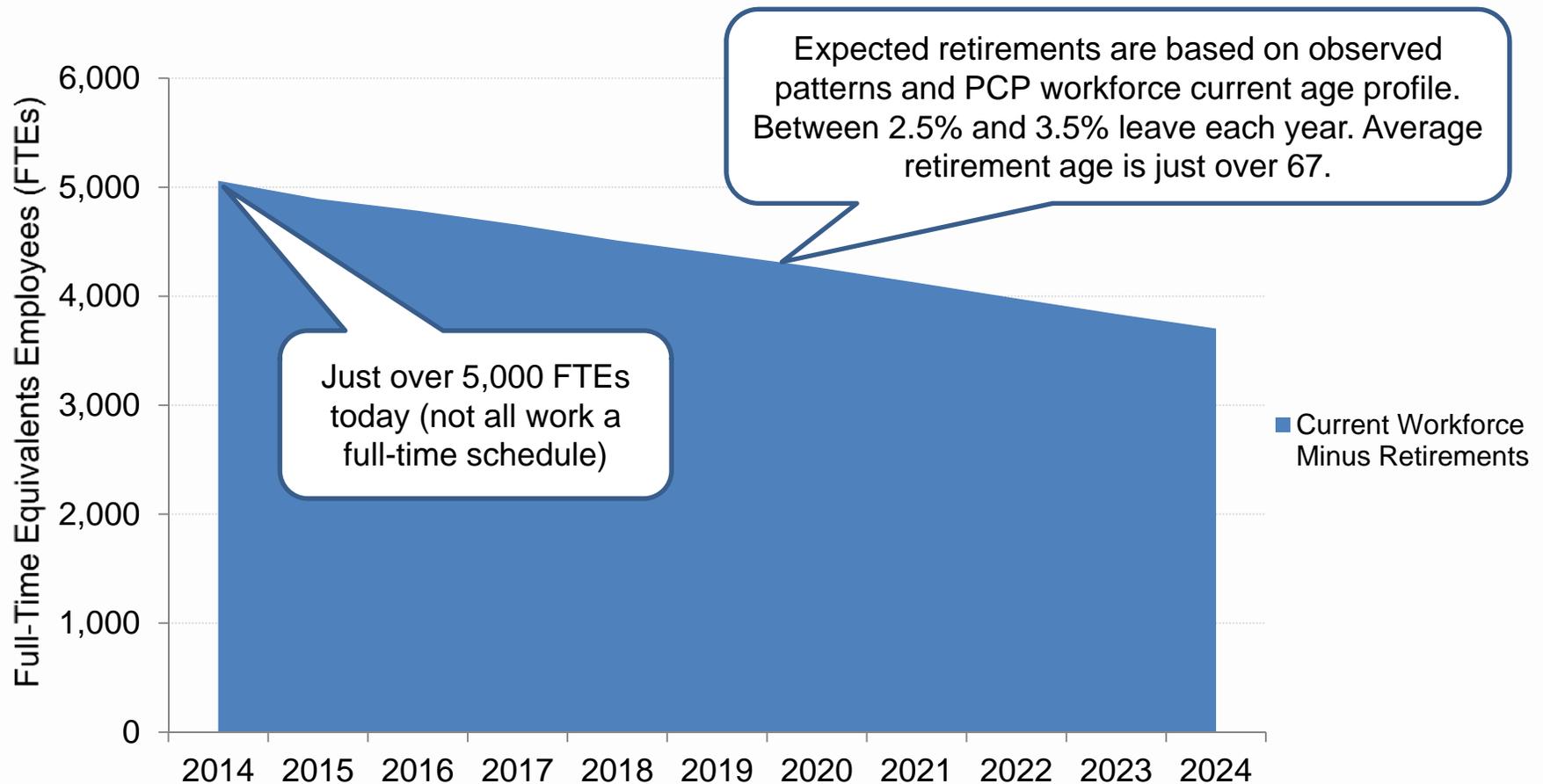
RN Alternative Projections

- The sensitivity to a few key variables are presented in three alternative scenarios:
 - **Greater FTE utilization** = New graduates work a 0.90 FTE schedule vs. 0.85
 - **Doubled retirements** = Expected pace of retirements doubles in all future years
 - **Flat supply** = New graduate class sizes stay at 2014 levels for all future years



