Describing the fundamental aspects of the HWF planning systems in selected European Countries

The purpose of the handbook on HWF (Health Work Force) planning systems (D52) is to become a guide to all European states wanting to improve their planning of the HWF but in particular those who are starting up a planning system now.

In order to respond to the future requests on the handbook we have decided to distinguish between the activities that need to be done during the starting up of a planning system and a description of that one. In this document we will treat the description of the planning system.

When we have analysed the different planning systems that could be used as “good practice” and compared with the literature on the subject, we have found five main elements to describe a planning system:

1. **How the planning system is organized** in order to guarantee a permanent process. The literature defines planning (also called forethought) as the process of [thinking](http://en.wikipedia.org/wiki/Thinking) about and organizing the activities required to achieve a desired goal. Planning is deciding in advance what to do, how to do it, when to do it, and who should do it. In a complex system it is critical to engage the stakeholders in the planning process.
2. Which **goals** are set and with which time frame. If the goals are set on fifteen years from now, probably there will be less restrictions in the system than if you plan for the next year. For example, in most European countries in fifteen years from now, half of the doctors of today will have left the active working life and the new doctors may have different characteristics.
3. How the planning process is connected with the actions that will achieve what has been planned, (the **cycle of continuous improvement** of Deming with the phases Plan, Do, Check, Act). Within the planning phase, 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.
4. Which **data** is really used in the planning.
5. The type of the **forecasting model** and its use.

The attached template is to be used when describing some selected existing planning systems in European Countries[[1]](#footnote-1). In the expert meeting in Firenze in May the template and the descriptions will be used to:

* compare the different systems;
* choose criteria for assessing the systems;
* assess the systems according to these criteria.

During the following months the results of the expert meeting will be used to organize and develop the Handbook.

**ORGANIZATION OF THE HWF PLANNING SYSTEM** (staff, competences, workflow, responsibilities)

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| **Main aspects** | Description / Examples | Documents |
| At what level does workforce planning take place?   1. Regional (local). 2. National (central). 3. Separated between central administrations and regional (local) administrations. 4. Shared among central administrations and regional (local) administrations. | National and regional.  Workforce planning institution : Danish Health and Medicines Authority (DHMA)  The Danish Health and Medicines Authority produces forecasts for the supply of medical doctors, dentists, clinical dental technicians and dental hygienists.  The Danish Health and Medicines Authority determine the number of postgraduate education posts for medical and dental specialists in each speciality and within regions.  The Danish Health and Medicines 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.  Coordination is for medical doctors achieved through the Planning and forecasting committee, which Is a subcommittee to the National Council for Postgraduate Medical Education that advise the Danish Health and Medicines Authority  Coordination is for the dental professions are achieved through the Planning and forecasting committee, which Is a subcommittee to the National Council for Postgraduate Dental Education  The Danish Regions regulate the geographic distribution of general practitioners through the access to provider numbers. The provider number identifies physicians that are permitted to be reimbursed by the public tax based health system. |  |
| Staff members.   1. How many people are involved in the planning institution? 2. Which competence profile? 3. Other people involved from external organizations? | **People employed by the Danish Health and Medicines Authority**  1 medical doctor, senior medical officer and the head of the division  1 dentist, Ph.d  1 special adviser, *Master of Science in Political Science*  **People from external organisation (Statens Serum Institut)**  1 person, statistician    Total pr. Year: 0,5 FTE. |  |
| Specialization of the staff members.   1. Staff members specialized for single professions. 2. Staff members competent for all professions. | The medical doctor is due to her position as head of division involved in the forecasting for all professions  The master of science in political science is involved in the forecasting for all professions  The dentist is involved in the forecasting for the dental professions. |  |
| Organization of the workflow.   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. | 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 6. The Forecast is presented for the Committee members wha have a chance to commenton the forecast before it is published 7. Publication |  |
| Organization of the stakeholders representation.  Please, describe the involvement in the decision making process of the stakeholders and, if possible, design the chart. | For the forecasting of supply of doctors some of the stakeholders participate in the Planning and forecasting committee.  During preparation of the plan for how many medical 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 the forecasting of supply of dentists some of the stakeholders participate in the Planning and forecasting committee.  During preparation of the plan for how many 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. (Source: OECD Study)  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. |  |
| Which are the stakeholders involved?   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. | * Public health care producers * Health care trainers * Health care workforce through their professional orders   The Stakeholders involved 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 |  |
| Which is the role of the stakeholders?   1. Contributing to give advices. 2. Contributing to the take the decisions. | 1. Contributing to give advices. 2. Contributing to the take the decisions.   The stakeholders take part in selecting the assumptions used in the supply forecast.  The stakeholders advise DHMA regarding the yearly number of postgraduate training posts |  |
| Responsabilities in the decision making process:  In the process to reach the defined goals, the responsibility of the final decision is up to   1. One subject (who?); 2. Two or more subject (shared responsibility). | The Danish Health and Medicines Authority decide the yearly number of postgraduate education post for medical and dental specialists.  The minister for higher education on the basis of advice from the Danish Health and Medicines Authority decide the student intake for medical doctors, dental, clinical dental technicians and dental hygienists |  |
| Communication:  How the decisions regarding “the goals” and “the results” are communicated/ published?   1. Goals; 2. Results. | 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 plans which determine the yearly number of postgraduate training posts for medical and dental specialists within specialty and region. |  |

