



# HEALTH WORKFORCE PLANNING AND MOBILITY IN OECD COUNTRIES

Gaetan Lafortune  
Senior Economist, OECD Health Division

EU Joint Action Health Workforce Planning and Forecasting  
Bratislava, 28-29 January 2014



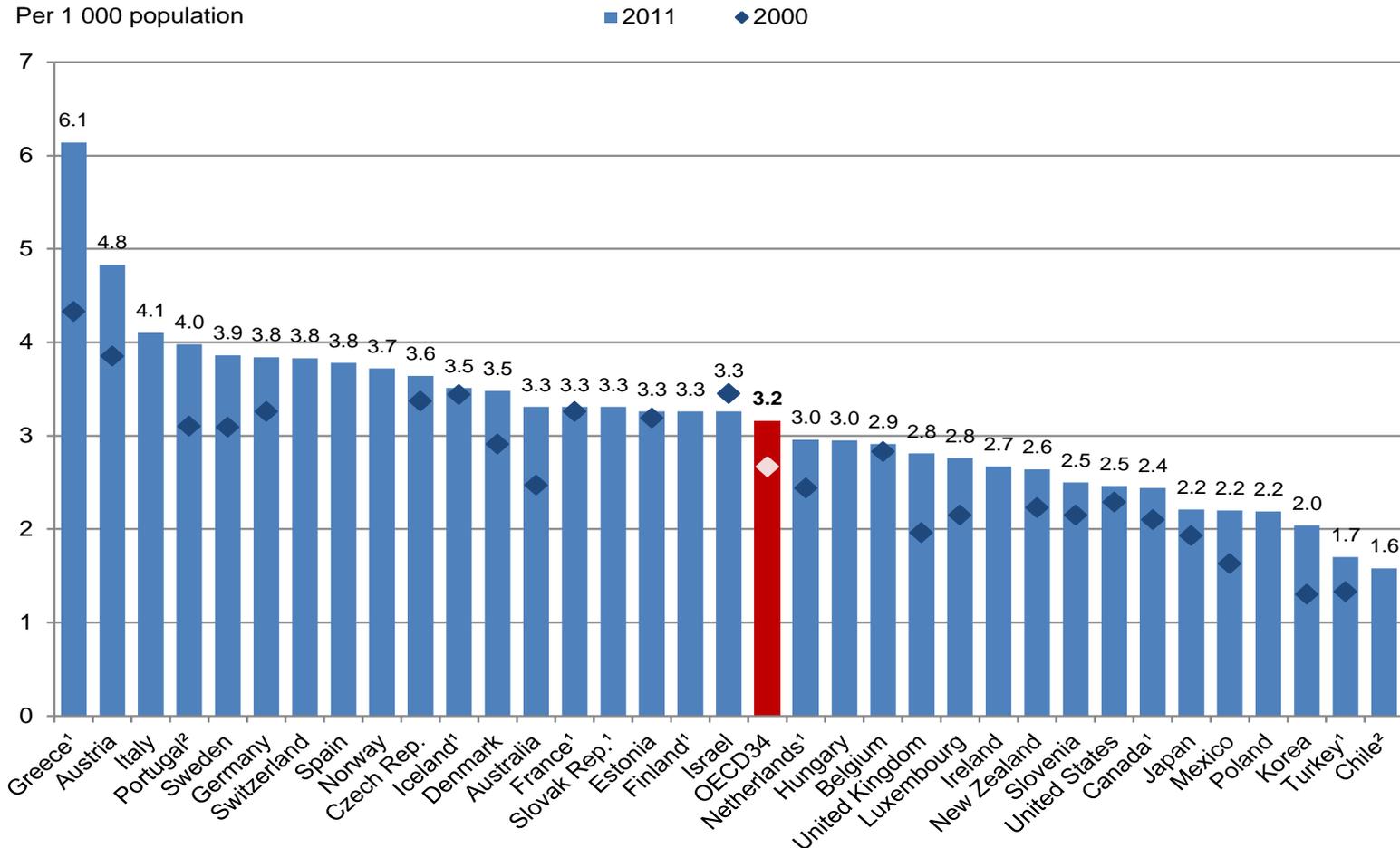
# Overview of presentation

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- Changing context for health workforce planning
- General framework for health workforce planning
- Small notes on a few big definition/measurement issues
- Main findings of recent review of health workforce planning models in 18 EU and other OECD countries:
  - Supply-side issues (retention, retirement, migration)
  - Demand-side issues (utilisation vs needs-based approach, changes in health service delivery, GDP and health spending growth)
- Summary and conclusions



