# Comparison of the selected HWF planning practices

## Goals

### Schematic description and evidences of "Goals".

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| ***ITEM***  ***Each organization has its own goals, that may be general, based on the mission, or more specific. Fixing a goal, means to establish the purpose of an action: to know which is the goal to attend helps in using the initiatives in an appropriate way, without wasting them. The definition of the goals is often confused.***  ***In the definition of the goal, we have to remind that they have to be S.M.A.R.T.: an acronym that synthetizes the method described by Peter Drucker in its book The Practice of Management (1954).***  ***Specific. The fixed goal has to be specific, clear, not vague or generic.***  ***Measurable. The goal has to be measurable, allowing to understand if the attended result has been reached or not and eventually, how we are far from the goal.***  ***Achievable. The goal has to be achievable considering resources and ability at your disposal. It hasn’t to be impossible to reach, otherwise it may risk to reduce the motivation. In the meantime it has to be stimulating.***  ***Realistic. A goal has to be stimulating, but also realistically achievable, considering resources and means available. Goals too far from reality aren’t taken into account, as discouraging.***  ***Time Related. The goal has to be based on time, i.e. it is necessary to determine the time for its realization. That’s useful to allow that the goal itself is measurable and avoid that, without a timing reference, it is considered not urgent. That allows to better distribute the time compared with activities.(1)*** |

1. It is important to make a distinction among “Goals”, “Scopes” and “Missions”. An example of goal may be the following: “Reduce of the 30% the value of the ratio: number of doctors per 1000 inhabitants in a country by 2020”. Following the SMART logical, this “goal” is “specific” (furnishes an indicator), is “measurable” (furnishes a target), is “time related” (furnishes a deadline). We may not discuss if this objective is also “achievable” and “realistic”, because the specific context of applicability is missing, but in general we may assume that it “probably” is. On the other hand, in many countries what is a “scope” or a “mission” is confused with a “goal”. An example of a “scope” (or “mission”) is: “make sure that the offer of health workforce always satisfies the demand”. The “scope” (or “mission”) is not “specific”, nor “measurable”, nor “time related”, but might however be “achievable” and “realistic”. On the contrary of the goal, the “scope” (or “mission”) defines the direction toward which converge the actions, without clearly fixing the purpose to reach, the time needed to reach it, nor the modalities as well. In a planning logic, these missing elements represent a problem.

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| ***BELGIUM*** | The objectives are rather implicit.  The planning commission (1) does not actively pursue any targets regarding the planning process for health care professionals (2).  The mathematical planning model is used to model the current (and future) workforce situation, but not to model the desired workforce situation, since the commission currently has no common or official position on which workforce level is required or preferred (the desired number of health care professionals/habitant) (3). The main goal of the planning commission is to monitor and observe the current workforce situation. For now, the planning commission tries to maintain the current level and workforce distribution. When problems arise (e.g. an expected shortage of the number of health care professionals), the ministry can take corresponding policy initiatives.  e.g. In 2008 the ministry of public health and social affairs started an attractiveness plan for the profession of nurses. It was designed to meet the needs of all nurses, their patients and the quality of care. Several actions were undertaken: diminishing the workload and stress of nurses; functional differentiation (increasing the number of titles and qualifications); annual payment for the holders of a particular professional title or qualification. All these initiatives aim to increase (or at least maintain) the number of nurses in the health sector (hospitals, nursing homes and home care). |

(1) See the presentation of the “Commission de planification de l’offre médicale” in its official web site (<http://www.health.fgov.be/eportal/Healthcare/Consultativebodies/Planningcommission/index.htm?fodnlang=fr#.U_YZi_l_vL2>.HTML)

“***Missions de la commission***

*La commission examine les besoins en matière d’offre médicale pour les médecins, les dentistes, les kinésithérapeutes, les infirmières, les accoucheuses et les logopèdes. Pour déterminer ces besoins, elle tient compte:*

*- de l’évolution des besoins en matière de soins médicaux*

*- de la qualité des prestations de soins*

*- de l’évolution démographique et sociologique des professions concernées.*

*Elle évalue, de manière continue, l’incidence qu’a l’évolution de ces besoins sur l’accès aux études pour les professions visées.*

*Elle fournit chaque année un rapport au ministre de la santé publique sur le nombre de personnes qui auront accès à une profession de santé donnée.  
Les rapports annuels peuvent être consultés sur*[*ce lien*](http://www.health.fgov.be/eportal/Healthcare/Consultativebodies/Planningcommission/Rapports_Annuels/index.htm)*.*

*Elle donne un avis concernant le [contingentement (.HTML)](http://www.health.fgov.be/eportal/Healthcare/Consultativebodies/Planningcommission/18070756_FR" \t "_blank) au Ministre de la santé publique. Pour cela, la commission de planification utilise un modèle de calcul qui établit des*[*projections dans le futur*](http://www.health.fgov.be/eportal/Healthcare/Consultativebodies/Planningcommission/18070759_FR)*.*”

(2) What about the “**scope**” stated in Matrix’Study (pag.328) and argued in the KCE reports 72C: “Health workforce planning has been envisaged in the Belgian health care system in order to contain health expenditure and overcome discrepancies across communities.”? Is it an official “goal” or “mission” of the Planning Commission or is it just a topic that policy makers and experts have discussed’

(3) In 2012 the Planning Commission adviced the Minister on some actions to be taken, i.e. to increase the quantity of generalist doctors and to reduce the quantity of specialist doctors (see <http://www.health.fgov.be/internet2Prd/groups/public/@public/@mixednews/documents/ie2divers/19092309.pdf> - pp. 68-69) . How was that those suggestions have not been translated into operational objectives?

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| ***DENMARK*** | The main goal is "adapt the supply to the variations of the demand": the number of training posts in the medical specialities is decided on the basis of qualitative inputs from different actors.  Other objectives to be mentioned are:  • to illustrate the expected development in the number of physicians and medical specialists;  • to assess the required capacity as far as basic medical training at medical schools is concerned and subsequently advise the politicians;  • to create a basis for discussions for the future need of physicians and medical specialists;  • monitor and observe the current and future supply of workforce. |
| ***ENGLAND*** | The goals are explicit and set out in the “Mandate from the Government to Health Education England” (1) and the “Education Outcomes Framework” (2). In particular, the latter define the expected outcomes (3) while the first makes explicit the related operational objectives (both short term and log term) (4). |

1. See: <https://www.gov.uk/government/publications/health-education-england-mandate>.
2. See: <https://www.gov.uk/government/publications/education-outcomes-framework-for-healthcare-workforce>
3. For example: on the domain named “Competent and Capable Staff”, whose definition is “*There are sufficient health staff educated and trained, aligned to service and changing care needs, to ensure that people are cared for by staff who are properly inducted, trained and qualified, who have the required knowledge and skills to do the jobs service needs, whilst working effectively in a team*”, the expected outcome are:
   1. “*organisations anticipate the numbers and capabilities of the workforce they will need for the future and demonstrate how they work singly and collectively to meet these needs*”;
   2. “*High quality care will not be compromised by the lack of available staff with the necessary competence, capability and performance*”.

The Education Outcomes Framework, March 2013 – p.7

1. For example, in the domain of “Competent and Capable Staff”, two scopes were defined:
   1. ensuring effective workforce planning through close work with the LETBs;
   2. delivery of a workforce to meet the changing needs of the service, with particular focus on preventative measures and primary care.

And a set of expected deliverables (output) were described, i.e. “Significant reduction in the number of roles on the Shortage Occupation List by March 2015”, or “Delivery of a 5-year consolidated workforce plan by Autumn2013”. In 2014 the HWF planning targets have been updated and detailed - see “Annex A – Summary of objectives and deliverables for 2014/15” - A mandate from the Government to Health Education England: April 2014 to March 2015, available at <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/310170/DH_HEE_Mandate.pdf>

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| ***FINLAND*** | The goal is to achieve a better balance between the supply of education and training and the workforce demand as well as to support decision-making on education and training.  A key objective of education policy is to provide all young people (the average 16-21 age group for a certain period of time) an opportunity to apply for vocational and professional education and training. This approach aims to ensure that young people entering education and training will be divided into educational fields in accordance with the anticipated workforce demand in different industries.  The development plan for education and university research defines targets for educational supply within the next five years as entrant targets and output of qualifications for every field and level of professional and vocational education and training. The intake in universities, polytechnics and vocational institutions is defined in accordance with the national entrant targets.  A national development plan for social and health care services which is adopted by the Government every four years defines the development objectives for municipal social and health care services and main measures to achieve them. This plan defines also measures to ensure the sufficiency and skills of the personnel, retention policy issues, redistribution of professional responsibilities and well-being at work in social and health care.  In addition, legislation regulates the responsibilities of the hospitals districts and the local authorities to ensure that the sufficiency of the personnel in health care is in accordance with the care needs of the population. The hospital districts within a catchment area for highly specialised medical care have to ensure that all treatment units providing services according to the agreement on the provision of specialised medical care have adequate financial and human resources and competence (Act 1326/2010). The local authorities forming the joint municipal authority for a hospital district have to ensure the availability of the personnel in primary health care through a health care provision plan which must be provided on the basis of the health statistics and the needs of the population (Decree 337/2011).  (1) |

1. “*The Development Plan for Education and Research for 2011–2016 adopted by the Government outlines education policy objectives for the Government term, which will be presented in this chapter at a general level (Opetus- ja kulttuuriministeriö [Ministry of Education and Culture] 2011a). The Development Plan aims to make Finland the most competent nation in the world by 2020, when Finland will be ranked among the leading group of OECD countries in key comparisons of competencies of young people and adults, in low school dropout rates; and in the proportion of young people and other people of working age with a higher education degree. Differences between genders in terms of learning outcomes, participation in and completion of education will be reduced, while the effects of young people’s socio-economic backgrounds on educational choices will be curtailed. Furthermore, the Government’s priorities include reduction of poverty, inequality and social exclusion, consolidation of public finances and enhancing sustainable economic growth, employment and competitiveness”*. EDUCATION, TRAINING AND DEMAND FOR LABOUR IN FINLAND BY 2025;m <http://www.oph.fi/download/144754_Education_training_and_demand_for_labour_in_Finland_by_2025_2.pdf>

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| ***NETHERLANDS*** | The statutory objectives are (1):  • Draw up requirement estimations on the basis of, amongst others, the anticipated demands for health care and demand projections in relation to various medical and dental health specializations.  • Meet both the health care sector and the government’s demand for information in conjunction with the perceived need and the related capacity for basic medical and dental education and subsequent specialization.  • Asses the required capacity level as far as basic medical training at medical schools is concerned and subsequently advise the government accordingly.  These goals are explicit. They are translated in specific measurable advices on the range of the yearly intake in any profession that is concerned. Because these ranges are discussed with the field in advance, all training institutes will have made action plans for the different scenario’s. The ministry of Health, Welfare and Sports will make the necessary budget available. This will take some time, up to 2 years at the most. The goals are therefore attainable.  There are several restrictions. The necessary budget is only one of the restriction. Then, there have to be training institutes that can accommodate the (additional) trainees. And also there have to be enough trainers. Finally, the medical graduate has to take an interest in the training program.  The goals are timely. In the scenario’s, we take into account a 2-year lag time phase due to the process of taking the decisions and implementing the consequences. Thereafter, the ACMMP sets two equilibrium years, one in 12 years, the other one in 18 years. |

1. See: “The 2010 Recommendations for Medical Specialist Training”, p. 9. <http://www.capaciteitsorgaan.nl/Portals/0/capaciteitsorgaan/publicaties/capaciteitsplan2010/0%20Capaciteitsplan%20Hoofdrapport%20Engels.pdf>

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| ***NORWAY*** | 1. Explicit  2. Generic  3. Measurable  4. Attainable  5. Realistic  6. Timely  [more information about this topic are needed] |
| ***SPAIN*** | 1. It has been proposed to reduce the places in the Faculties of Medicine following a sharp increase since 2006, establishing a Numerus Clausus less than 7.000. 2. Improve the distribution of the supply of specialized training according to identified needs. 3. Reduce abandonment of specialized training and prevent recirculation (access to specialized training place with other specialty physicians or physicians prior left the training). |
| ***EVIDENCES***  *In most cases the goals of the methodologies taken into account are very generic and not specific. What is identified as a goal, in reality is most a mission of the organization and its activities. That’s the case, for example, of Belgium, Denmark or Finland. Different is the case of England whose goals are not only explicit, but also very specific and clearly defined, with a clear timing and precise indication about the modalities to achieve them (see "A mandate from the government to Health Education England" in https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/203332/29257\_2900971\_Delivering\_Accessible.pdf). In the other cases the action appears more guided by a "statutory mandate", than by operative goals. Also in the case of England, a measuring system able to monitoring the degree of achievement of these goals, is missing.* | |

## Type of forecasting model

### Schematic description and evidences of "The projections concern”

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| ***ITEM***  ***The main approaches to health workforce planning include the supply-projection approach, the demand-side approach and needs-based approach. Each Country has developed its own model using a specific approach. (1)*** | |
| *The value of projections lies not in their ability to get the numbers exactly right but in their utility in identifying the current and emerging trends to which policy-makers need to respond. The requirements for providers are endogenously determined through the political or social choices that underlie the health*  *care system. Only where the social and political choices about the access to care are explicit, can scientific methods be used systematically to derive requirements for health care providers in a particular population. (Physician workforce supply in Belgium. Current situation and challenges. KCE reports 72C – pag. V)*   1. *See: Integrating Workforce Planning, Human Resources and Service Planning, Linda O’Brien-Pallas, Stephen Birch, Andrea Baumann, and Gail Tomblin Murphy, Workshop on Global Health Workforce Strategy Annecy, France, 9-12 December 2000, available at* [*http://www.who.int/hrh/documents/en/Integrating\_workforce.pdf*](http://www.who.int/hrh/documents/en/Integrating_workforce.pdf) | |
| ***BELGIUM*** | The forecasting model looks both demand and supply of health workforce. (1)  The model estimates trends in the supply of health workforce, factoring in multiple scenarios regarding various levels of inflows in the workforce.  On the demand side the model takes in consideration the evolution of demand based on health expenditures (2) and the ageing of the population (3).  *“Belgian Harmonized Mathematical Planning Model (BHMPM)”, Pieter-Jan Miermans.*  *(see also: “La definition des besoins en informationdu service de planification pour la saise et l’actualistion des données puor le modéles de planification”, Jozef Pacolet)”.*  *“Essential in the correct funnctioning of the BHMPM is a precise definition of this starting stock. Exact information about size and composition of the current workforce is* a conditio sine qua non *for reliable forecasting. This starting stock is then modified by inflow and outflow. In a workforce model, inflows are define as new graduates entering the labor pool, immigration, extra flows (e.g. people entering health sector from other sectors mid-career). Outflow is determined by survival rate, halting of activities, emigration, etc. Expected evolutions about future inflows (e.g. education and migration) and outflows (e.g. emigration and retirement) of the profession and future level of activity are used to forecast the future levels of the (active) workforce. In combination with the projected population evolution, the BHMPM also produces expected densities (Number of health professionals per 1000 inhabitants).”* |
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1. <http://www.health.fgov.be/eportal/Healthcare/Consultativebodies/Planningcommission/18070759_FR>
2. For a detail on health expenditures variables see:

<http://www.euhwforce.eu/web_documents/JAHWF_130521_WP6_workshop/JAHWF_130527_WP6DOC_Eindproduct_FR_Gegevenswoordenboek_geharmoniseerdeplanningsmodel080526.pdf> - p. 61.