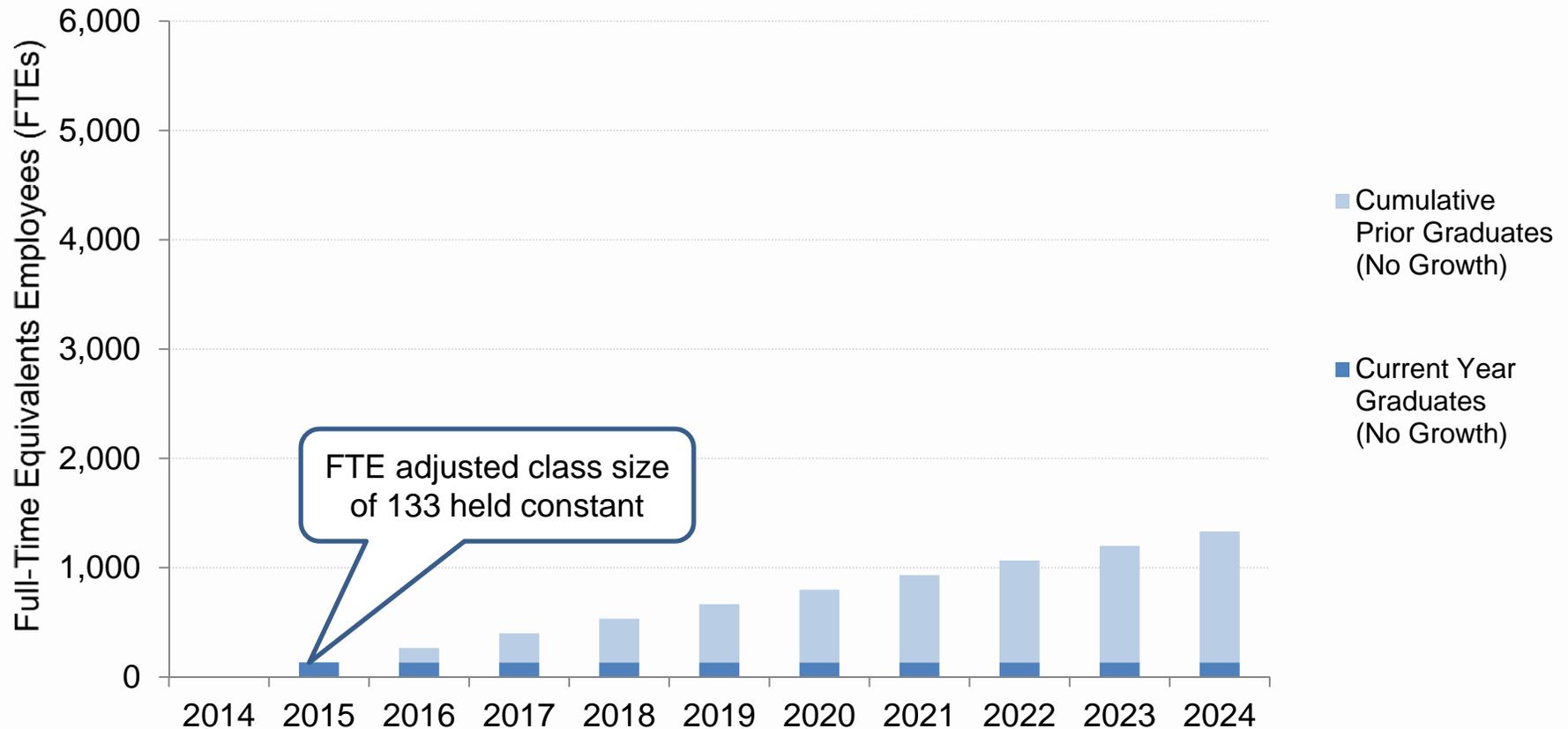
PCP Existing Supply

- Just over 1,350 FTEs are expected to permanently exit the Minnesota PCP workforce over the coming decade