# Context: Number of doctors has increased in most EU and OECD countries



1. Include not only practising doctors, but also those working in health sector as managers, educators, researchers.

2. Include all doctors licensed to practice (resulting in large over-estimation in Portugal).

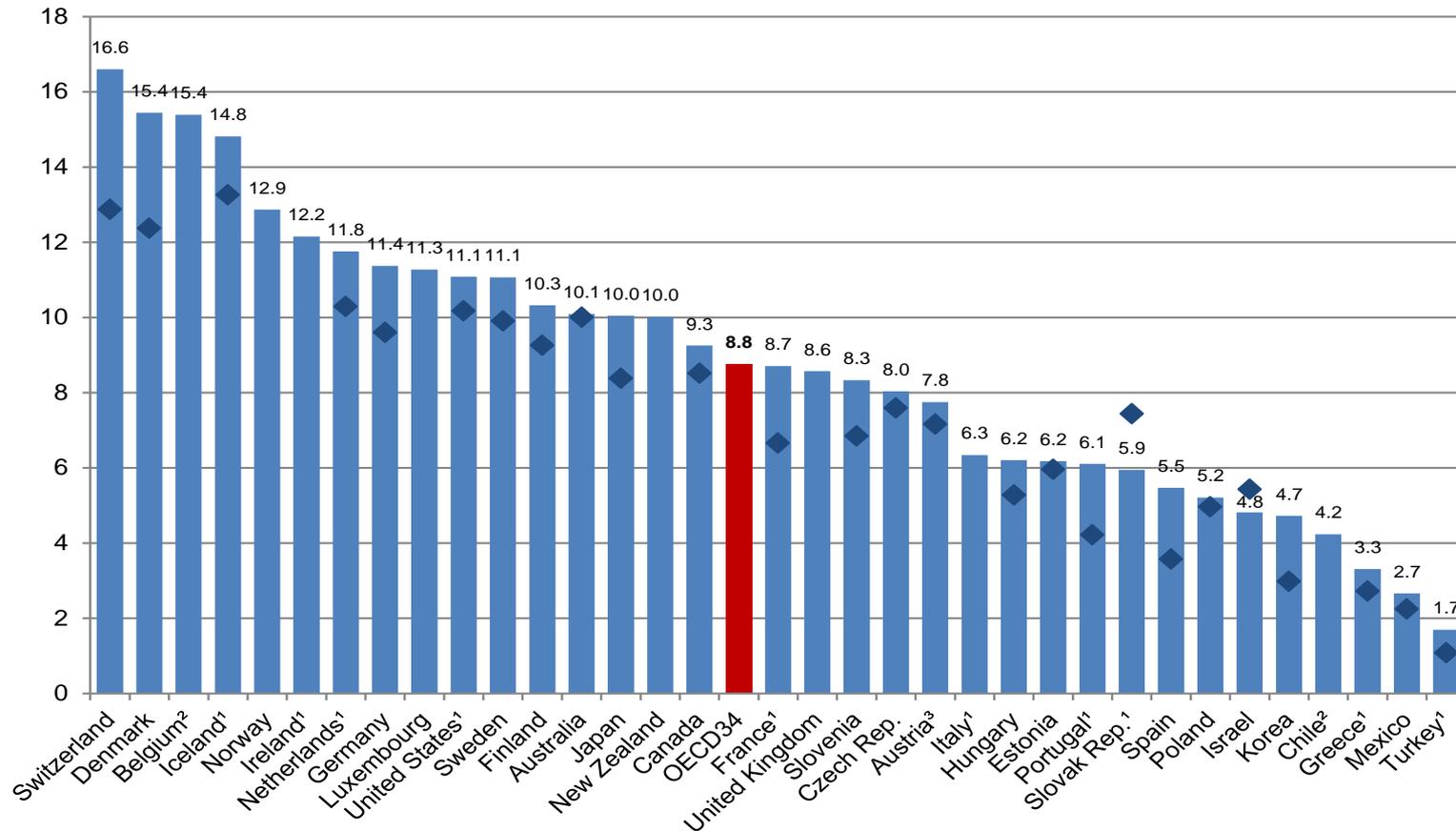
Source: OECD Health Statistics 2013 (based on OECD/Eurostat/WHO-Europe Joint Questionnaire)



# Context: Number of nurses also increased in most EU and OECD countries

Per 1 000 population

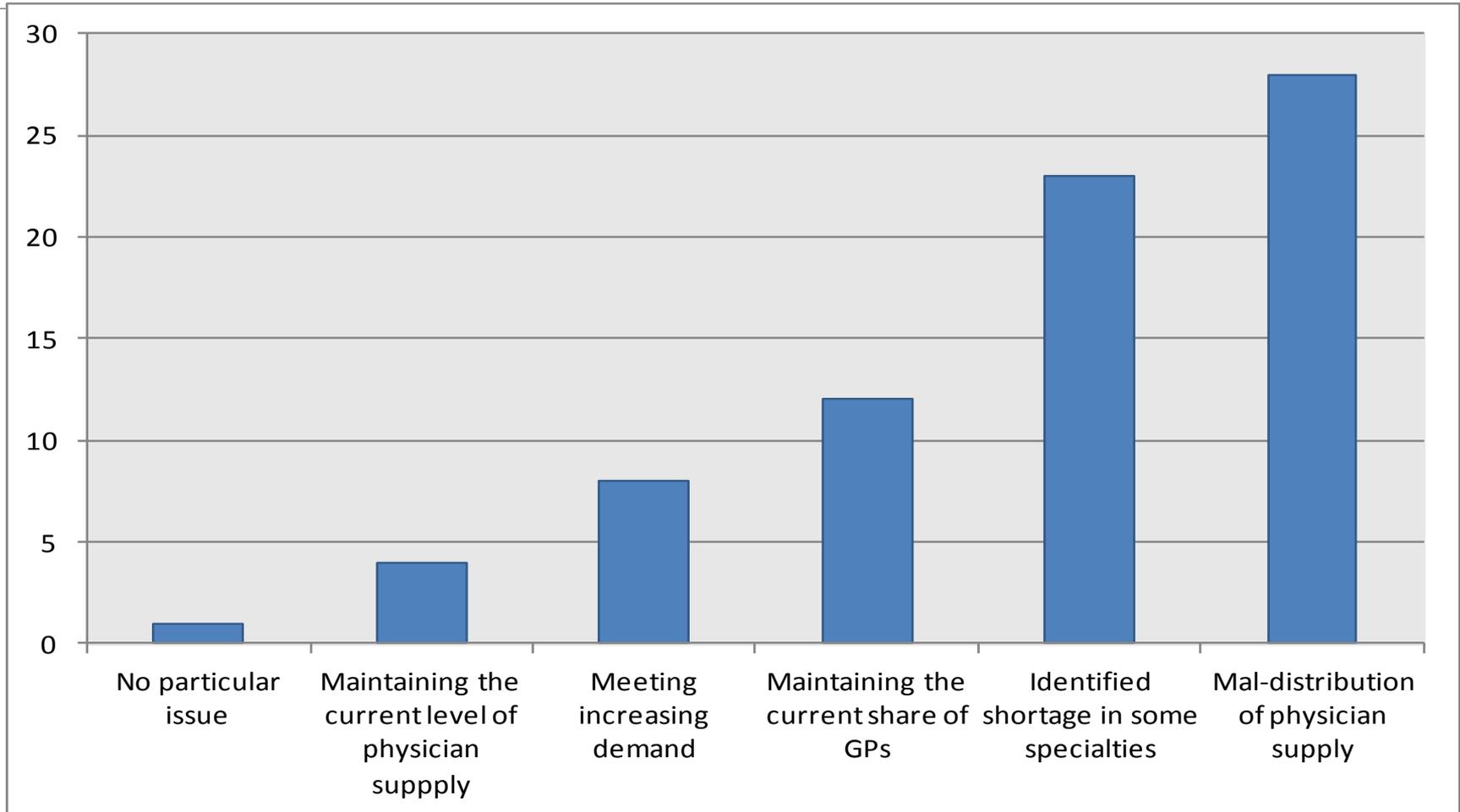
■ 2011 ◆ 2000



1. Include not only practising nurses, but also those working in health sector as managers, educators, researchers.
  2. Include all nurses licensed to practice (resulting in large over-estimation in Belgium).
  3. Include only nurses employed in hospital (resulting in under-estimation in Austria)
- Source: OECD Health Statistics 2013 (based on OECD/Eurostat/WHO-Europe Joint Questionnaire)