**GOALS OF THE HWF PLANNING SYSTEM** (reporting and describing the goals of the HWF planning system)

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| **Main aspects** | Description / Examples | Documents |
| The goals are   1. Explicit or Implicit (communicated or not); 2. Specific or Generic (type of objective); 3. Measurable or not (is it possible to set indicator?; 4. Attainable (is there an action plan) or not; 5. Realistic (are there restriction?) or not; 6. Timely or not (is set a time frame to reach the target? If so, which time frame?). | Adapt the supply to the variations of the demand: the number of training posts in the medical specialities is decided on the basis of qualititaive 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 medicial specialists * Monitor and observe the current and future supply of workforce   ( |  |

**CONTROL AND CONTINOUS IMPROVEMENT OF THE HWF PLANNING PROCESS** (Deming cycle: Plan, Do, Check, Act)

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| **Main aspects** | Description / Examples | Documents |
| Plan  Which “objects” are taking into account in the planning?   1. Skills needed. 2. Future professional mix. 3. Quantity of professionals. 4. Future working conditions. 5. Future necessary changes in training. | To model the current and future supply of workforce  A regular report is produced for the 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 output is received by minister, regions, experts and the wider public. | Report for dentist:  <http://sundhedsstyrelsen.dk/publ/Publ2013/12dec/Tandplejeprognose2013_2035.pdf>  Report for medical specialists:  <http://sundhedsstyrelsen.dk/publ/Publ2013/02feb/Laegeprogn2035.pdf>  Dental specialists dimensioning plan 2010-2014 and 2015-2019  <http://www.sst.dk/~/media/Uddannelse%20og%20autorisation/Prognose%20og%20dimensionering/Tandlaeger/Dimensioneringsplan2010_2014.ashx>  <http://sundhedsstyrelsen.dk/da/uddannelse-autorisation/special-og-videreuddannelse/prognose-og-dimensionering/~/media/56CE3E72A3E54886B8BBB656A9F939C7.ashx>  Medical specialists dimensioning plans 2008-2012 and 2013-2017  <http://www.sst.dk/~/media/Uddannelse%20og%20autorisation/Prognose%20og%20dimensionering/Dimensioneringsplaner/Dimplan_2008-2012_310311.ashx>  <http://sundhedsstyrelsen.dk/da/uddannelse-autorisation/special-og-videreuddannelse/prognose-og-dimensionering/~/media/B19C3BD8AD734793B5B2BF9A998F23C7.ashx> |
| Which are levers and actions that planners can manage to reach the goals?   1. barriers to university (basic degree); 2. barriers to specialization; 3. barriers to and/or specific authorizations to work; 4. other levers or actions. | 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. |
| Do  How are the plans realized and who is involved? | 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 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. |  |
| Check  How are goals and actions checked?  Who is the checker? | 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 periods in the preparation of dimensioning plans 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. |  |
| Act  Are there any example or documentation on acts to correct the activities in order to reach the goals?  Who is in charge of acting if the objectives are not reached?  Are there any examples of re-actions to external events (for example increase/decrease in working hours or in retirement age introduced for economic reasons)? | 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.  The retirment age was in 2011 increased by the politicians. |  |

**DATA ON CURRENT SITUATION ON SUPPLY SIDE** (What are the supply side data on the current stock and flow and how they are collected)