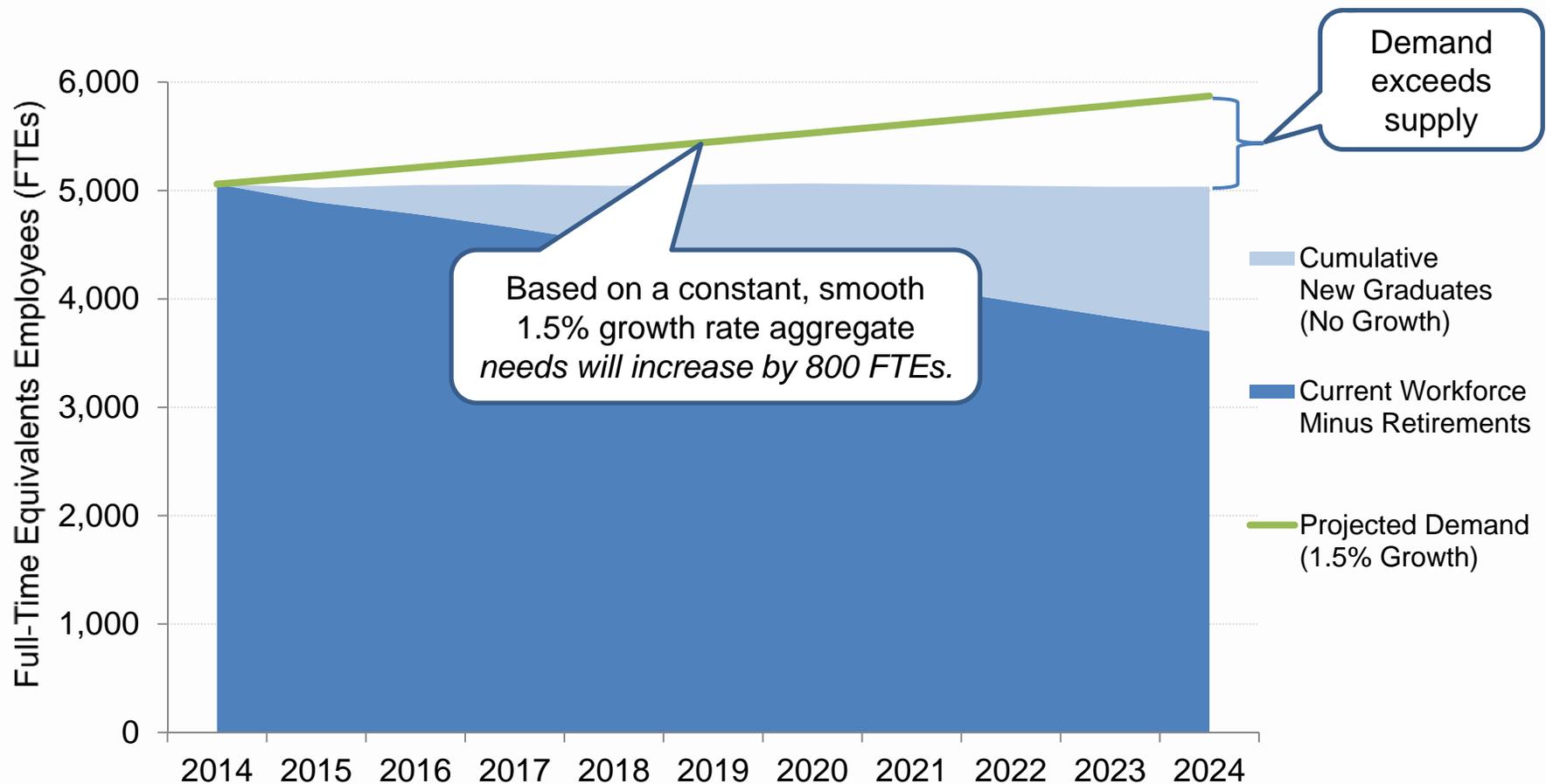
PCP Future Supply

- Just over **1,300 FTEs** are expected to enter the Minnesota workforce over the next decade
- Based on no annual growth in Minnesota educational programs



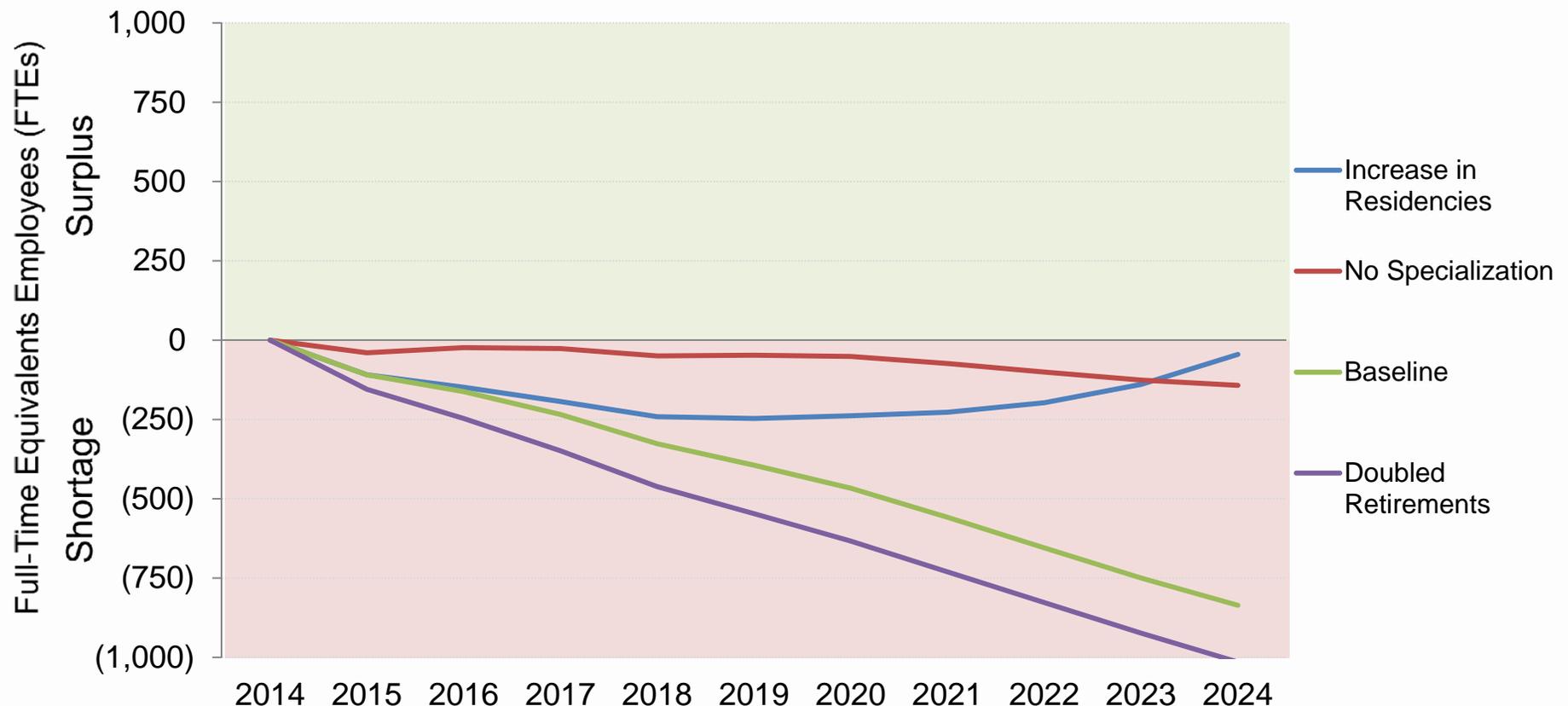
PCP Projected Shortfall

- A cumulative **shortfall of almost 850 PCP FTEs** is projected for the Minnesota workforce by 2024