# Concerns about supply of doctors in EU and other OECD countries has changed



Source: OECD Health System Characteristics Survey 2012-13  
Note: Response “No particular issue” was from the Netherlands



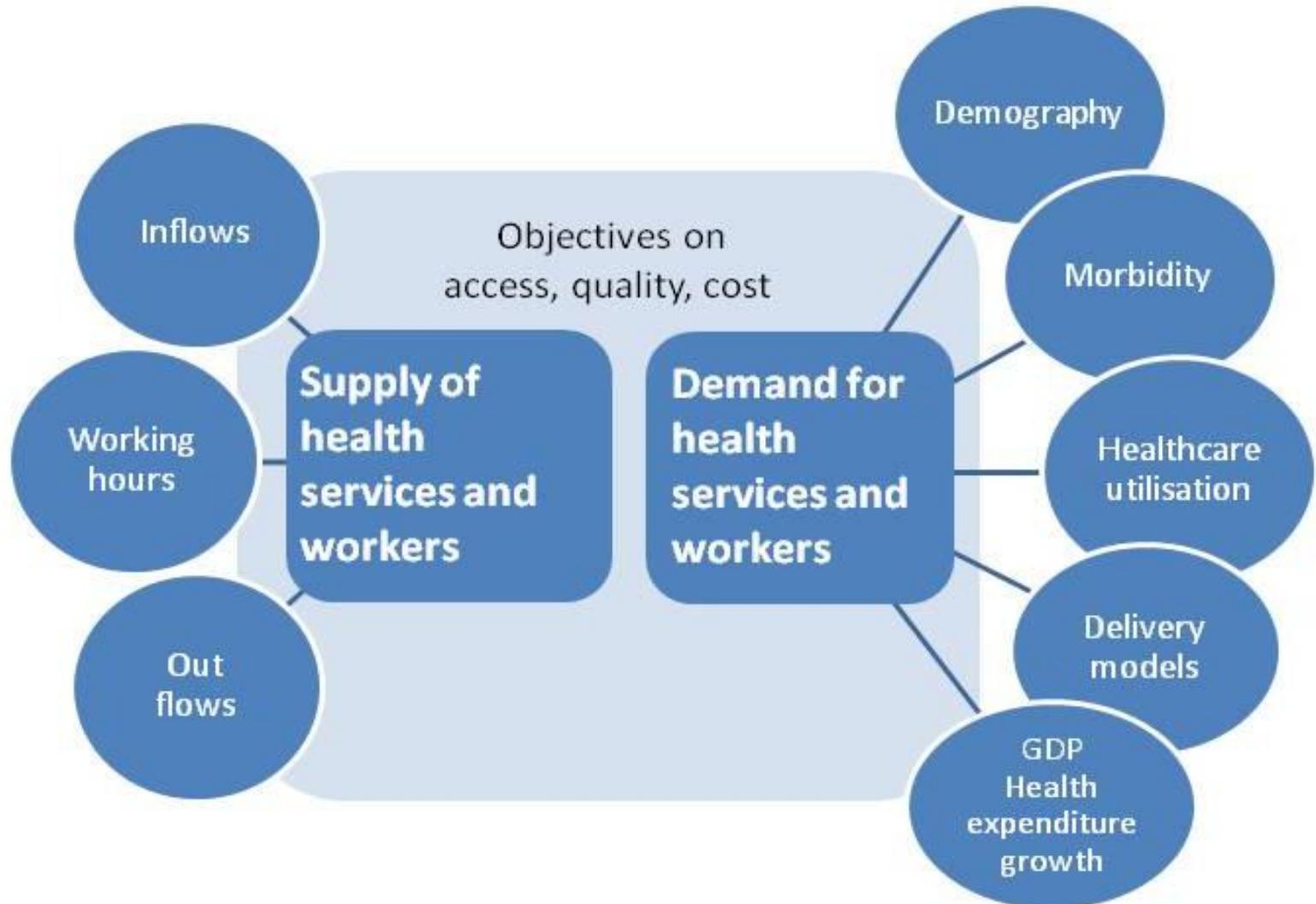
# Why health workforce planning?

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- General aim: Achieve proper balance between demand and supply of (different categories of) health workers in short, medium and long term
- More specific goals (non-exhaustive):
  1. Guide decisions about “numerus clausus” on student intake (impact has a lag time of several years due to length of training)
  2. Assess potential impact of changes in retirement policies and other policies to increase retention rates
  3. Assess potential impact of health service reforms to address access/efficiency issues (e.g., what workforce needed to strengthen primary care and home-based care?)
  4. Assess potential impact of greater “self-sufficiency” (reduction in immigration rates)



# General framework for health workforce planning





# Small notes on a few big definition and measurement issues

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## Shortages

- Indicators?
- Current balance?

## Productivity

- Measurement? (output/outcomes)
- Sources of productivity growth?  
What assumptions?

