OVERVIEW OF HEALTH WORKFORCE PROJECTION MODELS IN 18 OECD COUNTRIES

Gaetan Lafortune
Senior Economist, OECD Health Division

International Health Workforce Collaborative
Quebec City, Canada, 6 May 2013

OECD
BETTER POLICIES FOR BETTER LIVES

Overview of presentation

- Aim and uses of health workforce projection models
- Brief overview of 26 models from 18 countries
- General framework for health workforce planning
- A few important definition and measurement issues
- Supply-side developments
- Demand-side developments
- Moving from “silo” to more integrated (multi-professional) approaches
- Recommendations

Aim of health workforce planning and uses of health workforce projection models

- Aim: Achieve proper balance between demand and supply of health workers in short, medium and long term (avoid shortages or surpluses)

- Projection model used as **a tool** to help decision making:
  1. Guide decisions on "numerus clausus" for medical and nursing education intake
  2. Assess potential impact of "what if" scenarios (e.g., re-organisation of health service delivery, role and scope of practice of different providers)

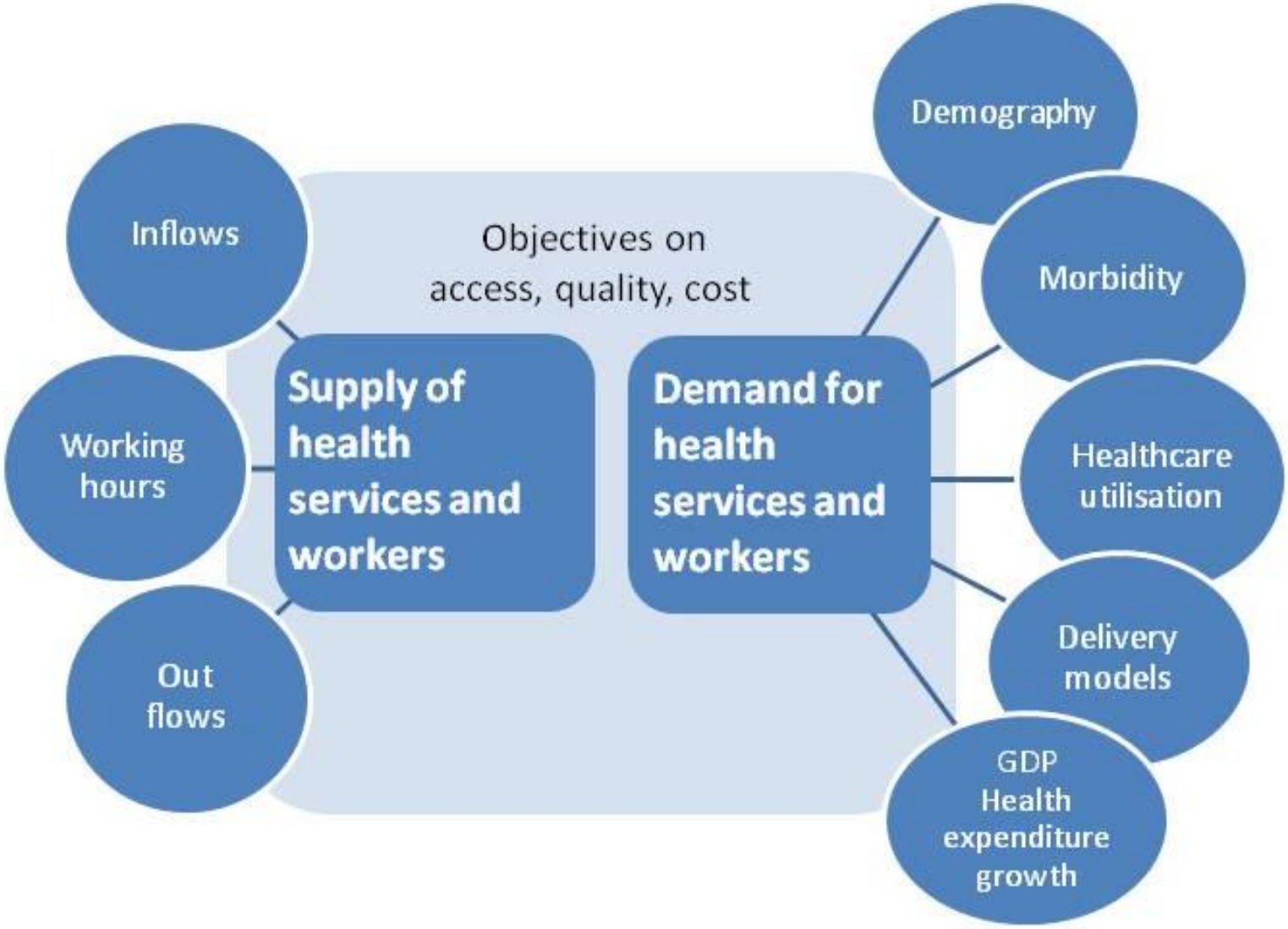
Models reviewed

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

Models reviewed

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

General framework for health workforce planning



A few definition or measurement issues 1. “Productivity”