PCP Alternative Projections

- The sensitivity to a few key variables are presented in three alternative scenarios:
 - **Increase in residencies** = 10% annual increase in PCP residency program slots
 - **No specialization** = No residents choose to specialize (vs 60% of internal medicine, 40% of peds)
 - **Doubled retirements** = Expected pace of retirements doubles in all future years



Summary Findings

- Careful long-term planning and decisive short-term action will be critical to the continued success of Minnesota's health care delivery system
- Absent fundamental changes to the number of graduates, model of care delivery or other decrease in projected demand, there will indeed be a shortfall of PCPs
- Without strong continued growth in the output of RN educational programs or other transformational change, there is likely to be a shortfall in this workforce segment as well
- Minnesota health care organizations will need to take action to ensure they have access to the talent needed to successfully deliver quality care

Appendix

- Key Methods and Assumptions
- RN Methods and Assumptions
 - Current workforce supply
 - New graduates
 - Labor demand/needs
 - Historical trending data of age distributions and retirement
- PCP Methods and Assumptions
 - Current workforce supply
 - New graduates
 - Labor demand/needs
 - Historical trending data of age distributions and retirement
- Data Sources
- Definitions

Key Methods and Assumptions

In addition to the data sources and assumptions explicitly pointed out in the body of this report, the following additional assumptions are implied in all analysis presented:

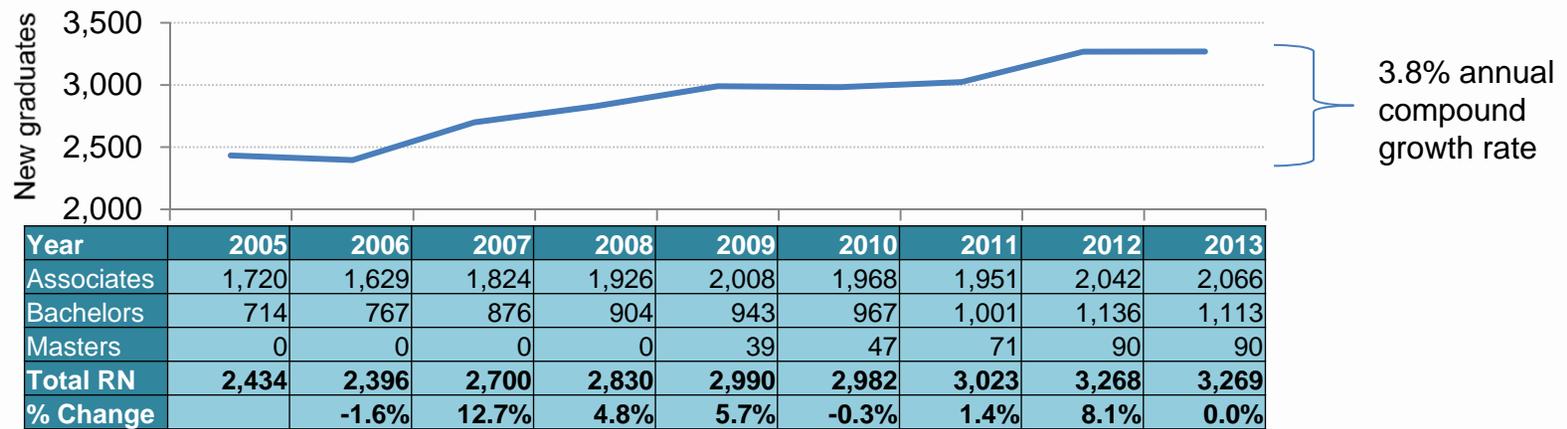
- There will be no shortage in qualified adults available to enter RN and PCP educational programs
- The state of the Minnesota health care workforce is assumed to be in equilibrium as a starting point (i.e., there are no systemic unfilled vacancies nor substantial unemployment)
 - Recent MDH data indicates that generally only 3% – 6% of licensed RNs seeking employment are unemployed
- Exits from the workforce other than for death, long-term disability or retirement are assumed to reenter the workforce (i.e., turnover is assumed to be a transfer from one organization to another)
- The flow of talent between Minnesota and other states is neutral on a net basis (i.e., for every termination of employment for state emigration a new Minnesota state immigrant is assumed)
 - AAMC data on residency retention shows Minnesota similar to the national average
 - RN retention data from the Minnesota Board of Nursing shows retention of new graduates in the high-80 to low-90 percent ranges depending on degree type (lower retention for higher degrees)
 - In the long-term this condition may be difficult to hold if the rest of the U.S. either develops a surplus or shortage at different rates than Minnesota
- The MHA workforce planning tool is used for projecting forward the current starting workforce
- No change in FTE preferences of employees/employers (0.85 for RN, 0.90 for PCP)
- Demand increases are illustrated in a constant, smooth pattern; actual increases will be variable