## Supply

- FTE better than headcounts... but significant data gaps (trade-off between ideal vs feasible)



# A few definition and measurement issues

## 1. “Shortages”

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- According to standard economic theory, one of the main measures of “shortages” is hard-to-fill job vacancies (and “surpluses” measured by unemployment/under-employment)
- But most health workforce planning models make the convenient assumption that current “market” for doctors and nurses is in balance (no shortage or surplus)
- A few models have tried to go beyond this assumption:
  - Current (hard-to-fill) job vacancies in hospitals and other facilities (e.g., Denmark, Japan, Netherlands)
  - Current “unmet care needs” as reported by the population or measured by gaps between current and recommended health service use (e.g., Canada’s ‘needs-based’ models)
  - Such alternative assumption does change the “end point” (assessment of future shortages/gaps)



# A few definition and measurement issues

## 2. “Productivity”

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- *“the concept of ‘productivity’ is very simple in principle, but rather slippery to pin down in practice” (Bob Evans, 2010)*
- Difficulties in measuring “productivity” in health care:
  - focus on outputs or outcomes? (improving patient outcomes is the main aim, but focus on outputs more feasible for workforce planning)
  - how to measure inputs? (per working hour, per doctor or nurse, per group practice, per unit cost)
- Two broad sources of labour productivity growth:
  - Working “harder” (longer working hours ) → supply increase
  - Working “smarter” (new technologies, skills or work organisation) → demand reduction
- Many models simply make some arbitrary assumption about future productivity growth (e.g., X% productivity growth)



# A few definition and measurement issues

## 3. Converting headcounts to FTEs

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- General agreement that FTEs is a better measure of supply than headcounts
- But in practice, many countries do not have good and comprehensive data on working hours (or other measures of activities) to do the conversion
- Different methods may also be used in different countries (comparability issues)
- Trade-off at international level about the “ideal” measure (FTEs available in a few countries) and the most “feasible” measure (head-counts in all countries)



# OECD Review of Health Workforce Projection Models (1)

<b>Country/Institution/Year</b>	<b>Coverage</b>	<b>Projection period</b>
<b>Australia</b> , Health Workforce Australia (2012)	Physicians, nurses and midwives	2010 – 2025
<b>Belgium</b> , Federal Public Service (2009)	Physicians	2004 – 2035
<b>Canada</b> , Health Canada (2007)	Physicians and nurses	2005 – 2025
<b>Canada</b> , Canadian Nurses Association (2009)	Nurses	2007 – 2022
<b>Canada</b> , Ontario Ministry of Health and Long-Term Care and Ontario Medical Association, (2010)	Physicians	2008 – 2030
<b>Chile</b> , Ministry of Health (2009)	Medical specialists in public hospitals	2009 – 2012
<b>Denmark</b> , National Board of Health (2010)	Physicians	2010 – 2030
<b>Finland</b> , Ministry of Employment and the Economy, Ministry of Education and Culture (2011)	Overall workforce	2008 – 2025
<b>France</b> , Ministry of Social Affairs and Health (2009)	Physicians	2006 – 2030
<b>France</b> , Ministry of Social Affairs and Health (2011)	Nurses	2006 – 2030
<b>Germany</b> , Federal Statistical Office (2010)	Nurses in health care and long-term care	2008 – 2025
<b>Germany</b> , Joint Federal Committee (2012)	Physicians in ambulatory care	Annual decisions
<b>Ireland</b> , Training and Employment Authority (2009)	Physicians, nurses, and other healthcare workers	2008 – 2020
<b>Israel</b> , Ministry of Health (2010)	Physicians and nurses	2009 – 2025



# OECD Review of Health Workforce Projection Models (2)

Country/Institution/Year	Coverage	Projection period
<b>Italy</b> , Ministry of Health	22 health workforce occupations	Annual decisions
<b>Japan</b> , National Commission on Social Security (2008)	Physicians, nurses, long-term care workers, pharmacists and other health workers	2007 – 2025
<b>Japan</b> , Physicians Supply/Demand Expert panel, Ministry of Health, Labour and Welfare (2006)	Physicians	2005 – 2040
<b>Japan</b> , Nurses Supply/Demand Expert panel, Ministry of Health, Labour and Welfare (2010)	Nurses	2011 – 2015
<b>Korea</b> , Korean Institute for Health and Social Affairs (2012)	15 health workforce occupations (including physicians and nurses)	2010 – 2025
<b>Netherlands</b> , Advisory Committee on Medical Manpower Planning (2010)	Physicians and dentists	2010 – 2028
<b>Norway</b> , Statistics Norway (2012)	Health care personnel	2010 – 2035
<b>Switzerland</b> , Swiss Health Observatory (2008)	Physicians in ambulatory care	2005 – 2030
<b>Switzerland</b> , Swiss Health Observatory (2009)	Physicians, nurses and other healthcare workers	2006 – 2020
<b>United Kingdom</b> , Centre for Workforce Intelligence (2012)	Physicians in NHS England	2011 – 2040
<b>USA</b> , National Center for Health Workforce Analysis (forthcoming)	Physicians, Nurse Practitioners, Physician Assistants	2012 – 2030