- *“the concept of ‘productivity’ is very simple in principle, but rather slippery to pin down in practice”*(Robert Evans, 2010)

- Ongoing debates about measurement of “productivity” in health care:
  - focus on outputs or outcomes? (improving outcomes is the main aim, but focus on outputs is more feasible for health workforce planning)
  - how to measure inputs? (per working hours, 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 use an arbitrary assumption about future productivity growth:
  - Australia: 5% productivity gain between 2010-2025

A few definition or measurement issues
2. Converting headcounts to FTEs

- 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 to do the conversion
- Different methods used in different countries or even within country , e.g. Canada:
  - CIHI: based on administrative data about gross income per physician paid fee-for-service as a measure of physicians' workload (partial coverage of physicians)
  - Ontario: based on survey data about clinical hours

A few definition or measurement issues
3. "Shortages"

- According to standard economic theory, one of the main measures of "shortages" is hard-to-fill job vacancies
- 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, using different approaches:
  - Current (hard-to-fill) job vacancies in hospitals and other facilities (e.g., Denmark, Japan, Netherlands)
  - Gap between current situation and some benchmark in doctor-to-population ratio (e.g. Chile)
  - 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)

SUPPLY-SIDE DEVELOPMENTS

Supply-side developments

- Virtually 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:
  - Immigration patterns (assuming greater “self-sufficiency” following Global Code of Practice on International Recruitment)
  - Retention rates (revisit retention rates of nurses; recent increase due to cyclical factor or structural factor?)
  - Retirement patterns (revisit convenient assumption that all doctors retire at a standard age)

Retirement patterns

- Traditional assumption : all health professionals leave their job at “standard” retirement age
- But “standard” age of retirement rising in many countries
- Growing evidence that retirement patterns of doctors are often gradual and changing:
  - **Canada**: gradual retirement patterns observed before economic crisis; many doctors work beyond retirement age albeit often less (Pong, CIHI, 2011)
  - **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) – unexpected in 2009 projections
  - **Netherlands**: projection model for physicians takes into account that some doctors work beyond standard retirement age; recent evidence that effective retirement age increased significantly in recent years

DEMAND-SIDE DEVELOPMENTS

Demand-side approaches

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 utilization	Needs-based	Health service delivery reforms	GDP/health expenditure growth
Australia, Health Workforce Australia (2012)	x	x			
Canada, Health Canada (2007)	x	x			
Canada, Canadian Nurse Association (2009)	x		x		
Canada, Ontario Ministry of Health and Long-Term Care and Ontario Medical Association (2010)	x		x		
France, Ministry of Social Affairs and Health (2009 for MD, 2011 for nurse)	x				
Netherlands, Advisory Committee on Medical Manpower Planning (2010)	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
USA, University of North Carolina, Cecil G. Sheps Center (2012)	x	x	x		

Utilisation vs Needs-based approach

- 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)

Health service delivery reforms

- What impact on health workforce demand under different reform scenarios:
  - re-orientation of activities from hospitals to primary care and home-based care (e.g., Switzerland, Japan)
  - extension of role/scope of practice of certain “mid-level” providers;, and its impact on the demand for GPs (e.g., Netherlands, Switzerland, US)

Moving from “silo” to more integrated approach

- **“Horizontal” integration**: Interaction between different specialties within the same professional group.

  Examples of at least partial integration:
  - Switzerland (2008): impact of introducing gate-keeping on demand for GPs and specialists
  - University of North Carolina (US): incorporating possible substitution between different medical specialties in response to local circumstances (“plasticity” concept)

- **“Vertical” integration:** Interaction between different professional groups.

  Examples of at least partial integration:
  - Netherlands: 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

- 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:
  - 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):
  - assess impact of different health expenditure scenarios between 2011-12 and 2039-40 on NHS employment, based on different assumptions about growth in wages and non-wage costs
  - results: supply of hospital doctors projected to grow more rapidly than additional staff that NHS may be able to employ

Recommendations (for discussion)

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 (good data about current situation is a prerequisite to projections)
3. Health workforce projections should help avoid a “yo-yo” approach to “numerus clausus” by keeping an eye on the long term
4. Supply-side improvements need to focus in particular on retention and retirement patterns (revisit previous assumptions)
5. Demand-side remains the most difficult and complex part; need to focus on possible impact of health service delivery reforms
6. Need to gradually move from uni-professional to multi-professional workforce planning
7. Need to strengthen links between health workforce projections and health expenditure projections (based on different scenarios)