RN Current Workforce Supply

- The Minnesota Department of Health (MDH) tracks active licensure information, and also surveys RNs regarding their practices
 - The most recent reporting shows 75,301 individuals licensed and located in Minnesota
 - However 3% of these individuals are retired, on long-term leave or are students
 - Thus 73,042 individuals are working in some capacity or seeking employment
 - On average these individuals work a 0.85 FTE schedule
 - Yielding 62,086 FTEs of current workforce supply
- The MHA workforce tool's dataset covers almost all hospitals and some clinics and other facilities (but not other nontraditional roles like call centers)
 - A total of 28,011 FTEs are covered by this dataset (38,134 individuals)
 - The age distribution is similar to that reported by the MDH, so the MHA dataset was scaled up to the aggregate current FTE supply (62,086) for projection purposes
 - Those identified as working in APRN roles (APRN, CRNA, nurse practitioner, etc.) are included in the projection as these individuals are sourced from the same pool of graduates as those practicing in traditional nursing roles
 - It is recognized that APRNs do not have the same scope of responsibilities, but nonetheless they are a source of demand for RN employment and so are critical to accurately capturing the aggregate long-term balance for the nursing profession
- Exits from the population due to permanent disability, death and retirement are modeled using assumptions derived from the MHA workforce tool dataset (see page 20 for details of this assumption set)

RN New Graduates

- The supply of new RNs is dictated by the number of individuals completing educational programs that are able to pass the licensure exam
- Historically there has been growth in the number and size of education programs in Minnesota



Source: Minnesota Board of Nursing

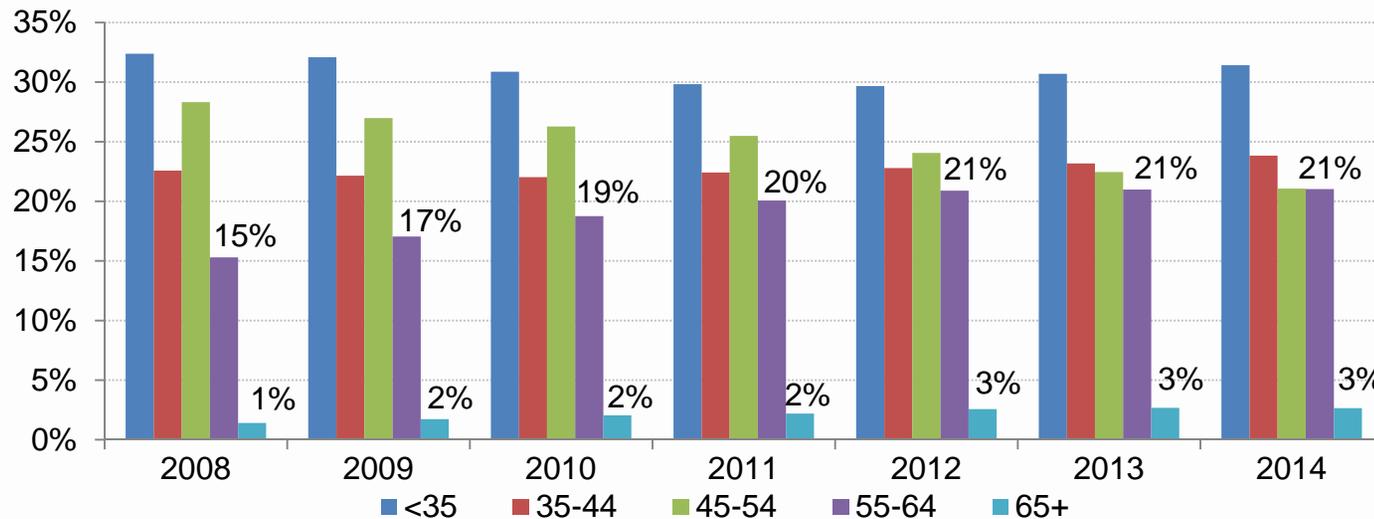
- Graduate growth is not automatic, and indeed may be limited by clinical experience opportunities, which are a required component of education
- A graduate growth rate of 3.8% annually has been observed in recent history and will be used for the baseline forecast scenario
- Licensure passing has historically been very close to 100%, but with recent changes to the NCLEX pass mark the 2013 passage results were roughly 90% for associate's degree candidates and 95% for bachelor's/master's candidates combined
 - We believe these will again increase but used a combined 95% future level in the baseline forecast scenario
- Finally, the degree to which RNs are likely to work is based on employer scheduling and employee preference, and is likely to be less than one FTE position
 - Both the MHA dataset and Minnesota Department of Health find this figure to be approximately 0.85 FTE

RN Labor Demand/Needs

- The U.S. Bureau of Labor Statistics (BLS), and its state-level counterpart, the Minnesota Department of Employment and Economic Development (DEED), provide employment outlooks for industries and specific jobs based on expectations about population growth, demographics and other macroeconomic variables
- The 2010 – 2020 projections from DEED are summarized below
 - 2010 estimated employment of 57,259 positions, 2020 of 69,867 positions
 - Implied annual compound growth of 2.0%
- The 2012 – 2022 U.S. projections from BLS are summarized below
 - 2012 estimated employment of 2,862,900 positions, 2022 of 3,437,300 positions
 - Implied annual compound growth of 1.8%
- BLS and DEED projections do not provide an annual progression, so a smooth, compound growth rate is used in the forecast illustrations
- Baseline forecast scenario uses a 2% annual compound growth rate