1. For a detail on population variables see:

<http://www.euhwforce.eu/web_documents/JAHWF_130521_WP6_workshop/JAHWF_130527_WP6DOC_Eindproduct_FR_Gegevenswoordenboek_geharmoniseerdeplanningsmodel080526.pdf> - p. 57.

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|  | The quantitative forecast includes a supply side and five very simplistic scenarios for the demand side. One scenario showing the demand for workforce if the current ratio between the profession and population size is being kept and four scenarios showing the expected demand for workforce if we see a 0 %; 0,5 %; 1 % or 1,5 % increase in demand per year  The decision not make a more elaborate demand forecast is primarily due to great difficulties associated with forecasting demand. When producing a 5 year plan setting either the number of postgraduate training posts for medical og dental specialists the Danish Health and Medicines Authority uses the results from the supply forecast and is furthermore advised by different stakeholders regarding their qualitative estimation of the need of medical or dental specialists in the different specialities on a national and regional level. |

***DENMARK***

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| ***ENGLAND*** | The forecasting model looks both demand and supply of health workforce.  The forecasting approach is different for the different professions forecasted (110 different roles). However demand and supply are always take into account.  Workforce planners model demand and supply variables and assess if the current training volume is likely to produce under or over supply if not adjusted.  Factors influencing demand include:  • Changing patterns of disease  • Developments in technology  • Introductions of new professional or regulatory standards  • Financial constraints  • New roles substituting current roles  Factors influencing supply include:  • Current workforce levels  • Rates of attrition from training courses  • Rates of staff turnover  • Retirement age  • Inflow and outflow from other countries and healthcare employers (1) |

1. See: Investing in people for Health and Healthcare, Health Education England; available at <http://hee.nhs.uk/wp-content/uploads/sites/321/2013/12/Workforce-plan-investing-in-people.pdf>

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| ***FINLAND*** | The forecasting model follows a need based approach and produces supply side projections. (1) (2)  It combines projections of the needs of the population, to form an integrated supply and needs-based system, projecting developments for all professional and occupational groups in social and health care. |

1. “The VATTAGE is a model used in VATT, the Governement Institute for Economic Research, to study the effects of tax policies and environmental policies on the economy. The model can also be used to study scenarios concerning the driving forces of economic growth and employment”; <http://www.vatt.fi/file/vatt_publication_pdf/t150.pdf>
2. “The Mitenna model provides long-term data on changes in demand for labour, natural wastage of labour, demand for skilled labour and educational needs[...]. The anticipation process in the Mitenna model anticipates demand for and supply of labour in the target year and reconciles these factors. The anticipation method is divided into two sections, the first of which focuses on the needs of the world of work. This involves anticipation of demand for new labour, i.e. the amount of labour and the types of educational qualifications required by economic life over a certain anticipation period. The calculation consists of forecasts of changes in demand for labour and estimates of labour wastage. The second section concerns the supply of labour. New labour is mainly supplied by new young age groups. The unemployed labour force also adds to supply. In addition, supply of labour is influenced by labour force participation rates, i.e. the proportion of graduates entering the labour force. The effects of net immigration and age group forecasts are also taken into account in anticipation of the total supply of labour.” <http://www.oph.fi/download/144754_Education_training_and_demand_for_labour_in_Finland_by_2025_2.pdf>

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| ***NETHERLANDS*** | The forecasting model looks both demand and supply of health workforce.  It allows to develop different scenarios using different hypothesis and it calculates the needed influx into specialist training (a specified range is calculated for each specialism). (1) |

1. They start out with estimating the present demand, expressed in fte supply, by correcting the present demand with unmet demand or abundance of demand. We make a projection of the demand 18 years later, by taking into account demographic, epidemiological, and socio-cultural developments mixed with policies. Based hereon, we develop different scenario’s, using different estimates for efficiency, horizontal and vertical substitution, professional developments, and working hours changes. For each of the scenario’s, we calculate the needed influx into specialist training, given the expected retirement of the present supply, the supply in training at the moment, the immigration of specialists, the feminization, and the yield of the training. The experts decide on which to scenario’s are the most likely. This results in a specified range for the needed influx in medical training for each specialism. This range is presented to government with unanimous support from health insurance companies, training institutes, and professionals.

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| ***NORWAY*** | The forecasting model follows a need based approach and produces supply side projections.  It estimates future supply and needs for all publicly employed health personnel. |
| ***SPAIN*** | The forecasting model looks both demand and supply of health workforce. |
| ***EVIDENCES***  *Just a model among those analysed doesn’t expect a quantitative forecasting model for demand (DENMARK) (1). Two models on seven use a need-based approach (FINLAND and NORWAY) (2). They consider not only more professions, but also other sectors beyond healthcare.(3)*   1. *Following Matrix(see table p. 124) Denmark and Spain don’t have a demand-based approach.* 2. *Following Matrix (see table p. 124) also UK (England) and NL use a needs-based approach.* 3. *The topic” supply vs demand vs needs” has to deepen. The Belgium model, for example, has the demand side not really developed. Do the others, that Matrix declares needs besed, more? What more?* | |
| ***ITEM***  **The forecasting model might produce different estimations along different service delivery settings or sector of employment** | |
| ***BELGIUM*** | The projections are segmented by different health sectors (1).  The health care sectors are distinguished depending on the health care profession (i.e. nurses: Hospital sector; nursing home sector; home care sector; other health sector; welfare sector; public sector; private sector; education sector). |

1. To check if it is right. Maybe they have the data (see original content of the Belgium grid), but they don’t use them to make different projections for each specific health sector.

From the original content of the Belgium grid: “*The professional activity is known for every registered health care professional. The unit Planning has information about the FTE in every sector they work. The health sectors are distinguished depending on the health care profession. Non-health sectors are distinguished for every profession. E.g. nurses = Hospital sector; nursing home sector; home care sector; other health sector; welfare sector; public sector; private sector; education sector*.”

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| ***DENMARK*** | The projections are not segmented.  Anyway, the projections concern both public and private sector overall. |
| ***ENGLAND*** | Workforce demand and supply models are currently segmented by specialty and profession. They are developing approaches that model along a care pathway, which may include a number of care settings. |
| ***FINLAND*** | The projections are segmented by industries. (Human health activities, Social work activities,….).  The educational needs are distinguished by field of education and level of education.  Health care is dealt as a whole covering the public and private sectors as well as hospital care and primary health care. |
| ***NETHERLANDS*** | At the moment, there is no segmenting, since the ACMMP states that all medical and nursing professions are interlinked by substitution.  There is a research program that breaks down the forecasts into 7 sectors: Hospitals, elderly care, handicapped care, mental care, youth care, child care, and others. |
| ***NORWAY*** | TO ASK |
| ***SPAIN*** | Projections are segmented by medical specialties (age and gender?) |
| ***EVIDENCES***  *Forecast diversification per service delivery settings or sector of employment in most of the models. The most common segmentations (as output) are connected to the training course, in terms of level of education and specialization. Difference per gender is also prevalent.* (1) | |

1. This section of the grid is dedicated to “projection segmented along different health service delivery settings” and “Which delivery settings does the projection take into account (e.g. Hospitals vs. Ambulatory Health Care; Public vs. Private Sector)”. Evidences have to concern this kind of projections. Actual evidences aren’t in line with the contents of the grids of the seven models (where present).

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| ***ITEM***  **A forecasting model might take into account interaction between demand and supply and estimates specific effects such as a supply-induced demand** | |
| ***BELGIUM*** | A parameter ‘supply-induced demand’ is available but not currently it is not activated in planning scenarios.(1) |

1. See: <http://www.euhwforce.eu/web_documents/JAHWF_130521_WP6_workshop/JAHWF_130527_WP6DOC_Eindproduct_FR_Gegevenswoordenboek_geharmoniseerdeplanningsmodel080526.pdf> - pag. 63

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| ***DENMARK*** | Currently no interaction between demand and supply is included in the model. |
| ***ENGLAND*** | Currently no interaction between demand and supply included in the model. |
| ***FINLAND*** | Currently no interaction between demand and supply included in the model |
| ***NETHERLANDS*** | Currently no interaction between demand and supply included in the model |
| ***NORWAY*** | The forecasting model takes into account interaction between demand and supply. |
| ***SPAIN*** | Currently no interaction between demand and supply included in the model. |
| ***EVIDENCES***  *Except for the Norwegian model (to verify) no model considers at present this interaction.****(1)***   1. Mention however the Belgium case and the study “Physician workforce supply in Belgium. Current situation and challenges. KCE reports 72C”   (<https://kce.fgov.be/sites/default/files/page_documents/d20081027309.pdf>) whcih goes depth in detail the theme “supply inducing demand” | |
| ***ITEM***  **The projection period might be different depending on the parameters, professions considered, goals defined, etc.** | |
| ***BELGIUM*** | The projection period is 50 years (From 2004 to 2054) with 5 years intervals.   1. No differences in the projection period for the different planned professions? Why 50 years? |

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| ***DENMARK*** | The projection period is 20-25 years. This time horizon is necessary in accordance to the planning of the intake at the universities and postgraduate medical and dental education. Current projections are to 2035, for both medical doctors and dentists.  If a forecast is to be used as a basis for decision making regarding intake at the universities and the postgraduate medical and dental education there has to be a long time-horizon. |

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| ***ENGLAND*** | The projections period of the local planning (provider forecast and LETB aggregate provider forecast) is 5 years (2013 plans foresee up to 2018. (1)  The projection periods in CfWI workforce projects (national planning) vary depending on the characteristics of the particular workforce and are typically from 15 to 30 years [it will be important to have some examples of this variety, especially for the 5 professions in focus of the Joint Action]. In the case of medical doctors, for example, the forecasting model calculates each variable over a 30-year period (currently up to 2040 (2) |

1. See “Investing in People for Health and Healthcare” <http://hee.nhs.uk/wp-content/uploads/sites/321/2013/12/Workforce-plan-investing-in-people.pdf>.
2. See “Robust workforce planning: Medical model technical description”, p. 12 <http://www.cfwi.org.uk/publications/robust-workforce-planning-medical-model-technical-description>

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| ***FINLAND*** | The projection period is until 2025. On the basis of these forecasts the present entrant targets have been adopted for 2011-2016. |
| ***NETHERLANDS*** | Recommendations 2013  Projection period is 2015 - 2031 :   * 2015 starting year for new influx numbers * 2025 first year to realize the new balance between supply and demand (training program lengths). (1) (2) * - 2031 second year to to realize the new balance between supply and demand (in order to achieve the new balance with more time to make changes less abrupt) |

1. Our Recommendations 2013 used the following projection period:

1. The starting year of the new influx numbers is 2015 (in order to account for government financial changes needed to accommodate the new numbers);

2. The first year to realize the new balance between supply and demand was 2025 (the initial training program takes 6 years, postgraduate training programs take another 3 to 6 years);

3. The second year to realize the new balance between supply and demand was 2031 (in order to achieve the new balance with more time to make changes less abrupt).

1. See: “The 2013 Recommendations for Medical Specialist Training” - <http://www.capaciteitsorgaan.nl/Portals/0/capaciteitsorgaan/publicaties/Capaciteitsplan%202013/DEFINITIEF%20hoofdrapport%20engels%20compl.pdf>

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| ***NORWAY*** | The projection period is 25 years (2010-2035). |
| ***SPAIN*** | The projection period is until 2023 (2013-2023). |
| ***EVIDENCES***  *The projection period is at least 10 years in all models. Timeframe is related to the type of profession and so to the duration of training. In some cases subinterval or intermediate targets are foreseen.(1)*   1. Why there are differences of period between a model and another? Which is the most common period? Which appeares the most reasonble? | |

***ITEM***

**Human resources inside an health system represent the central element both for the direct relation with the quality and quantity of cures supplied by the system (and so system coverage and cures level) than for the costs represented by these resources. So: The health workforce projections might be put in relationship with others health system goals such as access to care, quality of care, costs containment**

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| ***BELGIUM*** | NO relationship between Health workforce projections and others health system goals incorporated in forecasting model. (1) |

1. Even if the Commission in

<http://www.health.fgov.be/eportal/Healthcare/Consultativebodies/Planningcommission/18070759_FR> pag. 68 suggests “minimum quotas” in relation to the guarantee of quality and to the attention to the theme “supply inducing demand” and shows an inclination of the system toward a containing costs.