# SUPPLY-SIDE FACTORS



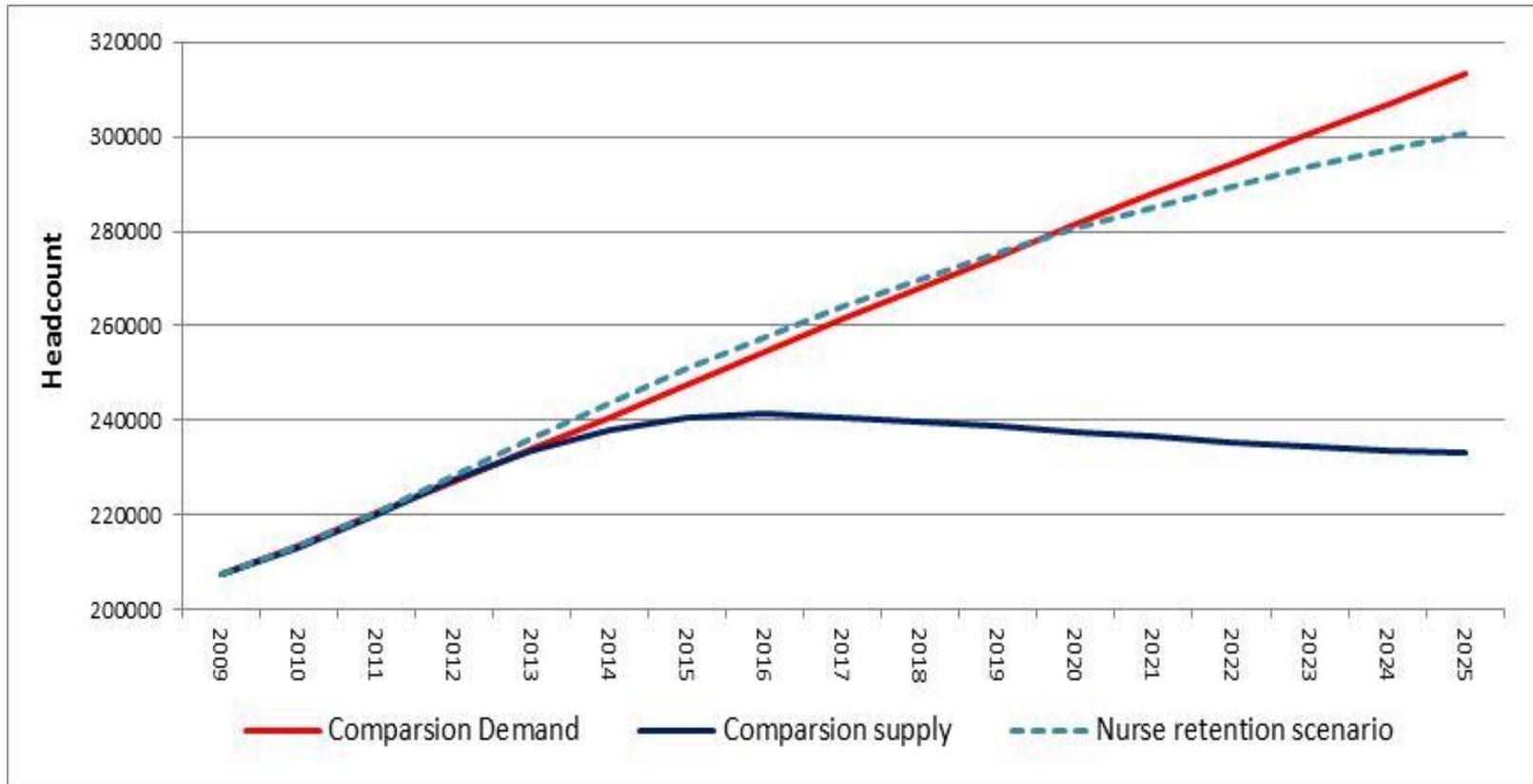
# Supply-side approach

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- Nearly all models based on stock-flow approaches
- Many models focus mainly on “replacement needs” (demographic exercise):
  - how many new doctors or nurses needed to replace those who will retire?
- Recent developments in some models to take into account non-demographic factors:
  - changes in retention rates (recent increase due to cyclical or structural factor?)
  - changes in retirement patterns (revisit convenient assumption that all doctors and nurses retire at a standard age)
  - changes in migration patterns (assumption of greater “self-sufficiency” following Global Code of Practice on International Recruitment)



# Retention rates of nurses: Impact of various assumptions (example from Australia)



Note: The “nurse retention” scenario applies the 2007-2008 exit rates (which are significantly lower than those from 2001-2006) across the entire projection period.

Source: adapted from Health Workforce Australia (2012)