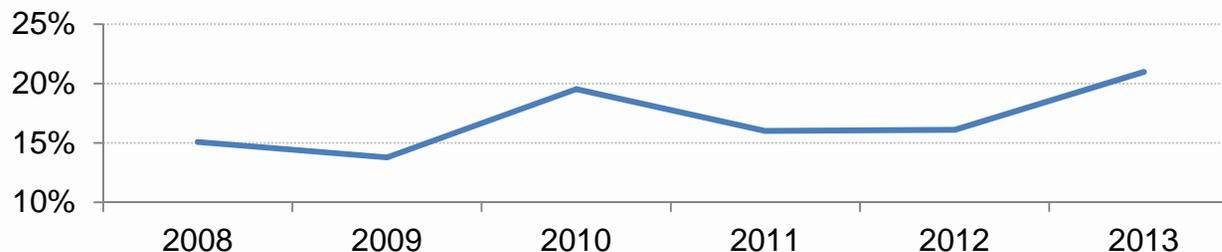
RN Data Trending

- Reviewing the MHA's workforce dataset shows a gradual aging of the RN workforce over the period data has been collected



Source: MHA Workforce Planning Tool

- The average percentage of those ages 62+ terminating employment (and assumed to permanently exit the workforce) is up since the trough of the Great Recession



Source: MHA Workforce Planning Tool

RN Workforce Exit Assumptions

- Exits from the starting workforce population are projected due to permanent disability, death and retirement
 - Long-term disability and death assumptions follow standard actuarial tables published by the Society of Actuaries for individuals from a U.S. working population
 - Retirement rates are developed based on recent exit data information
- 2013 exit experience from the MHA dataset was as follows for ages 62+

Age	% Exiting	Age	% Exiting	Age	% Exiting
62	17%	65	31%	68	24%
63	16%	66	35%	69	40%
64	19%	67	17%	70+	32%

Source: MHA Workforce Planning Tool

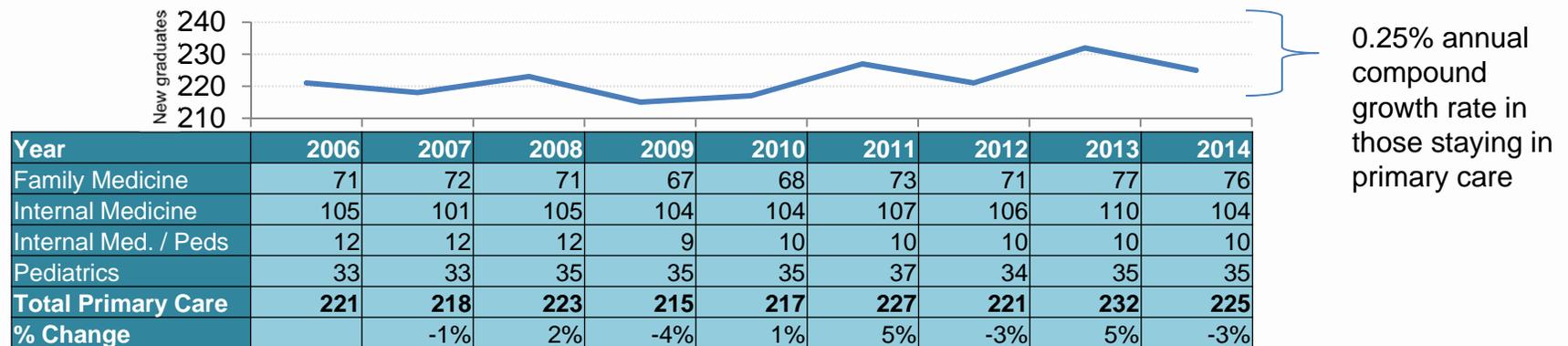
- Reason for exit is not captured in the dataset (turnover, retirement, etc.), as such a subjective age must be chosen to determine retirement status
- While there are retirements from the population before age 62 this threshold was used as the beginning of the incidence of permanent retirement
 - 100% of employees age 70 or older are assumed to retire
 - Assumption set creates an average weighted retirement age of 65.2

PCP Current Workforce Supply

- The Minnesota Department of Health (MDH) reported total active licensure of 5,787 PCPs, though not all had a Minnesota address
- The Association of American Medical Colleges (AAMC) reports 5,621 PCPs in Minnesota, based on their analysis of the AMA Masterfile
- The AAMC number of 5,621 will be used as the starting supply for this study because it controls for location of practice, and showed the lowest level of current supply, assuming that employment conditions are in equilibrium
 - As such, this basis will be used to scale the MHA dataset to project the current workforce
 - Final starting labor supply assumed to be 5,059 on a FTE adjusted basis (0.90 FTE)
 - 0.90 FTE assumption is drawn from data analysis from the MHA dataset
- The MHA workforce tool's dataset covers 2,296 FTEs (2,977 individuals)
 - The age distribution is similar to that reported by the MDH, so the MHA dataset was scaled up to the aggregate current FTE supply (5,059) for projection purposes
- Exits from the population due to permanent disability, death and retirement are modeled using assumptions derived from the MHA workforce tool dataset (see page 25 for details)