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| ***DENMARK*** | No relationship between health workforce projections and other health system goals incorporated in the forecasting model |
| ***ENGLAND*** | The health workforce projections are looked in relation to outcomes, cost-effectiveness and affordability |
| ***FINLAND*** | NO relationship between Health workforce projections and others health system goals incorporated in forecasting model.  Only a qualitative assessment is done by healthcare experts |
| ***NETHERLANDS*** | The projections are put in relationship with the goal concerning the access to care |
| ***NORWAY*** | The projections are put in relationship with others health system goals |
| ***SPAIN*** | NO? |
| ***EVIDENCES***  *Most of the models analysed does not report projections taken from the model with other goals. These reports are contemplated in English, Duch and Norwegian models (?)* | |

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| ***ITEM***  **The frequency of the updating of the forecasting exercise is important in order to take into consideration changing circumstances, new data, new policies and programs** | |
| ***BELGIUM*** | It depends on the available staff in the Unit planning and of the working groups but one profession per year is the usual procedure. Considering that the planned health professions are three (medical doctors, dentists, nurses) [what about kinesitherapists?] the updating is every three years. |
| ***DENMARK*** | The projections are updated every 2-3 years. Normally a new forecast is produced just after setting the 5 year plan for the number of postgraduate training posts. 2-3 years later a new forecast is made taking into account possible changes in the models assumptions. This revised forecast is afterwards used as hearing material in the process of drafting a new 5-year plan setting the number of postgraduate training posts. The process of drafting a 5-year plan is usually started 2 years ahead of when the plan is to be implemented. The current 5-year plan for medical specialists cover the period 2013-2017. The normal procedure leads to that the process of drawing up the plan for the period 2018-2023 is expected to start in 2016 with an expected publication date late 2016. This gives the regions that are to implement the plan one year to prepare the implementation. |
| ***ENGLAND*** | Most projections are revised or updated annually |
| ***FINLAND*** | The projections are updated every 4 years |
| ***NETHERLANDS*** | The projections are updated with an alternating 2 and 3 years cycle, e.g. 2000, 2003, 2005, 2008, 2010. The last update has been 2013. In between, the advice is updated if the yearly monitoring shows any irregularities. |
| ***NORWAY*** | The projections are updated every 3 years |
| ***SPAIN*** | TO ASK |
| ***EVIDENCES***  *All analyzed models foresee a recurring (from one to a maximum of four years) updating of projection.(1)*   1. Which differences? Why those differeces? It is important to understand which are the motivations of the differences to eventually individuate which updating frequence is better and avoid for example too closed updating (so unuseful) or too distant ones (so dangerous). | |

### Schematic description and evidences of "Integration of different professional groups

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| ***ITEM***  **The forecasting model might take into consideration possible integration between (vertical substitution) and/or within (horizontal substitution) professional group. È importante prendere in considerazione mix differenti di professionalità nel futuro: partendo dal presupposto che gli health care services possono essere erogati da aggregazioni di professionisti diverse da quelle attuali, si formulano ipotesi che creano scenari diversi in termini di risorse quantitativamente necessarie. In questo senso uni dei temi attualmente molto dibattuto è la horizontal substitution tra medici e infermieri. (1)** |

1. See: *Dynamic professional boundaries in the healthcare workforce, Susan A. Nancarrow, Alan M. Borthwick* in Sociology of Health & Illness 2005 ISSN 0141–9889, pp. 897–919 (available at http://onlinelibrary.wiley.com/doi/10.1111/j.1467-9566.2005.00463.x/pdf)

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| ***BELGIUM*** | No integration of different professional groups are included in the model.  The mathematical forecasting is done separately for every profession. |
| ***DENMARK*** | No integration of different professional groups are included in the model. However there is some qualitative consideration of horizontal or vertical substitution in the planning process. This could for example be that when deciding the future intake of dentists it is considered whether dental hygienists in the future is expected to do some of the work that today is handled by dentists. If a vertical substitution is expected or pursued it can make sense to increase the intake of dental hygienists while reducing the intake of dentists. |

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| ***ENGLAND*** | The integration between different occupational categories is taken into account where it's appropriate, including role substitution and skills mix |
| ***FINLAND*** | No integration of different professional groups are included in the model.  The workforce demand projections made by the VATT cover the healthcare workforce as a single unit. |
| ***NETHERLANDS*** | Both vertical and horizontal integration are taken into account in the forecasting model. The model develops: 4 scenario’s that take into account vertical substitution from medical professions to nurses and 6 scenario’s that take also into account horizontal substitution from medical specialists to general practitioners. (1) |

1. See: “The 2013 Recommendations for Medical Specialist Training” – Section 6 The deployment of related disciplines (vertical substitution) – pag. 55-63 <http://www.capaciteitsorgaan.nl/Portals/0/capaciteitsorgaan/publicaties/Capaciteitsplan%202013/DEFINITIEF%20hoofdrapport%20engels%20compl.pdf>

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| ***NORWAY*** | Only vertical integration is taken into account in the forecasting model |
| ***SPAIN*** | No integration of different professional groups are included in the model |
| ***EVIDENCES***  *In most of the forecasting models the mathematical tool is built separately for every profession. Just in England, in Netherlands and partially in Norway (vertical substitution only) the integration between and within professional groups are modelized. Considering the importance that the theme of skills mix and tasks shifting has for HWF future, at least following the literature in the field, the lack of such a parameter in many forecasting models maybe shows a difficult to forecast future scenarios in which the organization of work should be different from the present one. Also because assuming that the policy maker takes a decision connected with a future scenario of work organization, different from the present one, would mean, in facts, start implementing this working organization.* | |

### Schematic description and evidences of "Forecasting methods used".

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| ***ITEM***  **The methodology adopted to produce projections can be based on different type of methods quantitative and qualitative which are used in single or in combination way (1)** |

1. Here we have to insert a methodological note in which we explain exactly the differences between quantitative and qualitative methods of forecasting.

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| ***BELGIUM*** | The forecasting method used is quantitative |
| ***DENMARK*** | The forecasting method used on supply side is quantitative |
| ***ENGLAND*** | The forecasting method used is a combination of quantitative and qualitative methods.  In particular, the qualitative methods are used for the demand model (1). |

1. “Parameters that determine potential changes in levels of need and changes in productivity are applied. These parameters are determined through the Delphi process and are scenario specific.”. “Robust workforce planning: Medical model technical description”, p. 20 <http://www.cfwi.org.uk/publications/robust-workforce-planning-medical-model-technical-description>

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| ***FINLAND*** | The forecasting methods used are a combination of quantitative and qualitative methods |
| ***NETHERLANDS*** | The forecasting methods used are a combination of quantitative and qualitative methods. The supply projections are dominantly quantitative, the demand projections are a mixture of quantitative and qualitative methods. (1) |

1. “A group of international research experts experienced in the field of substitution were invited to debate on the best way to carry out research into substitution ratios. The conclusions drawn from this conference indicated that quantitative methods such as time-and-motion measurements should be complemented with qualitative insights into the impeding and promoting factors of substitution within any given context. When these different sources of information are combined something can be said about the different typologies linked to the contexts in which substitution occurs. It is more the combination of quantitative and qualitative methods that is able to indicate the direction rather than a single substitution value.” In “The 2013 Recommendations for Medical Specialist Training” – Section 6 The deployment of related disciplines (vertical substitution) – pag. 58-59 <http://www.capaciteitsorgaan.nl/Portals/0/capaciteitsorgaan/publicaties/Capaciteitsplan%202013/DEFINITIEF%20hoofdrapport%20engels%20compl.pdf>

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| ***NORWAY*** | The forecasting methods used are quantitative |
| ***SPAIN*** | The forecasting methods used are a combination of quantitative and qualitative methods |
| ***EVIDENCES***  *The quantitative methods are always used.  Often the methods adopt are a combination of quantitative and qualitative methods. In particular qualitative methods are used to forecast demand projections. (1)*   1. Why in the projections of the demand quantitative methods are used? For example not in Belgium. What is better and why? | |

### Schematic description and evidences of "Quantitative forecasting method ".

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| ***ITEM***  **There are various statistical methods that might be used to forecast the future supply and demand (classical time series analysis, stochastic time series analysis, multiple regression analysis, etc.).**  (1) |

1. Insert literature on the subject and / or a note in a box that explains the main features of each of these models.

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| ***BELGIUM*** | The statistical forecasting method used is classical time series analysis |
| ***DENMARK*** | No qualitative method used to estimate elements to include in the supply forecasting model.  For the demand side through a hearing process all relevant stakeholders are invited to come with their assessment of the future demand within a given profession or specialty. |
| ***ENGLAND*** | The forecasting method used is a Systems dynamics approach; it was developed to quantify the future demand and supply of doctors and dentists currently used only for medical doctors but now the approach is being used by the CfWI to develop additional supply and demand models for other workforces across the health and social care systems, including nursing, midwifery, pharmacy and a range of medical specialties (1) |

1. “Due to the complexity of the model scope and scale it was decided that the system dynamics approach was best suited to meeting the modelling requirements. System dynamics is a simulation method that enables the behaviour of complex systems over time to be understood and simulated. System dynamics models represents changes to a system over time by using the analogy of system flows accumulating and depleting over time in stocks. Historically, the CfWI has developed Excel-based models to represent these complex systems. The system dynamics approach meant that robust, evidence-based supply and demand models could be created to test potential policies and their impact. It also meant the model was “transparent” and enabled expertise of several hundred stakeholders from the healthcare system to be synthesised. As a result of these benefits, the system dynamics approach is considered fundamental to the CfWI’s ongoing workforce modelling strategy.” Robust workforce planning: Medical model technical description”, p. 2 <http://www.cfwi.org.uk/publications/robust-workforce-planning-medical-model-technical-description>

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| ***FINLAND*** | The basic structure of the model has remained stable for a long time. Estimations are based on yearly time series. Every year new actual data are included in the database of the model once they are published; thus, projections are reestimated taking into account new data. (1) |

1. Best Practices in Forecasting Labour Demand in Europe, p. 54. https://www.prognozowaniezatrudnienia.pl/g2/oryginal/2012\_12/e682ecc28075e068b129be3245f75304.pdf

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| ***NETHERLANDS*** | The statistical forecasting method used is classical time series analysis |
| ***NORWAY*** | N.A. |
| ***SPAIN*** | The forecasting method used is a Systems dynamics approach |
| ***EVIDENCES***  *The quantitative methods used is mainly classical time series analysis. England and Spain adopt a systems dynamic approach. (1)*   1. What the motivations to have chosen England and Spain? Is it sharing? | |

### Schematic description and evidences of "Qualitative forecasting method".

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| ***ITEM***  **Different qualitative methods/techniques might be used in a forecasting model (Delphi, Brainstorming, Market survey, etc). (1) (2)** |

1. Refer to D061
2. Seven descriptive boxes have to be coherent with the content f the template submitted by WP6 last year concerning the qualitative methodologies used.

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| ***BELGIUM*** | The qualitative methods used are: Delphi for dentists and general practitioners , brainstorming e.g. for calculating FTE for self-employed and Survey research when extra qualitative information is needed (1) |

1. That’s not coherent with the assumption of paragraph 4.2.3. that in Belgium the forecasting is only quantitative.

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| ***DENMARK*** | No qualitative method used to estimate elements to include in the supply forecasting model.  For the demand side through a hearing process all relevant stakeholders are invited to come with their assessment of the future demand within a given profession or specialty. |

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| ***ENGLAND*** | The qualitative method used is Delphi |
| ***FINLAND*** | N.A. |
| ***NETHERLANDS*** | The qualitative methods used are Delphi and consumer panels. |
| ***NORWAY*** | No qualitative method is used |
| ***SPAIN*** | The qualitative methods used is ad hoc survey of experts |
| ***EVIDENCES***  *The Delphi method is the prevalent qualitative technique used. In addition to Delphi also specific survey are conducted to forecast specific indicators or trend (1)*   1. Refer to D061 | |

### Schematic description and evidences of "Evaluation of forecast".

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| ***ITEM***  **The assessment of the forecasting model is very important. The calculation of the goodness of fit and of the forecast accuracy are necessary to make an objective evaluation of the results. (1)** |

1. Talking about “projection uncertainty” and utility to clarify the margin of error of basic data of projection (quantified by calculating a confidence interval within which the true value is located)

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| ***BELGIUM*** | The assessment of the forecasting model and its results is made through a follow-up comparison between the actual inflow and the inflow predicted by forecasting which is carried out in the yearly report of the Planning Commission (RAPAN) but the uncertainties associated with the modelling process and with the outcome of the model itself are also unknown. |

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| ***DENMARK*** | No assessment of the forecasting model and its results is currently made. However every time a new forecast is made it is considered whether changes in the model are necessary to give a more accurate projection of the future. |
| ***ENGLAND*** | The assessment of the forecasting model and its results is made: - comparing the results with previous simulation models that represented the relevant workforce  - backcasting to see if the model can predict historical changes - Sharing results, along with the model assumptions, with relevant stakeholders to perform a sanity check  - Assessing the sensitivity of the model outputs to the input data. |
| ***FINLAND*** | Ex post evaluation of the quality of results through an analysis of economic variables (growth accounting). (1) |

1. “Ex-post evaluation of the quality of results shows that many long-term developments have been projected quite accurately – especially in terms of the direction of change. The observed average growth rates have been quite close to the forecasted values. […]. It is very important that the calculation process is continuous; thus, changes can be taken into account flexibly, although reports have not been published very often. One of the theoretical method of analysis economic variables, next to applied statistics, is growth accounting. It allows economic growth factors to be analysed in line with sectoral classification of economic activity. The long-term model of labour force projections yields projections of future demand for, and supply of labour. It can also be used to derive projections for the size and development of other economic variables, e.g. the balance of resources and expenditures, calculated by sector of economic activity. The classification of sectors of economic activity under the PTM model is slightly coarser than that used in growth accounting but the correspondence between them enables the two calculations to be combined with little effort.” *Best Practices in Forecasting Labour Demand in Europe*, p. 61 https://www.prognozowaniezatrudnienia.pl/g2/oryginal/2012\_12/e682ecc28075e068b129be3245f75304.pdf .

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| ***NETHERLANDS*** | The assessment of the forecasting model and its results is made through tests on the historical data, tests on the reliability of the model and sensitivity tests (1) |

1. “In 2010 the Ministry of HWS asked the Dutch Bureau for Economic Policy Analysis to assess whether the estimates presented in the Committee’s 2010 Advisory Planning Report were in fact plausible. That bureau concluded that the estimates were plausible provided that the current rising trend in healthcare expenditure is accommodated from a policy-making point of view. By means of extrapolation the Bureau projected that the healthcare demand would increase by 2.4% per year while that Advisory Committee adheres to an annual rise of 1.7% to 2.2%. The Advisory Committee’s projections were lower than those of the Bureau for Economic Policy Analysis because the experts do not solely extrapolate when making their predictions and they also integrate new developments. The 0.5% discrepancy shown in the range calculated by the Advisory Committee is especially attributable to whether or not vertical substitution is introduced in the various scenarios. The Bureau recommended that the Committee should consider introducing macro-economic counterforces into the model, such as the financial means that are actually available. One study conducted by SEO Economic Research arrived at the conclusion that it is impossible to model such macro-economic counterforces in isolation of the trends already included in the available. parameters. Indeed, to a degree that is also visible in these estimates. The uncertain future variable has bearings on such matters as: the extent of present and future healthcare provisions (more ftes on average among women, the later retirement age),the demand, notably the unmet demand (falls in large pockets of the healthcare demand sectors) and upon the work process. The SEO Economic Research advised that the healthcare demand aspect should be more clearly elucidated by including the sum total of the growth percentages, upon which the calculations ultimately depend, in the main annual report. The Advisory Committee can then compare those results with the Bureau for Economic Policy Analysis’s expectations with regard to the rise in the healthcare demand. At present the Advisory Committee works with a number of sub-percentages for all the individual parameters”. The 2013 Recommendations for Medical Specialist Training”, pag. 41 <http://www.capaciteitsorgaan.nl/Portals/0/capaciteitsorgaan/publicaties/Capaciteitsplan%202013/DEFINITIEF%20hoofdrapport%20engels%20compl.pdf>

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| ***NORWAY*** | N.A. |
| ***SPAIN*** | No assessment of the forecasting model and its results is made currently |
| ***EVIDENCES***  *The assessment of the forecasting model and of its results seems to be a challenge.*  *Some Countries don't have any kind of evaluation process. Tests on historical data seem to be the most common technique used for evaluation Sensitivity tests also are made in order to assess the forecasting model* | |

### Schematic description and evidences of "Scenario analysis".

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| ***ITEM***  **The result of the forecasting exercise is one or more scenarios showing future situation. The HWF forecasting model may produce different scenarios also on the base of different patterns values (i.e. university training capacity, attrition rates, retirement patterns, migration flows).** | |
| ***BELGIUM*** | The system allows to create all the desired scenarios. It works like that: the working group of the profession discusses which assumptions to use for each scenario. The data analyst creates these parameters and makes them available in the planning application. Within the application users can combine all the available parameters of the different scenarios into a new ‘original’ scenario.  Usually 3 scenarios are developed (i.e. for nurses)(1): a baseline scenario and two alternative scenarios (high and low scenario) with different assumptions. |

1. Ony for nurses or also for dentists and doctors?

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For dental professions: different scenarios for the supply are explored on the basis of changed training capacity. It is for example modelled what impact it would have if 10 or 20 more dentists per year are educated.