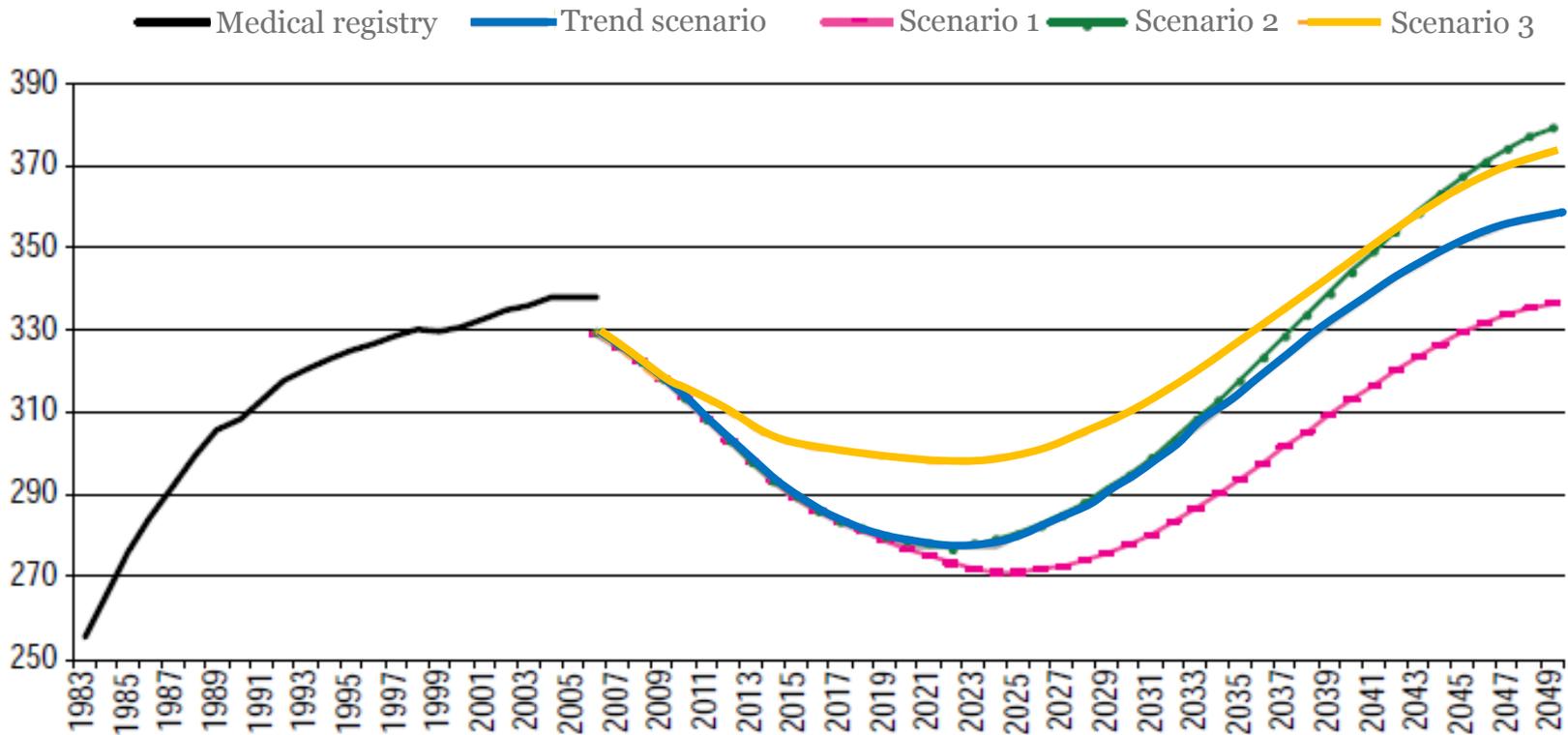
# Retirement patterns

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- Traditional assumption : all doctors and nurses leave their job at the “standard” retirement age
- But “standard” age of retirement is rising in many countries
- And growing evidence that retirement patterns of doctors are often gradual and changing:
  - **France:** most of the increase in number of doctors between early 2008 and end 2012 due to growing number aged 65 and over (8650 out of 10 000 “additional” doctors); unexpected in 2009 projections
  - **Netherlands:** projection model for doctors takes into account that some work beyond standard retirement age; new evidence that effective retirement age has increased significantly in recent years (increased by nearly 1 year for specialists between 2010 and 2012)



# Retirement: Impact of increase in retirement age of doctors (example of France)



Scenario 1: Lower numerus clausus than the baseline scenario

Scenario 2: Higher numerus clausus than the baseline scenario

Scenario 3: Two-year postponement of retirement age

Source: OECD Health Working Papers No. 62 (2013); taken from Attal-Toubert, K. and Vanderschelden (2009). "La démographie médicale à l'horizon 2030: de nouvelles projections nationales et régionales." Etudes et Résultats, No. 679, DRESS, Paris.



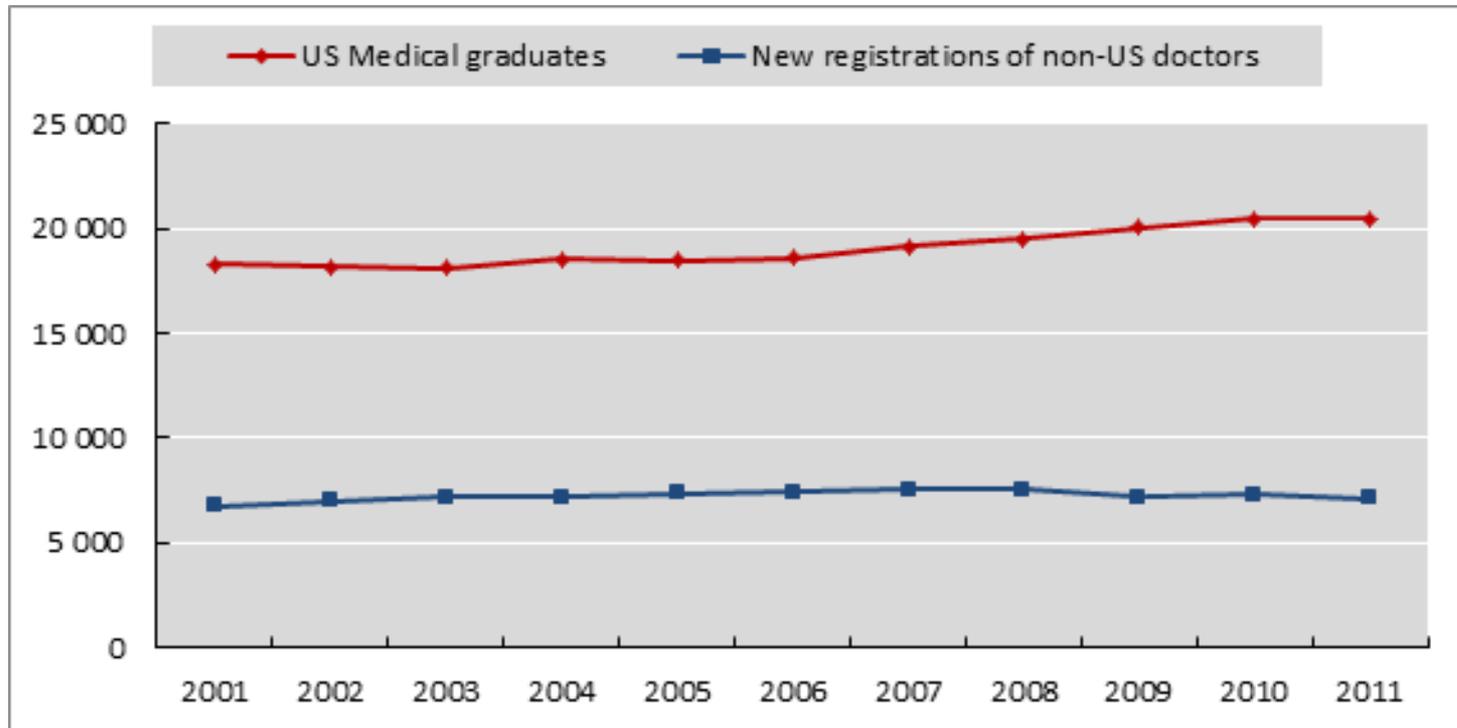
# Migration patterns

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- Some health workforce projection models do not include migration either because migration flows are negligible (e.g., Japan) or because models are based on ‘self-sufficiency’ assumption (e.g., Ireland, 2009)
- In the OECD review, models including migration focussed mainly on immigration (emigration not included either because of missing data or because considered to be negligible)
- In countries with high immigration rates, models often assessing impact of greater “self-sufficiency” scenarios (e.g., Australia, Canada)