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| **Main aspects** | Description / Examples | Documents |
| Data sources  Is there a unique database with data stored in for the planning purposes? | There are databases with data used for planning purposes. The databases are however not only for planning purposes. |  |
| The database contains:   1. Aggregated data 2. Individual data | The Authorization Register contains individual and aggregated data  The mobility register contains aggregated data |
| Which are the data sources?   1. Unique 2. Multiple | Data is gathered from three main sources:  1) Authorization Register (Autorisationsregistret): managed by the Danish Health and Medicines Authority and collects data on authorized health personnel.  2) Occupation Register (Beskæftigelsesregistret): 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 (Bevægelsesregistret).  3) Human resources reports from hospitals are used separately to estimate current demand for doctors. Only public hospitals are included.  (Source: Matrix Feasibility Study) |
| Who reports the data? | 1) Health personnel themselves in relation to application for authorization  2) Danish Statistical Office (Danmarks Statistik)  3) HR departments in hospitals  (Source: Matrix Feasibility Study) |
| Timely Data  Now you are working on supply side data regarding which year?   1. 2014 2. 2013 3. … | The mobility register at the moment contains data from 2010.  The Authorization Register contains data from 2014 |  |
| Data collection  Which Is the data collection main purpose?   1. Specifically for planning 2. For other purposes and used for planning. | The Authorization Registers main purpose is to have a database of all persons with authorization within a specific profession  The Mobility registers main purpose is to generate data showing the current and historic number of employed health personnel within professions and sectors and regions |  |
| List of the data collected for planning (indicating also the data used by the mathematical forecasting model) | Starting stock of each profession   * Age * Gender * Number of unemployed * Geographical distribution * Place of work * Headcount   Inflow   * Age * Gender * Immigration * headcount   Outflow   * retirement * emigration * mortality rate * headcount   Leave of absence   * for example maternity leave * headcount |  |

**MATHEMATICAL FORECASTING MODEL** (How future scenarios are made? How future HWF needs are calculated?)

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| **Main aspects** | Description / Examples | Documents |
| The projections concern   1. Only Supply 2. Supply and Demand 3. Supply and population needs | Based on authorization data and social security data, the Danish Health and Medicines Authority produces reports which forecast the supply of medical doctors, dentist, Clinical Dental Technicians and dental hygienists. This feeds into the decisions on student intake and the distribution of specialization positions.  No real demand forecasting. The forecast however include a projection of the demand if the current ratio of doctors per inhabitant is to be maintained |  |
| Is your projection segmented along different health service delivery settings? Which delivery settings does the projection take into account?  (e.g. Hospitals vs. Ambulatory Health Care; Public vs. Private Sector) | The projection isn’t segmented.  The projection takes both public and private sector into account.  (Source: OECD study) |  |
| Does the model take into account any interaction between demand and supply?  (e.g. supply-induced demand) | No |  |
| Which are the projection periods? | The projection period is 20-25 years  This time horizon is necessary in accordance to the planning of postgraduate medical and dental education.  There is a number of insecurity factors linked to forward projection of medical manpower that stretches so far in to the future. The result of such projections is a complex interaction of socio, economical and political factors. The further in to the future the projection gets the more insecure the forecast becomes. (Source: OECD study) |  |
| Do you explore the consequences of health workforce projections in relation to other health system goals?  (E.g. access to care, quality of care, cost containment)? | No (Source: OECD Study) |  |
| How frequently do you update health workforce forecasting exercises? | The plans that outline the number of postgraduate training posts are prepared every five years.  The forecast is made every second or third year  (Source: OECD Study) |  |
| Integration of different professional groups  Does the forecasting model take into account any kind of   1. horizontal integration (different specialties within the professional group) or 2. Vertical integration (different professional groups) | No modeled interactions between professionals. Only qualitative consideration in the planning process.  (Source: WP5 Survey) |  |
| Forecasting methods used   1. Only quantitative methods 2. Only qualitative methods 3. Combination of quantitative and qualitative methods | For the supply forecast only a quantitative method is used.  In the assessment of future demand only a qualitative method is used. |  |
| Quantitative forecasting method  Which statistical forecasting method is used?   1. Classical time series analysis 2. Stochastic time series analysis 3. Multiple Regression Analysis 4. Other | It’s a combination of classical time series analysis and logistic regression analysis. |  |
| Qualitative forecasting method (if used)   1. Delphi 2. Brainstorming 3. Market survey 4. Other | All relevant stakeholders are invited to come with their assessment of the future demand within a given profession or specialty. This is done through a hearing process.  The Danish Health and Medicines Authority don’t produce a forecast on the basis of the stakeholders assessments. |  |
| Evaluation of forecast   1. Forecast error calculation (MAD, percent confidence interval, tracking signal, etc) 2. Test on historical data 3. Others. | No evaluation is made. |  |
| Scenario analysis   1. Just one scenario developed 2. More scenarios developed with not adjustable assumptions 3. More scenarios developed with adjustable assumptions | In the current forecasts for medical doctors no scenarios are explored  In the current forecast for the dental professions different scenarios for the supply are explored on the basis of changed training capacity. |  |

1. See document in Sharepoint at

   https://collab.health.fgov.be/sites/dg1/CW/JAEUHWF/WP\_5/Shared%20Documents/D052%20Handbook%20on%20planning%20methodologies/140312\_Inclusioncriteriaforassessmentofplanningmethodologies\_WP5\_PM.docx . [↑](#footnote-ref-1)