For medical doctors no alternative scenario is developed at the moment. However in the coming update of the model it’s planned to add scenarios influencing the supply.

In the current forecast for doctors and medical specialists a small reduction in the number of medical specialists in general practice, occupational medicine, clinical biochemistry, psychiatry, public health medicine and thoracic surgery until the year 2020 is expected. For all specialties (thoracic surgery not included) an increase in the number of specialists in the period 2012-2035 is expected. For 11 specialties more than twice as many specialists are expected in 2035 compared to 2012. Within some specialties even a tripling or quadrupling is expected. The increase in medical specialists is primarily due to:

* Increased capacity in the postgraduate education
* Changes in retirement age
* Reduction of the time spent from being registered doctor to obtaining a specialists degree.
* Immigration

***DENMARK***

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| ***ENGLAND*** | There isn't a single set of scenarios that are applied across all models. The scenarios developed depend on the nature and purpose of the modeling exercise. Anyway, usually a “business as usual scenario” (nothing changes and trends continue as at present) and a “null hypothesis” scenario are developed ( no controls at all). (1) |

1. See: “Scenario generation: Enhancing scenario generation and quantification” <http://www.cfwi.org.uk/publications/scenario-generation-enhancing-scenario-generation-and-quantification-3>

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| ***FINLAND*** | Usually 2 or 3 scenarios are developed to estimate the future workforce demand, a baseline scenario and one or two alternative scenarios (1) (2) |

1. See “Education, Training and Demand for Labour in Finland by 2025”, section “Alternative scenarios for development of the economic structure by 2025”, p. 28. <http://www.oph.fi/download/144754_Education_training_and_demand_for_labour_in_Finland_by_2025_2.pdf>
2. “The most recent workforce demand projections of the Government Institute of Economic Research have looked into three different scenarios:

Basic scenario: The employment rate is expected to end up at 72 %, with the GDP growth is leveling at 1,7 %. Considerable growth is expected in the GDP share and the workforce share of the social and health services.

Target scenario: Compared to the basic scenario, the Finnish economy is expected to perform better. One of the presumtions is that demand for export will continue to increase also in the future. The GDP is expected to increase 2,3 % during the last years of the forecasting period, the employment rate is expected to rise to 75 % and the unemployment rate is expected to fall to 4 %. The need for social and health care services and the demand for social and health care workforce are expected to rise, but to a lower extent than in the basic scenario.

SOME scenario: Regarding the health and social care services, the SOME scenario is based on expenditure projections by the MoSocH. The demand growth for health workforce is largely similar to that in the target scenario.

These alternative scenarios have not considered detailed differences (eg. different skill-mixes) in the health workforce developments. The main difference is the assumption about the demand for health care and the corresponding effects on workforce.

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| ***NETHERLANDS*** | 9 scenarios are developed and the assumptions are adjustable in the model (1) |

1. “The Advisory Committee’s standard procedure is to calculate nine possible scenarios per professional group, chiefly to give an impression of the impact that certain assumptions would have upon the actually required capacity.” “The 2013 Recommendations for Medical Specialist Training”, pag. 41 <http://www.capaciteitsorgaan.nl/Portals/0/capaciteitsorgaan/publicaties/Capaciteitsplan%202013/DEFINITIEF%20hoofdrapport%20engels%20compl.pdf>

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| ***NORWAY*** | More scenarios. are developed and the assumptions are adjustable in the model |
| ***SPAIN*** | A single scenario is developed and the assumptions are adjustable in the model |
| ***EVIDENCES***  *The scenario developed depending on the profession and on the purpose of forecasting exercise. In the most planning model, more than one scenarios are developed, a baseline scenario and one or more alternative scenarios. In Spain and in Denmark (but only for medical doctors) just one scenario is explored.(1)*   1. Are there methodologies that “quote” different scenarios with their probability of realization? Which utility in designing different scenarios (considering that two up to seven don’t do that)? | |

## Data set, data sources and methods

### Schematic description and evidences of "data sources".

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| ***ITEM***  **Data useful for the planning may be collected and filed with a planning aim in a specific database or arise from different sources and collected to different aims.** | |
| ***BELGIUM*** | *Belgium has developed a comprehensive system for the monitoring of human resources for health. Data is provided through three complementary sources of information, which cover all health and medical professions, all sectors (independent and employed personnel) and multiple data indicators (age, gender, professional status, professional specialty, inflows, outflows). Data collection and reporting is centralized at the federal level, ensuring the comparability of data. Moreover, the Ministry of Health has developed a sophisticated and comprehensive database where data from FPS are made accessible to all institutions involved in health workforce planning.*” |

There is more than one database where data used for planning are stored. However these databases aren't created only for planning purposes. Primarily two databases are used:

* Register of health personnel register at the Danish Health and Medicines Authority (Authorization register)
  + Contains relevant data regarding profession, gender, age, date of registration etc.
* The mobility register
  + A combination of information from the authorization register combined with information from “Danmarks Statistik” regarding education, occupation etc.

For the projection model itself the mobility register is used as the source.

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| ***DENMARK*** |  |

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| ***ENGLAND*** | There is more than one database where data used for planning are stored. However these databases aren't created only for planning purposes (really the main purpose concern the payroll system).  Anyway, there is a dedicated agency with responsibility for producing comprehensive regular reports from the HR & payroll systems to improve planning and decision making across the NHS,(Information Centre for Health and Social Care) |
| ***FINLAND*** | A comprehensive and complete database, covering stock and flows of health workers in the private and public sector is available thanks to a collection of data coming from four different data sources (1) |

1. Thanks to the collaboration and complementarity across these multiple data collection authorities, data on HRH in Finland are complete and comprehensive. Information on the place of residence, place of work, retirement, age, gender, temporary leave and specialization across all health and medical professions are available. Full coverage is ensured, thanks to the fact that data is collected directly at the national level. In addition, the involvement of professional registries allows Finnish authorities to have an overview of stocks and flows both in the public and in the private sector. Data collected by the four main sources are then reported by the Statistical Office, which makes an extraction for the Unit of Statistics and Registers in the VALVIRA. This unit performs the analysis of the data and drafts monitoring report. This is done also at THL (National Agency for Health and Social Care) and reported to MoSocH

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| ***NETHERLANDS*** | There isn't a unique database with data stored in for the planning purpose, but to complete the physicians’ forecasting model, data are collected from a number of sources by a dedicated government agency contracted to produce workforce planning scenarios for the ministry. (1) |

1. To complete the physicians’ forecasting model, data are collected from a number of sources by a dedicated government agency contracted to produce workforce planning scenarios for the ministry. Sources used for planning purposes include government bodies such as the Central Bureau of Statistics (CBS), the national register for health professionals working for individual patients (BIG-Registry) and the National Institute for Public and Environmental Health for forecasts on demographics and the development of need/demand for health care. Professional Associations such as the Royal Netherlands Society for Medicine keep detailed personal registers for each specialism and for each training program. Data are collected from training institutes on success rates/ attrition of training programs, duration of training programs, number of applicants per vacancy, male/ female ratio, age at entry, university of origin etc. Data on production can be drawn from the databases of the health insurance companies and the hospitals themselves. The ACMMP does not keep a database of its own but uses databases and data analyses from all kinds of data collectors.

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| ***NORWAY*** | There is a unique database with data stored in for the planning purposes  (chiedere approfondimento) |
| ***SPAIN*** | There isn't a unique database with data stored in for the planning purpose, but data used for planning are captured by the multiple sources available. Anyway a National Register of Health Professionals is been created in 2012 but it's also still in the process of compilation. The register should have the following characteristics: •Compulsory for public/private sector and self-employed health professionals •Designed for planning and help policy makers to take decisions •Improve quality and availability of data, including mobility and migration data |
| ***EVIDENCES***  *In general there is more than one database where data used for planning are stored. However, usually, these databases aren't created only for planning purposes. In some case a comprehensive and complete database is available thanks to a collection of data coming from different data sources. Sometimes, there is also a dedicated agency with responsibility for producing comprehensive regular reports from different data sources to improve planning and decision making (see Information Centre for Health and Social Care in England)* | |
| ***ITEM***  **The Databases used as data source for planning might contain individual data or aggregated data (1)**   1. Add some consideration taken from Florence working group “Piemonte”. | |
| ***BELGIUM*** | The database contains individual data that is collected for the preliminary analysis. This individual data are aggregated along the required dimensions for input into the mathematical model.  The aggregated data is then used in the mathematical model to predict future workforce size. |
| ***DENMARK*** | It depends on the type of database considered:  - the Authorization Register that contains both individual and aggregate data - The Mobility Register that contains aggregated data. |
| ***ENGLAND*** | The databases contain individual data |
| ***FINLAND*** | The database is a register based on individual data collected every year. |
| ***NETHERLANDS*** | The databases contain individual data that can be aggregated in different ways |
| ***NORWAY*** | The databases contains both individual and aggregated data |
| ***SPAIN*** | Data used for planning are aggregated |
| ***EVIDENCES***  *One of the principal sources of data useful for the aims of planning is represented by professional registers to which professional are obliged to be enrolled in order to exercise the profession.  It is obvious that a huge part of database analyzed contains individual data referred to the single professional that allow further aggregations on various dimensions object of the analysis. Where these types of elementary information are unavailable, data is extrapolated by different sources and already presents a level of aggregation more or less elevated.* | |
| ***ITEM***  **The data sources used to feed the forecasting model might be unique or multiple.** | |
| ***BELGIUM*** | Data used in the forecasting model come from multiple data sources. In general there are three sources available(1):  -the federal database of registered health professionals which includes "licensed to practice" (in Federal Public Services health);  - the National Institute of Health Insurance and Disability for information about "practicing"; - the Cross Road Social Security for information about "working" professionals. |

1. It might be interesting refer to the issue of privacy in treating data, solved in Belgium in that way “In order to link these sources, a specific research request needs to be submitted to the Committee on Privacy. This is already done for nurses and physiotherapists”.

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| ***DENMARK*** | Data is mainly gathered from two sources:  - Authorization Register: managed by the Danish Health and Medicines Authority and collects data on authorized health personnel.  - Occupation Register: managed by Danish statistical office and providing data through tax information and social security services.  These two sources are interlinked with social security number. The combined register is the Mobility Register which contains data regarding the current workforce, where they work, what profession, age, gender.  The mobility register is the primare source for the forecasting model.  Finally, human resources reports from hospitals are used separately to estimate current demand for doctors (but only public hospitals are included). |
| ***ENGLAND*** | Data used in the forecasting models come from multiple data sources. Data are collected nationally through a Human Resource (HR) and payroll system. (Electronic Staff Record System - ESR)  Data on General Practitioners (GP), and some practice staff who are not directly employed by the NHS, are collected by separate systems.  Other key data sources are the Labour Force Survey conducted by the Office of National Statistics (ONS) and data from University Colleges and Admissions Service and Higher Education Statistics Agency |
| ***FINLAND*** | Data is collected by four main sources:  - National Statistical Office who collects demographic data (i.e. age, gender, place of residence), through personal social security numbers.  - National Supervisory Authority for Welfare and Health (VALVIRA) under the Ministry of Health and Social Affairs who collects information about the health care authorizations and licensing of all health care personnel in Finland.  - Finnish medical association who provides detailed information on health workers specialisation - The Union of the Local Government Employers who makes an assessment every two or three years on the shortages of professionals and vocational groups in municipal social and health care |
| ***NETHERLANDS*** | Data used in the forecasting model come from multiple data sources, different for supply and demand.  For the supply side:  • Central Bureau of Statistics (CBS)  • NIVEL  • KIWA Carity  • BIG registry  • Tax registry  • Registration Committee for Specialisms (RGS)  • Pension Funds for doctors  • Unemployment agency (UWV)  • DUO  For the demand side:  • National Institute Public Health and Environment (RIVM)  • Production data (DIS)  • Population forecasts (CBS)  • Billing data health insurance companies (Vektis)  • Analysis production documents (KIWA Carity)  • Consumer polls (NIVEL)  • Central Planning Agency (CPB)  • Waiting lists (Mediquest) |
| ***NORWAY*** | Data used in the forecasting model come from multiple data sources:  - Statistics Norway who collects data on number of health personnel  - Education register  - Physicians register  - Social output system  - Ministry of local government and regional development: annual data in a form of employee/employer register. |
| ***SPAIN*** | Data used in the forecasting model come from multiple data sources. In the absence of a registry, there are three alternative data sources: - College registration for professionals: providing information on registered professional.  - Payroll data of the regional health services:  - SNS Information System for Primary Care (SIAP)  - for hospital-based care, both ambulatory and inpatient, the source would be the National Survey of Inpatient Care Premises (ESCRI)  In addition to the above-mentioned sources, the National Statistical Institute (INE) holds data on:  1. Retired and active professionals by sex and age  2. Health Professionals entering Spain: (a) Economically Active Population Survey (EAPS) (b) National Immigrant Survey (NIS) 2007 - social and demographic characteristics of persons born abroad.  The studies on needs in healthcare specialists undertaken by the Ministry of Health take into account all available sources to estimate the number of health professionals both in the public and private sectors. |
| ***EVIDENCES***  *No one of the analyzed models has a sole source from which are extracted data which will provide the forecasting model. Usually there are multiple sources, even if there are often “principal” sources of data from which the most part of necessary information are extracted. For example in Belgium there are three primary sources of data, in Denmark just two and in Finland four.* | |