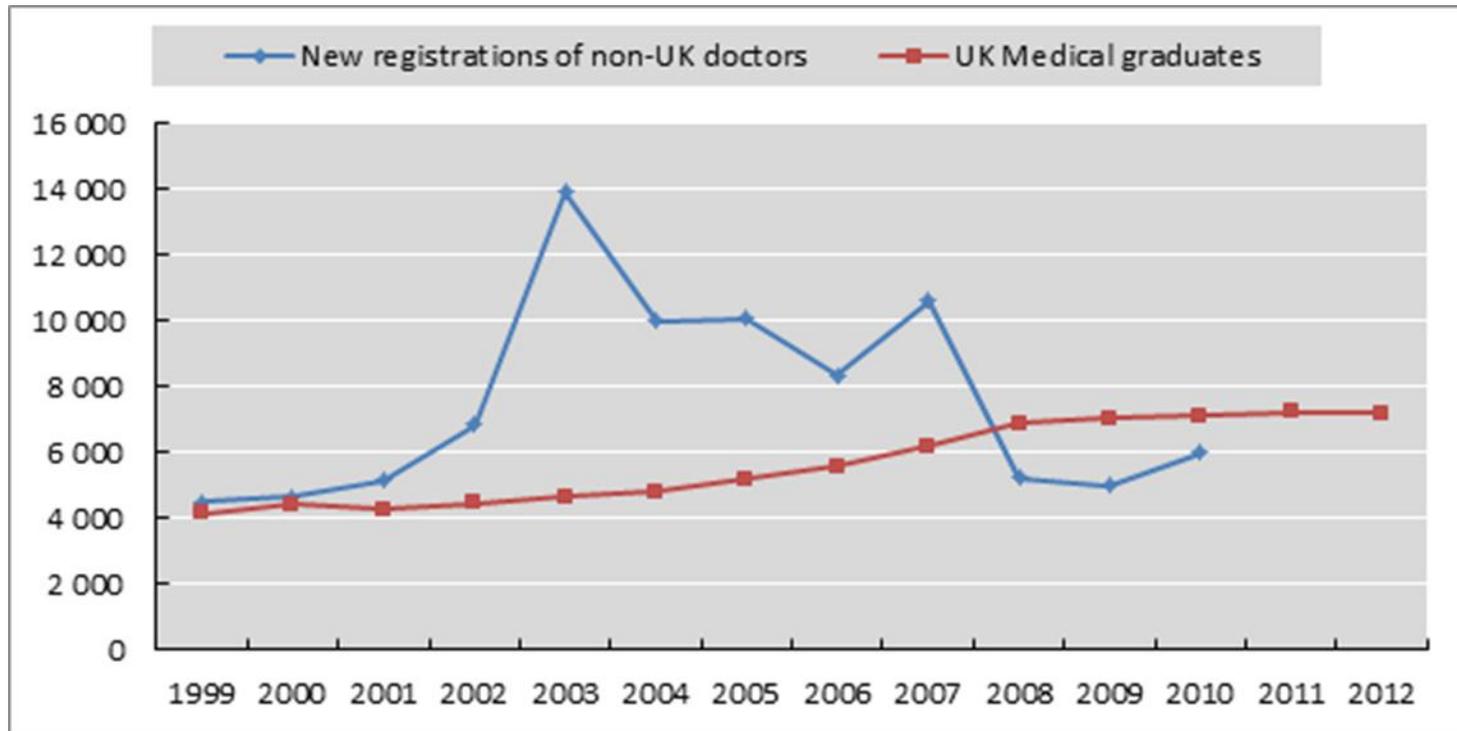
# Migration flows: Recent trends in domestic and foreign-trained doctors (United States)



- Overall share of foreign-trained doctors (“stock”) in the US stable before and after the economic crisis: 25.1% in 2006 and 24.7% in 2012

Sources: OECD Health Statistics 2013 (for medical graduates) and American Medical Association Physician Master Files (for new registrations of non-US doctors)