PCP New Graduates

- The supply of new PCPs is dictated by number of individuals completing both “undergraduate” (medical school) and “graduate” (residency) programs and passing board examinations
- The growth in Minnesota Graduate Medical Education (GME) has been very slow in recent history



Source: National Residency Match Program, program capacity (positions)

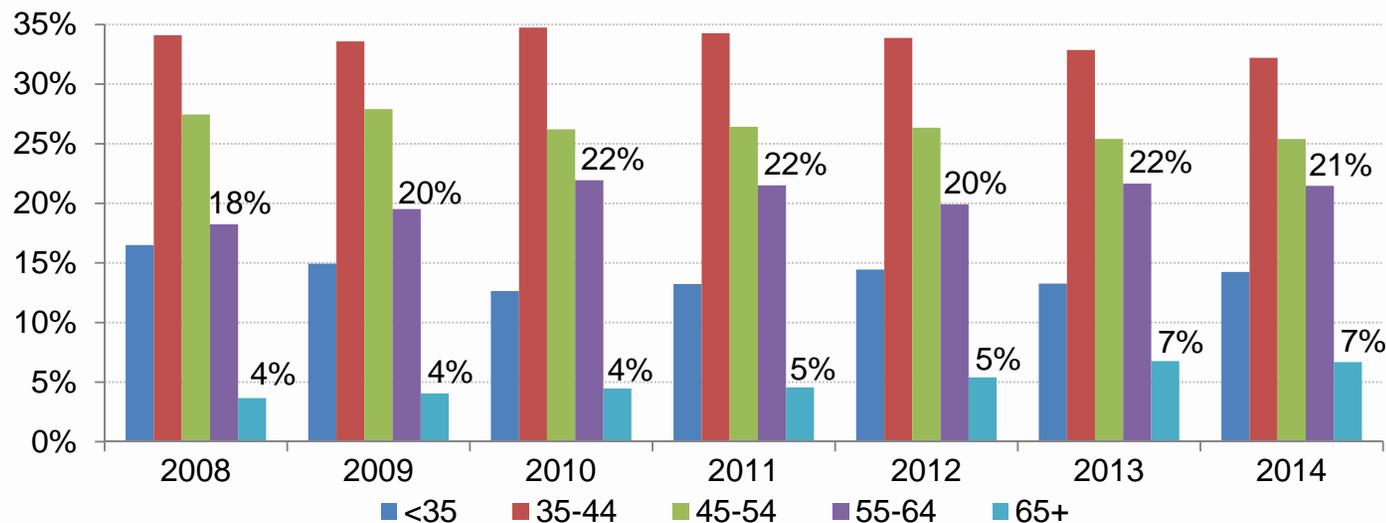
- GME growth is difficult, as residency programs face funding and clinical space challenges
- A similar dataset compiled by the AAMC from 2001 to 2011 showed actual residency program enrollment sizes increased by roughly 1.25% on a compound annual basis
 - This data point is useful for verification, but in recent history substantially all Minnesota spots have filled to capacity; for example, in 2014 only three Minnesota spots did not fill, all in the Duluth Family Medicine program
- As such, the baseline forecast scenario is projected with zero Minnesota GME growth
- Many internal medicine and pediatric residents will choose to specialize
 - Historic data shows roughly 60% of the internal medicine grads specialize, 40% of pediatrics, few for family medicine
 - Starting new graduate PCP supply of 148 new individuals per year, 133 FTE adjusted new individuals per year
- We have assumed that board examinations are passed at a rate of 100%
- Finally, the degree to which PCPs are likely to work is based on employee preference and is likely to be less than one FTE position (the MHA dataset finds this figure to be approximately 0.90 FTE)

PCP Labor Demand/Needs

- The U.S. Bureau of Labor Statistics (BLS), and its state-level counterpart, the Minnesota Department of Employment and Economic Development (DEED), provide employment outlook information for industries and specific jobs based on expectations about population growth, demographics and other macroeconomic variables
 - Family and general practitioners, pediatricians — general, and internists — general, job categorizations are combined to produce aggregate PCP demand
- The 2010 – 2020 Minnesota projections from DEED are summarized below
 - 2010 estimated employment of 5,395 positions, 2020 of 6,866 positions
 - Implied annual compound growth of 2.4%
- The 2012 – 2022 U.S. projections from BLS are summarized below
 - 2012 estimated employment of 210,000 positions, 2022 of 240,800 positions
 - Implied annual compound growth of 1.4%
- BLS and DEED projections do not provide an annual progression, so a smooth, compound growth rate is used in the forecast illustrations
- Baseline forecast scenario uses a 1.5% annual compound growth rate