### Schematic description and evidences of "timely data".

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| ***ITEM***  **Availability of updated data to be used as input in the forecasting model is necessary for the success of the exercise and the reliability of evaluations** | |
| ***BELGIUM*** | The current planning project is based on data from  - 2004 to 2009 for nurses  - 2004 to 2010 for physiotherapists  For physicians and dentists they will start analyzing data from 2004 to 2012 later this year |
| ***DENMARK*** | Considering the two main sources of data:  - the Authorization Register contains data regarding all health persons with a registration. The register includes historic data on people who are now dead. (1)  - the Mobility Register was last updated with data as of 1st of January 2010. The register contains data regarding the workforce at this specific data and the years before 2010 .  The register is at the moment being updated with data from later years. |

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| ***ENGLAND*** | Considering the projections made by CfWI, the supply models are built using data related to year 2013 |
| ***FINLAND*** | Mainly data are updated to 2011 |
| ***NETHERLANDS*** | Considering the forecasting exercise made in 2013, the data used on supply side are updated to January 1st 2013 for the almost all variables considered |
| ***NORWAY*** | The current planning project is based on data related to year 2013 |
| ***SPAIN*** | The current planning project is based on data collected in December 2013 |
| ***EVIDENCES***  *Data from which the forecasting is generated are almost always updated to the previous year (2013). When that doesn’t happen they are connected to high structured and developed database, with planning as a main purpose (see the National Cadaster of Health Professionals in Belgium and the Mobility register in Denmark) (1)*   1. How data have to be updated? See conclusion of Florence working Group (Group “Piemonte” on May 9th?) | |

### Schematic description and evidences of "data collection".

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| ***ITEM***  **Data useful for planning may be collected and filed for aims different from the specific aim of planning. Vice versa, might be collected with the principal aim to plan and after be used also for other aims and the control of authorization to exercise. At the end existing and created with different aims database might be enriched with data specifically required by the planning (1)**   1. Compare with the description and conclusions of item 4.3.1 | |
| ***BELGIUM*** | The main purpose of data collection is different for each data source: - the main task of the principal source of the workforce planning (=National Cadaster of Health Professionals) is to support the planning commission, anyway this data collection also serves to monitor and control the access to the profession - the main purpose of additional data sources from the administration of the social security and health insurance is not planning-related the which can cause some incompatibility between the needs of the planning commission and the information content of the data |
| ***DENMARK*** | The main purpose of data collection is different for each data source: - The Authorization Register's main purpose is to have a database of all persons with authorization to practice for monitoring and controlling the access to the profession - The Mobility register's main purpose is to generate data showing the current and historic number of employed health personnel within professions and sectors and regions. |
| ***ENGLAND*** | The data are collected from multiple data sources not having planning as the main purpose |
| ***FINLAND*** | The main purpose of data collection is to monitor the labor force and personnel but also for general statistical information of the all Finnish society |
| ***NETHERLANDS*** | The data used in the forecasting model are collected for all kinds of purposes, but never for planning.  Data collection for planning purposes is done only on specific occasions |
| ***NORWAY*** | TO ASK |
| ***SPAIN*** | The main data used in the forecasting model are collected specifically for planning. The complementary data used to reduce the actual lack of information in the private sector are collected for others main purposes. |
| ***EVIDENCES***  *Generally data utilized in the forecasting model are not collected with the specific aim of health workforce planning. They are mainly data filed in professionals registers and useful to payroll systems. The fact remains that these archives represent the main source of information useful for planning and, where there is the opportunity, they may be enriched with fields specific for the planning project. Vice versa, in those cases in which data are collected and filed for planning (National Cadaster of Health Professionals in Belgium), they may be also used for other purposes.(1)*   1. Compare with the description and conclsion of item 4.3.1 | |

## Link between planning and policy action

### Schematic description and evidences of "Feasibility and effectiveness of the goals" .

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| ***ITEM***  **How the planning process is connected with the actions that will achieve what has been planned? First of all it is important to define “achievable” goals (see the section 4.1.1 concerning the goals of the HWF planning system). About this item the literature highlights the need to adopt a method that is consistent with the time frame. It might be necessary to include in the planning the skills needed, the future professional mix, the quantity, the working conditions and the training.** | |
| ***BELGIUM*** | The mathematical planning model is used to model the current (and future) workforce situation, but not to model the desired workforce situation, since the commission currently has no common or official position on which workforce level is required or preferred (the desired number of health care professionals/ habitant).  We could take into account some working conditions (hours worked / year) and also the future changes in training. Although, we are limited to quantifiable information. This means we could take into account the changing duration of the study, but not the qualitative changes. |
| ***DENMARK*** | The main goal is to model the current and future supply of workforce For both medical and dental specialists the Danish health and medicines authority produce a plan, that outline how many specialists are to be educated on a yearly basis in a five year period.  The Danish Health and Medicines Authority advices the minister of higher education and science regarding the student intake.  No other goals are pursued. |
| ***ENGLAND*** | If we concentrate on the CfWI’s robust workforce planning framework and the systems dynamics models that are used within that to quantify the supply and demand of professions and specialties over longer time horizons, then a large range of factors are taken into account through modeling and Delphi processes. |
| ***FINLAND*** | A national development plan for social and health care services which is adopted by the Government every four years defines the development objectives for municipal social and health care services and main measures to achieve them. This plan defines also measures to ensure the sufficiency and skills of the personnel, retention policy issues, redistribution of professional responsibilities and well-being at work in social and health care.  In addition to the previously mentioned development plan of education and university research, the National Institute for Health and Welfare (THL) follows workforce development on yearly base both on the municipality sector (Public Health Care) as well as health care total (public and private sectors) and health care professionals´ emigration and immigration from/to Finland. The reports are published yearly on web site of the National Institute for Health and Welfare ([www.thl.fi](http://www.thl.fi)).  According to the Act on social and health review (879/2002), the MoSocH gives every four years a report regarding the population’s state of welfare and health and the measures adopted to improve these. The review constitutes supplementary material to the Government Report to the Parliament. The report includes also descriptions and assessments on the sufficiency of the workforce in social and health care as well as on related changes and measures. |
| ***NETHERLANDS*** | Main goal of the HWF planning methodology regards only numbers of professionals even if, to fix them, discussions on future professional mix, future skills needed and future working conditions are made ~~by experts~~.  Indeed, ACMMP collects data and information on developments from a wide range of organizations and sources, with focus on both supply (registers, training programs) and demand (demographics, vacancies, technological developments). Experts for each medical specialism are involved to discuss the changes in working processes that will affect the capacity of the workforce in the future. For instance, questions typically asked will include how much time can be saved by the newest generation endoscopes compared to at present, and whether a specialized nurse can be trained to carry out these tasks. Some specialists are also interviewed about working hours, their personal objectives as to retiring or diminishing working hours, and their potential desire and/or reasons for wanting to go abroad. |
| ***NORWAY*** | 1. Skills needed 2. Quantity of professionals   [more information about this topic are needed] |
| ***SPAIN*** | The main challenge in health workforce planning in Spain is that the country went from a surplus to a shortage of medical specialties. Shortages of professionals have been in part solved through professionals’ inflows mainly from Latin America and Europe, but there are some specialties with persistent shortages. To face those challenges the HWF planning system set goals regarding number of intakes in Universities as well as in specialization schools. There are no goals regarding future skills or professional mix. Some studies on working conditions were made. |
| ***EVIDENCES***  *In the analyzed methodologies prevail the objectives finalized to modify the number of profession in the labour market, in particular through the definition of the numerous clausus in university or fixing limits to the number of posts in prost graduating schools or even limits to the entrance to the labour market. In some case aspects connected to the professional mix, skills needed, future working conditions are taken into account to define the right objective of “quantity of professionals”. In this case the Dutch case has to be mentioned. Different are the Finnish and the English model [and the Norwegian model?], in which the objective set by the system have as a focus the future skills needed and the future professional mix.* | |

### Schematic description and evidences of "Levers and actions".

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| ***ITEM***  **Goals defined by the HWF planning system are achieved through different instruments. Most of them appertain to the category “barriers to entry”: depending on the circumstances, their purpose is to regulate the access to the university, to postgraduate schools or labour market. There are also other instruments utilized to regulate HWF labour market.**   1. For an example of possible feasible interventions “to adress future shortages” see: “General practitioner workforce planning: assessment of four policy directions”, Conor Teljeur1, Stephen Thomas, Fergus D O'Kelly and Tom O'Dowd, in BMC Health Services Research 2010, 10:148, available at <http://www.biomedcentral.com/content/pdf/1472-6963-10-148.pdf> | |
| ***BELGIUM*** | The main (and permanent) planning measures are:  - Setting of quotas (Federal level):  o Maximum number of new professionals in Health Insurance system per year;  o Control access to specialty (physicians and dentists);  o Control access to private practice (physiotherapists).  - Control inflow with entrance exams for medical studies (Communities).  Other measures were adopted *ad hoc*:  - increasing attractiveness of profession with financial mechanisms/ rewards (= revalorizing salaries);  - organization of medical care in group practices to increase attractiveness of profession; - 1733 pilot project (national phone number for after-duty periods with triage of calls) to improve the use of available human resources;  - special funds to stimulate the establishment of medical personnel in ‘under-served’ zones (Impulseo funds) consisting in financial incentives for young physicians who start a practice, and for all physicians who start a practice in under-served regions (tackling regional imbalances). |
| ***DENMARK*** | The Danish Health and Medicines Authority can regulate the number of postgraduate training posts.  The minister for Higher Education and Science can regulate the student intake. |
| ***ENGLAND*** | There are a wide range of levers and actions outside of numerus clausus that can be taken. For a detail list see "Annex A – Timetable of Short-Term Deliverables" in "A mandate from the government to Health Education England"  (https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/203332/29257\_2900971\_Delivering\_Accessible.pdf) |
| ***FINLAND*** | The only measure adopted is to fix the training quotas: over 700 students are accepted to medical education every year. Around 150 students are accepted to dentist’s education and 2400 students to nurse’s education. |
| ***NETHERLANDS*** | There are two levers that the ACMMP advices on:   1. The number of admissions to the 8 medical schools (so-called “numerus fixus”). This lever is actually controlled by the medical schools, in conjunction with the ministry of Education that finances the medical school; 2. The number of admissions to the vocational (specialist) training programs for medical graduates. This lever is actually controlled by the ministry that subsidizes the 100 different teaching institutes, from university hospitals to homes for the mentally retarded. |
| ***NORWAY*** | Other lever or actions  [more information about this topic are needed] |
| ***SPAIN*** | The main measure is the regulation of the number of available specialist training vacancies, decided annually by the SNS HR Commission.  Others actions were undertaken in the past to incentives the immigration of HWF from other countries or to persuade Spanish HWF gone abroad to come back. |
| ***EVIDENCES***  *Barriers to the entrance are a measure present in all the observed planning systems [check if this information is true also for England], in particular the regulation of the access to training programs. But in many cases these initiatives flank other type of actions which directly intervene on actual HWF. That’ the case, for example, of Belgium, which has started different incentive and promotion initiatives aimed at HWF. Different is the case of England where, compared with the goal defined in “Mandate”, specific instruments and actions of realization have been identified.* | |

### Schematic description and evidences of " The paths to achieve the goals and the main critical points".

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| ***ITEM***  **Which is the process who leads to the realization of planned plans and goals? Which are the stages on which to pay the main attention to give the results more chances to be achieved?** | |
| ***BELGIUM*** | The minister is advised by the planning commission. The minister has the authority to take the necessary measures and introduce required legislation. |
| ***DENMARK*** | For medical specialists the postgraduate training posts are announced by Regional Councils for Postgraduate Medical Education who have an obligation to announce all the training posts that the Danish Health and Medicines Authority have outlined that there on a yearly basis has to be.  For dental specialists the University of Copenhagen and Aarhus are required to announce the number of training posts in orthodontics decided by the Danish Health and Medicines Authority. For training posts in oral surgery specific hospitals are required to announce the number of training posts decided by the Danish Health and Medicines Authority.  The Minister of Higher Education and Science is advised by DHMA regarding student intake. The Minister has the authority to decide the intake. |
| ***ENGLAND*** | As stated in the "Mandate from the government to Health Education England" there are numerous plans and stakeholders involved in realizing the various goals and plans ("A mandate from the government to Health Education England", in <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/203>  332/29257\_2900971\_Delivering\_Accessible.pdf) |
| ***FINLAND*** | The intake at universities, polytechnics and vocational institutions is defined in accordance with the national entrant targets as part of the development plan of education and university research.  Educational supply is evaluated in the middle of the implementation period for the development plan. This process is commissioned by the MoEC and supported by a national coordination group appointed by the MoEC. The MoSocH is also involved in this process. During this process the production of the qualifications is compared to the entrant targets and assessed in relation to the sufficiency of workforce (shortages among different professional and vocational groups, changes in professional roles and the service structure etc.). |
| ***NETHERLANDS*** | The only process we use to achieve our targets is the advising of government and the stakeholders on the medical student intakes and the intakes for specialist training per specialism. We can show the impact and consequences of our scenario’s to the stakeholders. The responsibility for the final choices is in the hands of our government. Government is aware of the fact that the advice given by the ACMMP is based on consensus of all involved stakeholders. |
| ***NORWAY*** | The Norwegian Directorate of Health (DoH), The Norwegian Ministry of Health and Care Services (MoH), The Norwegian Ministry of Education and Research (MoE), The Norwegian Association of Local and Regional Authorities (KS).  [more information about this topic are needed] |
| ***SPAIN*** | Since 2003, a great deal of regulatory and legislative activity has taken place to overcome the challenges. These initiatives include the creation of the Human Resources Commission of National Health System; the creation of a national Registry of Health Professionals and a study on needs in medical specialists, updated on a regular basis.  Studies of the need for health professionals. The studies analyse of supply and current and future needs of medical specialists serves as a basis workforce planning . The first study, published in 2007, covered the years 2006-2030. It has been updated in 2009 (for the years 2008-2025) and 2011 (for the years 2010-2025). Assumptions, parameters and findings of the forecasting studies are discussed and agreed in the Planning Commission of the NHS. |
| ***EVIDENCES***  *Concerning the process of realization of the target set, aspects common to the different experiences, seem to be two: 1. A solid technical analysis supported by a certain amount of data and, in most cases, by a quantitative, and sometimes also qualitative, method; 2. A sharing of scenarios, context, interpretative lectures through the involvement of a series of stakeholders, to furnish social “commitment” to the technical proposal. This double decisional support allow the decision maker (policy maker) to take decisions with a higher degree of assurance and with a lower degree of conflict.(1)*   1. The most critical aspect is missing: which are the most critical and weak passages and phases of the process? | |