# Migration flows: Recent trends in domestic and foreign-trained doctors (United Kingdom)

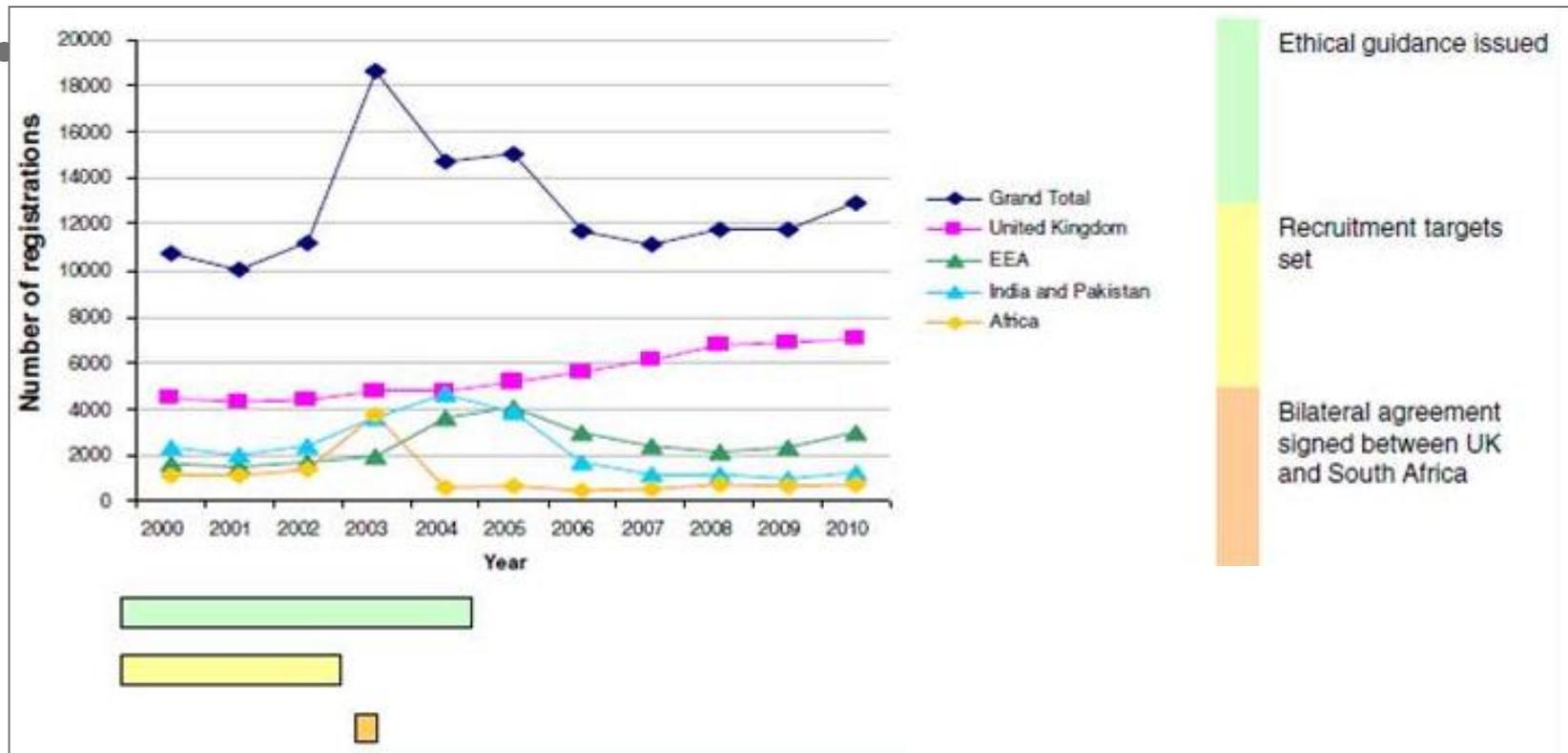


- Annual flows of foreign-trained doctors reached its peak in 2003; since 2008, domestic medical graduates exceed the inflow of foreign-trained doctors

Sources: OECD Health Statistics 2013 (for medical graduates) and ISD Scotland, HSCIC and GMS Census (Wales) (for new registrations of non-UK doctors)



# A closer look at recent trends in domestic and foreign-trained doctors (UK, 2000-10)



Source: Blacklock *et al.* (2012), "Effect of UK policy on medical migration: a time series analysis of physician registration data, *Human Resources for Health*, 10:35.



# DEMAND-SIDE FACTORS (THE MOST TRICKY PART!)



# Demand-side approaches

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## 1. Based on population size only

- Focus on workers to population ratio (what is the right ratio? often assuming need to maintain the current ratio)

## 2. Based on current health care utilization patterns

- Assuming constant utilization rates by age and sex (leading to higher demand for doctors and nurses due to population ageing)

## 3. Based on population health needs

- Current unmet needs (often leading to conclusion of current shortages and higher demand for doctors and nurses in the future)
- Changing morbidity patterns (compression or expansion of morbidity?)

## 4. Based on possible health service delivery reforms

- Strengthening primary care, extension of role/scope of practice of certain providers, etc.

## 5. Based on projected growth in GDP and health spending

- Assuming different “elasticity” between GDP growth and (public) health spending, and various assumptions about how health spending growth may lead to employment growth



# Overview of demand-side factors (selected models/countries)

Country/Institution	Population size	Constant utilisation	Needs-based	Health service delivery reforms	GDP/health expenditure growth
Australia, Health Workforce Australia (2012)	x	x			
Belgium, Federal Public Service (2009)	x	x			
Canada, Health Canada (2007)	x	x			
Canada, Canadian Nurse Association (2009)	x		x		
France, Ministry of Social Affairs and Health (2009 for MD, 2011 for nurse)	x				
Italy, Ministry of Health	x				
Netherlands, Advisory Committee on Medical Manpower Planning (2010)	x	x	x	x	
Switzerland, Swiss Health Observatory (2008, 2009)	x	x	x	x	
United Kingdom, Centre for Workforce Intelligence (2012)	x	x	x		x
USA, National Center for Health Workforce Analysis (forthcoming)	x	x	x	x	x



# Utilisation vs Needs-based approach

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- Utilisation-based: Using convenient assumption that future utilisation (or demand) will be equal to current utilisation (by age and sex)
- Needs-based: Trying to go beyond this convenient assumption in at least two ways:
  - Assess current “unmet care needs” (needs greater than utilisation)
  - Assess possible future changes in morbidity (including risk factors for different diseases) and impact on future needs
- Needs-based approaches require more data and assumptions about possible changes in morbidity
- Some models end up making arbitrary assumption of compression or expansion of morbidity (e.g. Germany, Switzerland)



## Impact of health service delivery reforms: Moving from “silo” to more integrated approach

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- **“Horizontal” substitution:** Interaction between different specialties within the same professional group.  
Examples of at least partial substitution:
  - Switzerland (2008): impact of introducing gate-keeping on demand for GPs and specialists
- **“Vertical” substitution:** Interaction between different professional groups.  
Examples of at least partial substitution:
  - Netherlands (2010): delegation of tasks from physicians to nurses and PAs
  - Switzerland (2008): task sharing between physicians and nurses in primary care



# Link to GDP and health expenditure growth

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- Few attempts to link health workforce projections and health expenditure projections :
  - surprising given that health expenditure growth will be a key factor affecting demand for health workers
- Norway:
  - approach: assess impact of two scenarios of GDP growth between 2010 and 2035, assuming public health spending would grow more or less at same rate
  - results: higher GDP growth rate scenario results in a larger projected gap between supply and demand for doctors and nurses
- England (CfWI):
  - approach: assess impact of different health expenditure scenarios between 2011 and 2040 on NHS employment, based on different assumptions about wage costs and non-wage costs growth
  - results: supply of hospital doctors projected to grow more rapidly than additional staff that NHS may be able to employ



# Summary and conclusions

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1. Health workforce planning is not an exact science; need for regular updating
2. Need to know where you are before you know where you are going (a lot of good data about current situation needed to make projections)
3. Health workforce projections should help avoid a “yo-yo” approach to “numerus clausus” (should not over-react to cyclical fluctuations; keep an eye on long term/structural issues)
4. Supply-side need to focus more attention on retention and retirement patterns (recent trends in many countries suggest increases, but still unclear whether this is a cyclical or structural effect)
5. Supply-side also need to take into account migration flows (but generally less information on emigration than immigration)
6. Demand-side remains the most difficult/uncertain ( no easy solution)



## More information

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[health.contact@oecd.org](mailto:health.contact@oecd.org)

[www.oecd.org/health](http://www.oecd.org/health)



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