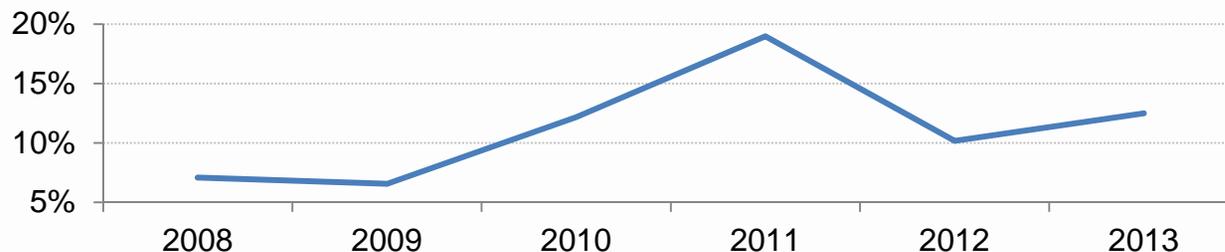
PCP Data Trending

- Reviewing the MHA's workforce dataset shows a gradual aging of the PCP workforce over the period data has been collected



Source: MHA Workforce Planning Tool

- The average percentage of those ages 62+ terminating employment (and assumed to permanently exit the workforce) is up since the trough of the Great Recession



Source: MHA Workforce Planning Tool

PCP Workforce Exit Assumptions

- Exits from the starting workforce population are projected due to permanent disability, death and retirement
 - Long-term disability and death assumptions follow standard actuarial tables published by the Society of Actuaries for individuals from a U.S. working population
 - Retirement rates are developed based on recent exit data information
- 2013 exit experience from the MHA dataset was as follows for ages 62+

Age	% Exiting	Age	% Exiting	Age	% Exiting
62	6%	65	13%	68	9%
63	10%	66	19%	69	3%
64	8%	67	5%	70+	19%

Source: MHA Workforce Planning Tool

- Reason for exit is not captured in the dataset (turnover, retirement, etc.), as such a subjective age must be chosen to determine retirement status
- While there are retirements from the population before age 62 this threshold was used as the beginning of the incidence of permanent retirement
 - 100% of employees age 70 or older are assumed to retire
 - Assumption set creates an average weighted retirement age of 67.2

Data Sources: RNs

- Minnesota Department of Employment and Economic Development. Employment Outlook Tool. Registered Nurses, <http://mn.gov/deed/data/data-tools/employment-outlook.jsp>. Accessed 5/8/2014.
- Minnesota Board of Nursing. Annual Nursing Education Program Report, Calendar and Fiscal Year 2011. http://mn.gov/health-licensing-boards/images/2003_Nursing_Programs_Report_2011.pdf. Accessed 3/21/2014
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- Minnesota Department of Health. Minnesota's Registered Nurse Workforce 2009 – 2010. <http://www.health.state.mn.us/divs/orhpc/pubs/workforce/rnfacts10.pdf>. Accessed 3/21/2014
- Minnesota Department of Health. Minnesota's Registered Nurse Workforce 2011 – 2012. <http://www.health.state.mn.us/divs/orhpc/workforce/rn/rns2012.pdf>. Accessed 3/21/2014

Data Sources: PCPs

- Academic Medicine. U.S. Graduate Medical Education and Physician Specialty Choice. http://journals.lww.com/academicmedicine/Fulltext/2013/04000/U_S_Graduate_Medical_Education_and_Physician.18.aspx. Accessed 3/26/2014
- Association of American Medical Colleges. 2013 State Physician Workforce Data Book. <https://members.aamc.org/eweb/upload/State%20Physician%20Workforce%20Data%20Book%202013%20%28PDF%29.pdf>. Accessed 3/26/2014
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- National Resident Matching Program. 2006 Match Results by State, Specialty, and Applicant Type. <http://www.nrmp.org/wp-content/uploads/2013/08/resultsbystate2006.pdf>. Accessed 5/13/2014
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- National Resident Matching Program. Results and Data: 2014 Main Residency Match. <http://www.nrmp.org/wp-content/uploads/2014/04/Main-Match-Results-and-Data-2014.pdf>. Accessed 5/13/2014

Definitions

- **FTE: Full-Time Equivalent employee**
 - An individual working a full 40-hour workweek is one FTE.
 - This refers to the overall duties of an employee rather than solely patient contact.
 - For instance, it is common for health systems to refer to one PCP FTE as 36 patient contact hours — leaving additional time for charting and paperwork.

- **PCP: Primary Care Physician**
 - With regard to this report the Minnesota statutory definition of PCP is generally used, however, for the purposes of new graduates, internal medicine/pediatrics dual certification track individuals were included in the supply of new PCPs.
 - The Minnesota Department of Health uses this definition in its dataset. An individual working in one of three medical specialties: family practitioners, general pediatrics and general internists.
 - The AAMC data uses a slightly different definition. Individuals are counted as primary care physicians if their self-designated primary specialty is one of the following: adolescent medicine, family medicine, general practice, geriatric medicine, internal medicine, internal medicine/pediatrics or pediatrics. Residents and fellows are counted as primary care residents and fellows if they are in the following programs: adolescent medicine (pediatrics), family medicine, geriatric medicine (family medicine), geriatric medicine (internal medicine), geriatric medicine/family practice, geriatric medicine/internal medicine, internal medicine, internal medicine/family practice, internal medicine/pediatrics or pediatrics.

- **RN: Registered Nurse**
 - An individual who has passed the educational and licensure examinations to practice
 - Includes RNs of all degree/diploma types (diploma, associates, bachelors, etc.)
 - Includes all practice environments (clinic, hospital, other) and departments/specialties