### Schematic description and evidences of " Monitoring and controlling".

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| ***ITEM***  **Controlling and monitoring of the progress of the process to join the goal is a basic aspect of any system of goals. It helps to understand if the actions taken are bringing in the desired direction and if it is necessary to intervene to correct those actions taken or define new ones. If starting condition have changed, monitoring and control stage may be also useful to re-define the goal. Is there in the analyzed experiences this control stage? If yes, who is responsible for?** | |
| ***BELGIUM*** | The Belgian health care knowledge center evaluates the Belgian health workforce planning. This center compares the current situation of the Belgian health workforce with other European health workforces. (1)  The NIHDI also has published performance reports about the health care system and general physicians. |

1. See: Physician workforce supply in Belgium. Current situation and challenges. KCE reports 72C

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| ***DENMARK*** | The Danish Health and Medicines Authority doesn’t really assess the success/effectiveness of health workforce planning. But we receive information about workforce imbalances during the hearing process in the preparation of the 5-year plans for the number of postgraduate training posts and during preparation of forecasting reports.  The Regional Councils for Postgraduate Medical Education must two times per year report to the Danish Health and Medicines Authority how many training post they have announced and how many of them have been filled. |
| ***ENGLAND*** | Department of Health ensures that the Mandate is fulfilled even if there are still some concerns related to the measurement of the fixed objectives. |
| ***FINLAND*** | Educational supply is evaluated in the middle of the implementation period for the development plan. This process is commissioned by the Ministry of Education and Culture and supported by a national coordination group appointed by the Ministry of Education and Culture. The MoSocH is also involved in this process. During this process the production of the qualifications is compared to the entrant targets and assessed in relation to the sufficiency of workforce (shortages among different professional and vocational groups, changes in professional roles and the service structure etc.). More in general there is a continuous monitoring of labor force in Social care and Health, yearly reports from THL (through data from Statistics of Finland and Valvira). In addition, The Finnish Medical Association and the Finnish Dental Association together with Local Government Employers (KT, www.kuntatyonantajat.fi) collect information on physician and dentist shortages in municipal health centres. KT reports also the shortages of the medical specialists in hospitals.KT makes assessments every two or three years also on the shortages of other professional and vocational groups in municipal social and health care. These assessments on sortages are carried out in collaboration with the MoSocH. |
| ***NETHERLANDS*** | There are several reports and papers evaluating the aims of the ACMMP. 1. The 2010 recommendations for medical specialist training.  2. Factors influencing long term dynamics of health care supply and demand; Smits, M.; Roos, E.; Proceedings of the European Conference on Information Systems ESADE, Barcelona, 2012. Paper 685, pages 1-12.  3. Improving Workforce Planning in Health Care. Proceedings of Bled, Slovenia, June 2012. 4. Ten years of health workforce planning in the Netherlands: a tentative evaluation of GP planning as an example; Malou Van Greuningen\*, Ronald S. Batenburg and Lud F.J. Van der Velden. Human resources for health 2012.  ACMMP monitors the effects of planning continuously by different parameters which we have agreed upon with the experts. We monitor as much as possible: on the demand side the waiting lists, demography, epidemiology, policies, literature; on the working process side efficiency, horizontal and vertical substitution; on the supply side fte, immigration, vacancies, unemployment, retirement, etc. for each specialism. On the action side the decisions the ministry has taken and the corresponding actions of the health field. The information is used to finetune the next recommendation. The actual checking is performed by every staff member for his/ her specialism. |
| ***NORWAY*** | No evaluation has been done, but in general the supply side is very presice. The demand side on the other hand is very hard to project as it is to a large degree affected by political decisions and economic development. |
| ***SPAIN*** | Biannually, we measured the effects of planning in the number of places in the Faculties of Medicine, in the number of graduates, in the number of GP and the number specialists of each specialty. |
| ***EVIDENCES***  *Exception made from Norway and Denmark, the other methodologies have built some control systems. In most cases the control is done by the same subject responsible of the planning system. In this sense the case of Netherland is interesting for the set of evaluation parameters arranged with stakeholders. Usually a series of reports containing data and monitoring evaluation are published. On the other hand, in the case of Belgium the control is done by a third body, the Belgian health care knowledge center (KCE).* | |

### Schematic description and evidences of " Re-action capacity to the events".

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| ***ITEM***  **Famous improvement cycle PDCA (planning, do, check, act - Deming) foresees the ability of an organizational system, ones the goals planned, to be also able to react to internal or external events, regulating or modifying planned activities. Have HWF planning systems this ability? (1)**   1. See the paragraph “Can Planning be Sufficiently Responsive and Flexible to Retain Relevance and Validity in Rapidly Changing Health Systems?” in “Integrating workforce planning, human resources, and service planning”, Workshop on Global Health Workforce Strategy Annecy, France, 9-12 December 2000. | |
| ***BELGIUM*** | [more information about this topic are needed] |
| ***DENMARK*** | If the needed number of postgraduate training posts aren’t announced the Danish Health and Medicines Authority contact the Regional Councils for Postgraduate Medical Education and remind them of their obligations. |
| ***ENGLAND*** | The Mandate, first published in 2013, was re-edit in May 2014: “*This refreshed mandate reflects the updated strategic objectives of the Government in the areas of workforce planning, health education, training and development for which HEE and the Local Education and Training Boards (LETBs) have responsibility. It sets out HEE’s role in responding to the Public Inquiry report1 by Robert Francis QC into the failures at the Mid Staffordshire NHS Foundation Trust, as well as the requirements to support NHS and public health service priorities, such as to improve health outcomes for children and young people, as highlighted in the Chief Medical Officer’s report Prevention Pays – Our Children Deserve Better*”, p. 5. Delivering high quality, effective, compassionate care: Developing the right people with the right skills and the right values, <https://www.gov.uk/government/publications/health-education-england-mandate-april-2014-to-march-2015> |

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| ***FINLAND*** | “The model, data and calculations have been updated continuously, although the basic structure of the model has remained unchanged. It has been used to make projections and calculations both for specific purposes of the Ministry of Employment and the Economy (medium-term and long-term growth projections and labour force projections, budgetary planning, employment effect estimates, assessing the effects of integration on the labour market) and for other users at the ministerial and regional levels.” Best Practices in Forecasting Labour Demand in Europe, p. 52. <https://www.prognozowaniezatrudnienia.pl/g2/oryginal/2012_12/e682ecc28075e068b129be3245f75304.pdf> |

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| ***NETHERLANDS*** | Because the forecasting is a cyclic action, all changes in the actual parameters are monitored and taken into account in the next recommendations, 2 or 3 years later. If objectives are not reached by any of the mentioned parties, the next advice on the necessary intake will automatically take that into account. There are examples of reactions to external events: A sudden increase in the number of locums for general practitioners made it necessary to alter the advice on the intake of medical graduates for the general practitioners training in 2009. The planned introduction of the colonic cancer screening program by 2014 led to an increase of the number of medical graduates in the training to become a gastrologist. The increase in the prevalence of mentally handicapped children had the same effect for the advice on physicians for the mentally handicapped in 2011. The gradual change of the retirement age is taken into account in the recommendations 2013. |
| ***NORWAY*** | The Norwegian Ministry of Health and Care Services is in charge of acting if the objectives are not reached.  [more information about this topic are needed] |
| ***SPAIN*** | Yes, the Studies of 2009 and 2011 include information about the goals reached in years previous.  In 2012, adjustments resulting from the economic crisis increased working hours (+2.5 hours) to 37.5 hours per week. The Government has also changed gradually the retirement age for all workers, that will pass 65 years in 2012 to 67 in 2025 (+ 2 years per worker).  Every year, the MoH adjusts the specialist training posts offer to the needs of specialists (according to planning model) and budgetary possibilities. |
| ***EVIDENCES***  *In order to draw conclusions some information concerning some HWF planning systems is missing. From the obtained information derives that HWF planning systems have in general the capacity to react to internal or external events modifying their action plan and their targets.* | |

## Organisation of the planning system

### Schematic description and evidences of "At what level does workforce planning take place".

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| ***ITEM***  **Health workforce planning may be managed at a central level by one or more institutions for the whole country or may be decentralized at a local level. In such a case it is important to understand which role is performed by the central level and which by the local one. From this derives the organization of the decisional process.** | |
| ***BELGIUM*** | Both central (federal government) and local administrations (communities) are involved in the HWF planning process with different roles.  The federal government is responsible for health insurance policies and for policies which limit practitioners' access to the health profession and also reimbursement. Communities are responsible for managing education and training (examination selections, numerous clausus policies). |
| ***DENMARK*** | HWF planning takes place at central level (Danish Health and Medicines Authority - DHMA and Minister of Higher Education and Science) for medical doctors, dentists, clinical dental technicians and dental hygienists (including medical and dental specialists).  The DHMA determines the number of postgraduate education posts for medical and  dental specialists in each specialty and within regions.  The DHMA makes recommendations for the student intake of medical doctors, dentists, clinical dental technicians and dental hygienists. The Intake is afterwards set by the Minister of Higher Education and Science.  Regions are the administrations in charge of assigning provider numbers to general practitioners. A provider number is necessary to be reimbursed by the public tax based health system. (1)  Three regional councils for postgraduate education are responsible for announcing postgraduate training post on the basis of the plan outlined by DHMA. The three regions decide how the assigned training posts are to be distributed within the region. Furthermore they are in charge of composing the postgraduate training posts and their educational programs. |

1. See: “Impact Of Ageing on Curative Health Care Workforce Country Report Denmark”, Erika Schulz, Supplement B to Neujobs Working Paper D12.1, September 2013; available at <http://www.neujobs.eu/sites/default/files/Health%20care%20workforce%20DK_160913_final.pdf>

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| ***ENGLAND*** | HWF planning takes place at central level (Department of Health DH and Health Education England-HEE) and local level (Local Education and Training Board - LETB - and NHS providers).  The DH and HEE set the strategic objectives in the areas of workforce planning, health education and training and development.  HEE annually sets out its commissioning intentions (in terms of education and training) in the Workforce Plan for England which is subsequently used as the basis of the contracts that each Local Education and Training Board (LETB) places with local education providers for that academic year. To inform these training commissions HEE take the five year plans from LETBs, who in turn have taken five year projections from NHS Providers (e.g. NHS Foundation Trust). |
| ***FINLAND*** | HWF planning takes place at central level (Government Institute for Economic Research - VATT, under the Ministry of Finance, and the National Board of Education - FNBE, under the Ministry of Education and Culture) and local level (regional councils). VATT produces long term workforce forecasts and FNBE forecasts the educational needs and proposes the entrant targets on the base of workforce demand.  Regional councils, on the base of health care organizations, make analysis and forecast of workforce demand and educational needs. |
| ***NETHERLANDS*** | HWF planning takes place at central level (Advisory Committee on Medical Manpower Planning - ACMMP, Capaciteitsorgaan) for medical doctors, dentists, mental health professions and specialized nurses, dental hygienists. |
| ***NORWAY*** | HWF planning takes place at central level and local level, both regional (County governor) and municipality. |
| ***SPAIN*** | HWF planning takes place at central level (Ministry of Health Social Services and Equality and Ministry of Education, Culture and Sport) and local level (Autonomous Communities). Ministry of Health Social Services and Equality coordinates and approves the number of the specialized medical training posts.  Ministry of Education, Culture and Sport coordinates and approves the number of enrollments in medical degree courses.  Autonomous Communities are involved as permanent members in the Human Resources Commission of the National Health which is in charge of defining the number of specialized medical training posts and in the Council University Policy. |
| ***EVIDENCES***  *Exception made from Netherland and, in part Denmark, the other five Countries have a participation system that foresees an involvement of local organization to the planning process. Type of involvement: The rule of local organization is mainly advisory and of definition of the requirement estimates. Decisional rule remains at the central administration. At a central level involved organization are often multiple. First of all the Ministry of Health and the Ministry of Education – University.(1)*   1. To check if there are some evidences from the Firenze meeting that we can use to better describe this item. | |

### Schematic description and evidences of "Staff members".

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| ***ITEM***  **To be managed effectively HWF planning process requires the use of an adequate number of human resources. Adequacy number of people involved in the process will depend on different factors as the type of health profession object of the planning (how much and which), the consequent number of stakeholders to be involved, the frequency of planning cycle, the degree of planning “de-localization”. Depending on the different stages which characterize HWF planning process and according to the adopted planning model, it is necessary having the right skills: for example, for data collection and forecasting: statistical, computer, epidemiological, sociological skills; for the management of the planning cycle, stakeholder involvement and interaction with the decision makers: management and relations skills.** | |
| ***BELGIUM*** | There are 6 people (5,5 FTE) working in the Unit of Workforce Planning at the Federal Public Service of Health (FPS), which provides administrative and statistical support to the Planning Commission.  Their role consist in:  -managing the planning process for one or more specific health profession; -giving administrative support for the working groups of the Planning Commission; - collecting the necessary information.  Every staff member of the Unit has his or her own unique knowledge on one, two or more healthcare professions, depending on the professions for which he/she already worked out a planning scenario and depending on their working experience in the FPS. There are also experts for each health profession within the department of Health care (where Unit Planning is a part of) which we can ask specific questions and can consult for more in-depth information. |
| ***DENMARK*** | There are 3 people employed by the Danish Health and Medicines Authority which directly work on the HWF planning:   1. the head of the division (senior medical doctor); 2. one dentist; 3. one special adviser (Political Science).   There's also one statistician from an external organization (Statens Serum Institut). They are all involved in the forecasting for all professions but the dentist engage only in the dental professions. |
| ***ENGLAND*** | There are a number of organizations involved in hwf planning and forecasting in England. To give the example of the CfWI, as the Joint Action partner: 1. Approximately 50 FTE  2. There is a range of profiles which can be divided into the broad roles of Analysts, Modellers, Horizon Scanners, Project Managers, Communications and Leadership.  3. A large range of experts and stakeholders are involved as appropriate in workforce planning projects.  To look at the CfWI, analysts and modelers have particular specialization in particular professions and specialties and it is also within the remit of some analysts and senior staff to have an overview of the workforce at higher level groupings. |
| ***FINLAND*** | At VATT there is a few people [how much?] working on the HWF planning process but none of them full time.  At MoSocHealth there are five senior level people part time on the HWF planning process .  At MoEC and FNBE 2-4 full time people senior level, but the work is not only for Health Sector.  At the FNBE: 3-4 senior level researchers.  In other organizations, such as Statistics Finland one senior level researchers, part time.  In regional councils, primary health care units in hospital districts and hospital districts within a catchment area for highly specialized medical care: a few people involved part time at each.  Most of the experts involved are not specialized for single professions. [not available which skills] |
| ***NETHERLANDS*** | The ACMMP has a staff of 7 people and 1 administrative person. The competence profile includes a background in a healthcare education or healthcare performing function, an academic or applied science university degree, research expertise and advisory competences.  The ACMMP has its own regular pool of experts in the different fields/ professions/ specialisms, which are consulted at least once every 6 months, but most of the time every 3 months. There are at the moment almost 100 experts that can be consulted. These experts are only consulted as long as they are working in the field. Besides the regular experts other experts can be consulted for specific areas of expertise. Besides these experts, the ACMMP also uses research bureau’s and other organizations to obtain data that are necessary to get the job done. There is a steady group of 4 researchers that are more or less committed to the ACMMP. The ACMMP staff members are all specialized for certain professions. On top of that they are sparring partner with another staff member for his or her professions.  The principal staff member/ profession combinations are:  - Joris Meegdes, clinical specialisms;  - Teus Vertooren, mental health professions;  - André Esch, general practitioners;  - Tineke Zijlstra, physicians for the elderly/ mentally disabled;  - Alies Zandbergen, dentists, oral hygienists, maxillofacial surgeons, orthodontists;  - Ellen Dankers, paramedical professions, nurse practitioners, physician assistants;  - Victor Slenter, medical graduates, social medicine physicians. |
| ***NORWAY*** | N.A. |
| ***SPAIN*** | There are 4 people (approximately 3, 3 FTE) involved in HWF planning at the MoH. They have a variable annual budget (60.000-100.000€) for HWF research.  In all Communities (17) there are professionals with part-time dedication to the preparation of the annual supply of specialized health training posts. [whick skills? what about the people from University of Las Palmas at Canarie?] |
| ***EVIDENCES***  *Number of people involved in the various HWF planning systems, as their modalities of involvement are different from case to case. In relation to the number, different cases may be synthetized as follow: - Everywhere the is a fixed team who works for the HWF planning system, in some case full time, in other part-time; - They range from a minimum of 3 people (Denmark) to more of 50 people (England) who work for the planning system; - Number is proportional to the number of planned professions; - To the fixed number of people involved has to be added a variable commitment of people from external organizations, often involved in projects and specific researchers. Competence profile of people involved in the HWF planning process corresponds naturally to the skills necessary to manage the different phases: so there are statistical, sociological, epidemiological, computer, administrative, as well as management and leadership skills; in most cases there are people belonging to health professions object of the planning (in particular doctors and dentists); in some cases these people are also managing directors of the section which manage the whole planning process. In cases of a system that plans more than a profession, prevails, for people of the fixed nucleus, the specialization for Health Profession.* | |

### Schematic description and evidences of "Organization of the workflow".

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| ***ITEM***  **HWF planning process requires an organization of all its phases which, on the strength of the number of profession to be planned, may be more or less articulated and detailed. Possible solution may vary depending on whether you want to import the process for vertical kind of specialization (system dedicated to the single profession) or for horizontal specialization (phases common to different professions analyzed).**  **We may have:**  **1. Different workflow for each professions managed by different planning institutions.**  **2. Same workflow with some specific articulation for the different professions managed by the same planning institutions.**  **3. Unique workflow with no specific procedures for the different professions managed by the planning institutions.** | |
| ***BELGIUM*** | The core of the workflow is in the Planning Commission, that is unique for all the health professions planned. It consists of national representatives of the different health professions, universities, health insurance companies, different government levels (federal & regional) and invited experts.  The planning commission is assisted by the Unit Workforce Planning at the Federal Public Service of Health, which provides administrative and statistical support. The Unit Workforce Planning is as well unique for all the health professions planned. Furthermore, the planning commission is composed of different working groups, one for each health profession planned, e.g. nurses, physicians, dentists, physiotherapists. It means that part of the workflow is differentiate by the specific health profession: in the single working group (supported by one person from the Unit Workforce Planning) they reflect on current and future challenges of the profession, provide input for planning research, provide feedback to the preliminary results, validate reports. |
| ***DENMARK*** | The Danish Health and Medicines Authority seek to have the same workflow, with only small differences for each professions.  1. DHMA decide it’s time to update the supply forecast (every 2-3 years). 2. The planning and Forecasting Committee is involved in deciding whether the supply model needs modifications.  3. If modifications are needed a small group with stakeholder representatives draw up a draft for a new model.  4.The model is presented for The Planning and Forecasting Committee. 5. If accepted, DHMA and Statens Serum Institut makes the forecast. |
| ***ENGLAND*** | In England local and national planning results in the Workforce Plan for England which sets out the education and training commissions for the 110 workforce roles for which Health Education England is responsible.  The Centre for Workforce Intelligence is commissioned by DH, HEE and PHE to undertake reviews of specific workforces. The CfWI follows a specific workflow named Robust Workforce Planning Framework (CfWI, 2014) that is the same for each workforce role.  As result of the workflow, CfWI produces several horizon scanning reports, including medicine (CfWI, 2012a) and dentistry (CfWI, 2012b). |
| ***FINLAND*** | At higher level (Ministries) mostly “Unique workflow with no specific procedures for the different professions managed by the planning institutions”. |
| ***NETHERLANDS*** | The ministry currently has two contracts in place for data collection, analysis and modeling in order to make recommendations to the health field and back to the ministry on likely future needs. One contract is related to doctors, mental health professions, dentists and specialized nurses (and related professions). The contractor is the ACMMP.  The other contract is related to nurses, assistant-nurses, care-takers, social workers and home helpers and is given to a research program. |
| ***NORWAY*** | N.A. |
| ***SPAIN*** | Spain plans and forecasts only for medical doctors (degrees and port-degree posts).  The Council of University Policy, composed by Ministry of Education and by education officials of autonomous communities, fixes annual supply of University posts. The NHS Human Resources Commission is mainly responsible for planning the medical doctors specialisations. It Is involved in the planning and design of training programs and human resource modernization of the National Health System and defines the basic criteria for assessing the competence of healthcare professionals. It fixes annual supply of specialties posts. It is composed by health officials of the autonomous communities (17) and the central administration (Ministry of Health, Social Services and Equality, Ministry of Education, Culture and Sports , the Ministry of Defense and the Ministry of Finance and Public Administration). The workflow of the planning process is the same for all the specializations and it's focused on the activities of the NHS Human Resources Commission. National Council of Specialists in Health Sciences and National Specialties Commissions: By law, you must report the supply of specialized medical training places. Each National Commission of Specialty consists of 11 members, all of them specialists: Four recognized specialists proposed by Human Resources Commission; two proposed by Scientific Societies; a university professor and a tutor of specialists in training proposed by Ministry of Education; one proposed by professional chamber and, finally, two representatives of specialists in training. The chairmen of the each Commission form the National Council. |
| ***EVIDENCES***  *All the analyzed methodologies have an articulated workflow , which is strongly coordinated by Councils or Central Commission which are the core of the process. Also in those cases in which se system takes into account more professions, these Central Body are unique and so the process is unique (except from the case of nurse in the Netherland). Inside those Committees or Commissions the work is often granted through working Groups or Committees for the single profession: that’s for example the case of Belgium, England, Netherlands and Spain. There aren’t mechanisms or processes of verify and reciprocal control on the results achieved by each Committee or working group.* | |

### Schematic description and evidences of "Organization of the stakeholders representation".

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| ***ITEM***  **Stakeholders involvement is one of the fundamental and in the meantime critical point of the whole planning system. The importance of the involvement, recognized from the literature as well as from the main experts in the field [insert literature references] is due both to the necessity of acquire information and points of view and to find the consensus on some solution, so to define objectives more correct than to the problems highlighted and, once the objectives fixed, arrive to the fixed target with the best degree as possible of opposition.**  **In any case, this involvement is often critical, both for the number of interested stakeholders than for the strong discrepancy among the represented positions. These criticalities sometimes need a lot of time to be solved or weakened, being such a case another criticality. (1)(2)**   1. To quote “Bryson, John M. Strategic planning for public and nonprofit organizations: A guide to strengthening and sustaining organizational achievement. Vol. 1. John Wiley & Sons, 2011.”; pagine 23-24-25 🡪 useful for the module 2. 2. “Participatory planning requires the involvement of concerned stakeholders. This includes identifying public concerns and values and developing a broad consensus on planned initiatives. It is also about utilising the vast amount of information and knowledge that stakeholders hold to find workable, efficient and sustainable solutions” 🡪 useful for module 2, in particular the concept of PARTECIPATORY PLANNING | |
| ***BELGIUM*** | The stakeholders are officially involved in the Planning Commission. The planning commission monitors the workforce levels and trends of the different health professions using the available statistical information and detects bottle-necks. Further research is conducted (if necessary), using the resources of the Unit Workforce or via public tender process. The collected quantitative data will be analyzed in combination with qualitative input from the members of the working groups. Consensus agreement is reached on possible future scenarios. The agreed upon future scenarios are fed into the mathematical planning model to calculate the projected future workforce levels. The planning commission provides policy recommendations to the minister of health, based on these projections. The minister can take corresponding policy actions and adjusts the quota. |
| ***DENMARK*** | For the forecasting of supply of doctors and supply of dentists some of the stakeholders participate in the Planning and forecasting committee.  During preparation of the plan for how many medical specialists and dental specialists are supposed to be educated on a yearly basis stakeholders are invited to participate in a hearing where they can advise the Danish Health and Medicines Authority as to how many specialists should be educated.  DHMA with the help of stakeholder representatives draw up the plan which is presented in the Council for Postgraduate Education. DHMA typically follows the council’s recommendations regarding the plan but is however not obligated to.  For both the forecasting of doctors and the dental professions stakeholders are through the Planning and forecasting committee invited to participate in the overall designing of the forecasting model. |
| ***ENGLAND*** | The workforce planning and assurance process at a local level: - Each Trust was asked to provide their future workforce forecasts setting out their anticipated needs for staff numbers and skills to their LETB. - Each LETB used these individual Trust forecasts alongside an assessment of their current workforce needs to produce a forecast for their area as the basis for the LETB workforce investment plan.  - HEE’s Workforce Planning Guidance required each LETB to hold local ‘Challenge and Review’ sessions with employers and other partners such as commissioners in order to ensure effectiveness forecasts.  The workforce planning and assurance process at a national level: HEE has three national workforce planning roles:  - to guarantee for each LETB’s workforce investment plan;  - to lead national workforce planning for a small number of areas where the current characteristics warrant a nationwide approach;  - to produce a National Workforce Plan for England based on the aggregate of the final moderated LETB plans and the conclusions of the national workforce planning processes. As part of the processes to produce the Workforce Plan for England HEE: • seeks continual advice and input from stakeholders through a national ‘Call for Evidence’; • discusses emerging trends and themes with other ALBs such as NHS England, NTDA and Monitor and the Department of Health to ensure alignment wherever possible; • seeks on-going advice from key professional groups through Health Education England Advisory Groups;  • Held bilateral meetings with stakeholders to discuss key emerging issues. |
| ***FINLAND*** | Workforce forecasts are produced by the VATT and commissioned by a collaborative group of four ministries (Employment and Economy, Finance, Education and Culture, Social Affairs and Health).  These feed in to the planning process in the FNBE. In collaboration with a wide network of experts from the regional authorities, trade unions, employers' associations ministerial representatives etc. it produces workforce forecasts for the whole economy (28 different sectors).  These recommendations feed into "The Development Plan of Education and Research"; based on this development plan the Government adopts a plan for the education and university research every four years. As part of this plan, the Government adopts entrant targets for every educational field and level. The MoEC appoints a wide group of experts to steer and provide expertise of different industries for the phase of forecasting educational needs. These experts present e.g. the Mo SocAH, the KT, trade unions, regional authorities and other stakeholders. |
| ***NETHERLANDS*** | The board of the ACMMP consists of (delegates from) the three major stakeholders: the health insurance companies, the professionals, and the universities/ teaching institutes. They formally agree upon each advice before it is given to the government.  The same three stakeholders are involved in each of the 5 “Chambers”. The Chambers are oriented around specific professions and are (t)asked to clarify issues regarding the parameters needed to make the scenario’s where the estimates are based upon. Each Chamber makes use of field experts, designated research, and literature. |
| ***NORWAY*** | N.A. |
| ***SPAIN*** | The Human Resources Commission of the NHS, as part of its mandate from the CISNS, has the task of fostering adequate planning for the needs of the NHS As written in the law on the Regulation of Health Professionals (Law 44/2003) the Commission is composed of:  • Central Administration of Ministry of Health, Education, Economy;  • 17 Autonomous Communities and the Institute of Health Management (represents the cities of Ceuta and Melilla);  • Ministry of Defense - expected to offer medical undergraduate training. The Ministry of Defense currently offers medical and pharmacy specialist training to both military personnel and health science graduates in general. Thus, the stakeholders representations expressed through participation in the Commission. |
| ***EVIDENCES***  *Stakeholders are involved through the participation, as steering members, to commissions or committees dedicated to the HWF planning (as in Netherland, Belgium and Spain). In other cases stakeholders involvement is a peculiar phase inside multi-phase process, as for example in England, Denmark or Finland.* | |

### Schematic description and evidences of "Which are the stakeholders involved" for each selected practice.

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| ***ITEM***  **HWF planning process stakeholders, considering the breadth and importance of the subject (impact of health on population, country socio-economic system, employment, etc.) may be vary and different:**  **1. Health care producers (public and private).**  **2. Health care trainers.**  **3. Health care payers.**  **4. Health care workforce (professional orders).**  **5. Health care users.** | |
| ***BELGIUM*** | In the Planning Commission there are the following stakeholders participating:  - Ministry of Public health;  - Ministry of social affairs;  - Flemish community, French community and German-speaking community;  - Professional associations (Physicians needs estimation, validation of reports, providing input for research);  - Universities with a full medical curriculum;  - 4 Universities of Flemish community (University of Antwerp, Ghent University, Catholic University of Leuven, Free University of Brussels); 3 Universities of French community (University of Liège, Catholic University of Louvain-La-Neuve, Free University of Brussels) - the universities deliver necessary information which is used in the planning process; e.g. student enrolment, success rates; also, they act as stakeholder in the planning process and participate in the working group meetings; they actively defend their point of view in the discussions; - NIHDI (National Institute for Health and Disability Insurance);  - NIC (National Intermutual College). |
| ***DENMARK*** | Stakeholders involved in the HWF planning process are both public health care producers, health care trainers, health care payers and health care workforce through their professional orders.  In particular they are:  • Danish Regions,  • Regional Councils for postgraduate Education,  • Ministry of Health and Prevention,  • Ministry of Higher Education and Science,  • Danish Medical Association,  • Danish Medical Societies,  • Danish Dental Societies,  • Local Government Denmark. |
| ***ENGLAND*** | A large range of stakeholders are involved in the planning process: - Department of Health DH and Health Education England,  - Local Education and Training Board,  - NHS providers,  - Professional bodies,  - Royal College of Speech and Language Therapists,  - Organisations who responded to HEE’s Workforce Planning Call for Evidence (Society and College of Radiographers; BMA; British Association/College of Occupational Therapists; Care Quality Commission; College of Emergency Medicine; Epsom and St Helier NHS Trust; Haduma Limited; Health Education England; Medical Schools Council and Dental Schools Council; Royal College of Physicians; Oxford University Hospitals NHS Trust; Royal College of General Practitioners; Royal College of Nursing; Royal College of Paediatrics and Child Health; Royal College of Pathologists; Royal College of Radiologists; The British Association of Stroke Physicians (BASP); Royal College of Midwives; University College London; Whipps Cross University Hospital;  - HEE Advisory Groups consulted on England wide workforce forecasts and initial Workforce Investment Plan for England (Nursing & Midwifery HEEAG, Medical HEEAG, Healthcare Science HEEAG, Dental HEEAG, AHP HEEAG). |
| ***FINLAND*** | Stakeholders involved in the HWF planning process are mainly: - Health care producers (mainly municipalities through their association Local Government Employers),  - Trainers (institutes, schools and universities),  - Health care payers,  - Health care workforce (professional orders as well trade unions). |
| ***NETHERLANDS*** | There are three parties:  - the health care workforce,  - the health care training institutes,  - and the health care insurance companies.  Those three parties each represented with 8 seats in the board of the ACMMP. (1) |

1. See “The 2013 Recommendations for Medical Specialist Training”, - Appendix 2. The Plenary Body:the relevant experts and procedures - pag. 82 <http://www.capaciteitsorgaan.nl/Portals/0/capaciteitsorgaan/publicaties/Capaciteitsplan%202013/DEFINITIEF%20hoofdrapport%20engels%20compl.pdf>

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| ***NORWAY*** | Main stakeholders involved in the HWF planning process are:  - Municipalities,  - Regional Health Authorities (RHF),  - Upper secondary school,  - Universities,  - Professional associations. |
| ***SPAIN*** | In the Human Resources Commission of the NHS there are the following stakeholders involved:  - health officials of the autonomous communities (17);  - central administration (Ministry of Health, Social Services and Equality, Ministry of Education, Culture and Sports , the Ministry of Defense and the Ministry of Finance and Public Administration).  The Commission is involved in the planning, design of training programs and human resource modernization of the NHS and defines the basic criteria for assessing the competence of healthcare professionals. It fixes the annual supply of specialties posts. The Council of University Policy is composed by Ministry of Education and by education officials of the autonomous communities.  They fix annual supply of university places.  In the National Council of Specialists in Health Sciences and National there are several Specialties Commissions, in which by law, you must report the supply of specialized medical training places.  Each National Commission of Specialty consists of 11 members, all of them specialists: four recognized specialists proposed by Human Resources Commission; two proposed by Scientific Societies; a university professor and a tutor of specialists in training proposed by Ministry of Education; one proposed by professional chamber and, finally, two representatives of specialists in training. The chairmen of the each Commission form the National Council. |
| ***EVIDENCES***  *Main evidences regarding stakeholders involvement, may be resumed as follow: - All seven methodologies give a huge attention to the representation of local instances (municipalities, regions, local providers); - The same attention is given to the involvement of those subject responsible of the Education (Universities, Schools, etc…) and professional orders; - There aren’t cases of involvement of associations of patients (maybe in England?); - Nor there is involvement of representatives of health system (drug makers, medical devices producers, etc…).* | |

### Schematic description and evidences of "Which is the role of the stakeholders".

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| ***ITEM***  **To involve stakeholders is important. But, which rule is them reserved inside the planning process? Which is the objective of their involvement? The involvement may be passive, in case stakeholders are just informed about decision taken, or active. In such a case their contribution may consist in a series of advices they give to the "process owner" about different subject and that may be then utilized by the decision maker to take his decisions, or directly contribute to the decision taken, inside a process of sharing and agreement.** | |
| ***BELGIUM*** | The stakeholders provide the Unit Planning with qualitative and quantitative information.  They are also closely involved in the planning process and co-decide with the Unit Planning about necessary data, research questions/subjects, etc. In the working groups they help interpret the presented information. They take part in the creation of a consensus about the assumptions to be used in the creation of forecasting scenarios.  When planning outcomes are presented to the stakeholders, they can use this information to give advice to the minister of health. |
| ***DENMARK*** | The stakeholders advise DHMA regarding the yearly number of postgraduate training posts. This takes place in a hearing process where the stakeholders are presented with data regarding the current supply within the specific medical specialty. Both on a national and regional level. Furthermore the stakholders are presented with the results of the supply forecast within a given specialty. On the basis of the data presented the stakeholders are invited to answer a series of questions. For example:   * How is the current balance between supply and demand perceived? * Are there any specific regional differences in the supply or demand the plan must take into account? * Is the demand expected to exceed or be lower than the expected supply? If so, why? * Which factors is expected to influence the future demand within the medical specialty?   The information provided by the stakeholders is first of all considered by the Planning and Forecasting Committees subcommittee. The subcommittee examines the data and information provided by the different stakeholders and draws up a plan for the number of postgraduate training posts. In examining the information provided the subcommittee tries to take different factors into account for example:   * How many doctors can be expected to begin a postgraduate training post? * Are there any special areas in an acute need of specialists? * If the number of postgraduate training posts is increased in one specialty it can affect the demand for specialists in another specialty * Increasing the number of postgraduate training posts in specialties having no problem recruiting can have a negative effect on recruitment to specialties already facing recruitment difficulties. * The educational capacity in the different specialties   When the subcommittee has drawn up the plan it’s first of all presented in the Planning and Forecasting Committee. If the committee gives the green light the plan (if for doctors) is afterwards presented in the National Council for Postgraduate Medical Education or (if for dentists) presented in the National Council for Postgraduate Dental Education. |
| ***ENGLAND*** | As there are a large range of stakeholder and expert groups it is difficult to give a single answer to this question.  [more information about that process are needed] |
| ***FINLAND*** | Long-term workforce forecasts are produced by the VATT (under the Ministry of Finance) and commissioned by a collaborative group of four ministries. They are theMoEE, the Ministry of Finance, the MoEC and the MoSocH.  Forecasts on educational needs and proposals for entrant targets are produced by the FNBE on the basis of the forecasts on workforce demand. The MoEC appoints a wide groups of experts to steer and provide expertize of different industries for the phase of forecasting educational needs.  These experts present e.g. the MoSocH, the KT, trade unions, regional authorities and other stakeholders. |
| ***NETHERLANDS*** | The workforce forecasting model provides forecasts which are discussed within the board of the ACMMP (by experts in the Chambers first and then by representatives of the three composing parties); the outcome is an advice on the number of professions to be trained yearly for a certain time period.  The ACMMP has an advisory task. They try to elucidate any decision that the ministry of Health, Welfare and Sports and ministry of Education and Science will take. The ministries take the final decisions. However, the ministries do not often take a decision which is beyond the boundaries of the range of the advice. |
| ***NORWAY*** | [more information about that process are needed] |
| ***SPAIN*** | The public and private hospitals accredited for specialized training propose to their regional health department the number of training posts that they need and they can finance, the supply cannot exceed the number of accredited posts. The regional health departments of autonomous communities define their needs of specialists and propose the annual supply of specialist training posts to the Human Resources Commission of National Health System. The Universities propose to regional education departments the number of posts a year of Medicine; the supply cannot exceed the number of accredited posts. The regional education departments propose the number of posts in the Faculties of Medicine of its territory to the Council of University Policy. |
| ***EVIDENCES***  *In most cases Stakeholders have, inside the process an advisory role: they give suggestions, make their point, in some case facilitate the process, contributing to the collection of useful data and help in giving their correct interpretation. They never have a decisional role but, through their advisory role, they try to direct and influence the decision maker toward the most correct choices. We may say that stakeholders involvement gives strength and value to the proposals the policy maker has to decide on.* | |

### Schematic description and evidences of "Responsibilities in the decision making process".

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| ***ITEM***  **Inside HWF planning system, the decision making process is the most important phase and maybe also the most critical ne: in fact, if the decision is not coherent with the results and the conclusion arrived at the process it means that the efforts of the planning system have been vane. To better understand how the decision making process operates one of the elements to be analyzed concerns the responsibility of the decision/s to be taken. Who are these responsibilities? To one or more subjects (shared responsibility)?** | |
| ***BELGIUM*** | Forecasts developed by the Planning Commission on the basis of the stock and flow model are then used by the federal government to regulate the number of physicians, dentists and physiotherapists that are allowed to practice. Two levels of government are involved in strategic health workforce planning in Belgium.  a) The federal government can regulate the supply of health workforce by limiting practitioners’ access to practice. The nature of universal health insurance systems enables government to regulate the supply of some medical and health professions by restricting their right to reimburse treatment costs. By preventing health and medical professionals from reimbursing their patients’ treatment costs, it is possible to control the number of professionals that are actually practicing. In addition, the government manages and controls access to specialist training.  b) Communities are responsible for managing the education and training system. Thus, they establish the content of courses and the standards for selections. They also govern numerus clausus policies. |
| ***DENMARK*** | 1) The minister for higher education on the basis of advice from the Danish Health and Medicines Authority decides the student intake for medical doctors, dental, clinical dental technicians and dental hygienists.  2) The Danish Health and Medicines Authority decides the yearly number of postgraduate education post for medical and dental specialists. |
| ***ENGLAND*** | If we look at Health Education England’s Workforce Plan for England this sets out the planned investments and this goes for approval to the HEE Board.  [more information about this issue are needed] |
| ***FINLAND*** | Final decision of quotas is made by MoEC after hearing the comments of MoSocH but also associations representing health employers and employees are consulted. |
| ***NETHERLANDS*** | The responsibility for the final decision on the advice is for the members on the board of the ACMMP. The CEO of the ACMMP is responsible for the preparation of this advice and the presentation in the board. Each staff member is responsible for the consulted experts, research findings, and literature review on his/ her field of expertise up to the point where they are presented to the CEO.  Final decision of quotas is made by Ministry of ministry of Health, Welfare and Sports and ministry of Education and Science. |
| ***NORWAY*** | Shared responsibility [more information about this topic are needed] |
| ***SPAIN*** | The final decision on the number of specialized medical training posts is up to the Ministry of Health, Social Services and Equality, which coordinates the process and approves the results of the Human Resources Commission of National Health System. The final decision on the number of posts in Faculties of Medicine is up to the Ministry of Education, Culture and Sport, which also coordinates the process and approves the results of the Council of University Policy. |
| ***EVIDENCES***  *In most cases [but we have to go more in depth with Norway and England] planning process advisory decision are taken by a single body (Minister or, in the case of Denmark concerning posts of specialists in medicine, by the Danish Health and Medicines Authority) as sole responsible. In any case this decision follows and is taken on the bases of a long decisional process, in which different subjects (stakeholders) share a proposal. In the examined cases the proposal shared by stakeholders has such a strength and a commitment to be always confirmed by the final decision of the Minister (this is the case, for example, of Netherlands, Spain, Belgium and Finland) [to ask to Denmark if the contrary never happened; they wrote "DHMA typically follows the council’s recommendations regarding the plan but is however not obligated to". "Tipically" means that sometimes the advices are not followed ?]* | |

### Schematic description and evidences of "Communication".

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| ***ITEM***  **Communication in an organizational process, as HWF planning is, is a crucial aspect for the general efficacy of the process and its outcome.**  **In the early stages, in the case of HWF planning, to be able to communicate the objectives of the process, facilitates the involvement of stakeholders and helps in the clarification of their contribution.**  **In the same way, effectively communicate the results of the planning process it isn’t just a reporting operation “due” to citizens, for the impact that this decision will have on future public services, but also un act that makes transparency on the work done and the use that police makers will do on that.** | |
| ***BELGIUM*** | At first (1996), the mathematical modelling was done internally. Only the results of these workforce forecasts were published together with policy recommendations. This work method changed in 2006: the planning and modeling became more open, and our planning model can be accessed by users outside the ministry. The different stakeholders were given access to the planning tool via an internet portal. [any reports pubblished regularly? any pubblications reporting goals and results? any web pages dedicated on that topic reporting the progress of the HWF planning process?] |
| ***DENMARK*** | The Danish Health and Medicines Authority publish reports with forecasts of the expected supply within the different professions.  The Danish Health and Medicines Authority publish 5-year plans which determine the yearly number of postgraduate training posts for medical and dental specialists within specialty and region.  The forecast reports and the 5-year plans are sent by mail to relevant partners and are furthermore published at the Danish Health and Medicines Authority’s website.  The website has a page dedicated to publishing the results from the planning and modelling. |
| ***ENGLAND*** | Every year Health Education England publishes a report containing:  - information on the HWF status quo;  - information on the HWF planning process;  - information on the HWF planning goals;  - detailed information on the output of the HWF planning process;  - and the expected outcome.  (Workforce Plan for England - 2014, http://hee.nhs.uk/wp-content/blogs.dir/321/files/2013/12/Workforce-plan-UPDATE-interactive.pdf) |
| ***FINLAND*** | The goals and outputs, such as entrant targets are published as part of the development plan of education and university research which is adopted by the Government every four years for both the year in question and the following five calendar years. The development plan is prepared in accordance with the Decree on the Development Plan for Education and University Research (987/1998) and published by the Ministry of Education and Culture.  In addition, VATT and the FNBE publish several reports on the forecasting process and outcomes. |
| ***NETHERLANDS*** | The goals and results are communicated once every 2 to 3 years in a series of documents known as the “Capaciteitsplan 20..”These documents are accompanied by a letter to the minister with the actual advices in it. The findings of the ACMMP are public. The minister will send them to Parliament. (1) |

1. See: <http://www.capaciteitsorgaan.nl/Publicaties/tabid/68/language/en-US/Default.aspx>

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| ***NORWAY*** | Results [more information about this topic are needed] |
| ***SPAIN*** | The goals and results are publishing in the web of MoH, only in Spanish (http://www.msssi.gob.es/profesionales/formacion/necesidadEspecialistas/home.htm). Every year, they publishing the offer for specialist training in the official bulletin (BOE). |
| ***EVIDENCES***  *Most planning methodologies foresee the publication of an internet report, accessible to everyone and containing the goals (even if they may not always be considered as such –see the grid concerning the goals) and the output of the process, in a very detailed form (such the case of Netherlands, Spain and England). Even if these report are accessible by all, writing and publishing style have an institutional and typically dedicated to insider character. There aren’t examples of communication dedicated to a wide and heterogeneous public.* | |