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.
 | The Advisory Committee on Medical Manpower Planning (**ACMMP**, *Capaciteitsorgaan*) is the organisation which does the planning for doctors, dentists, mental health professions and specialized nurses (and related professions). This workforce planning is done at a national level. The rationale behind it is that the Netherlands is a small country (100\*200 miles). Academic trained professions migrate fairly easily inside the Netherlands. Further more there is a **research programme** monitoring effects on the labour market in the health sector concerning general nurses, assistant-nurses, care-takers, social workers and home helpers. They differentiate per region (sometimes even on local level): this level of care knows significant regional differences.  |  |
| Staff members.1. How many people are involved in the planning institution?
2. Which competence profile?
3. Other people involved from external organizations?
 | 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 organisations 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 **research programme** includes 3 expert organizations on health labour market. The precise amount of people involved is unknown. Many stakeholders, such as employers and experts on the health labour market are involved e.g..by participating in the supervisory committees.A range of data from e.g.. the Central Bureau of Statistics (CBS) is used. |  |
| Specialization of the staff members.1. Staff members specialized for single professions.
2. Staff members competent for all professions.
 | 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 hers professions; The principal staff member/ profession combinations are:Joris Meegdes: clinical specialismsTeus Vertooren: mental health professionsAndré Esch: general practitionersTineke Zijlstra: physicians for the elderly/ mentally disabledAlies Zandbergen: dentists, oral hygienists, maxillofacial surgeons, orthodontistsEllen Dankers: paramedical professions, nurse practitioners, physician assistantsVictor Slenter: medical graduates, social medicine physicians.The **research programme** involves persons with specialized knowledge and general knowledge.  |  |
| 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 ministry currently has two contracts in place for data collation, 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 programme**.. |  |
| Organization of the stakeholders representation.Please, describe the involvement in the decision making process of the stakeholders and, if possible, design the chart. | 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. The **research programme** meets the stakeholders regularly to discuss their model and outcomes. Many stakeholders, such as employers and experts on the health labour market are involved f.i. by participating in the supervisory committees. |  |
| 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.
 | **ACMMP**The stakeholders are shareholders at the same time. There are three parties: The health care workforce, the health care training institutes, and the health care insurance companies. The parties are each represented with 8 seats in the board of the ACMMP. **Research programme**Mainly employers and experts on the health labour market are involved. |  |
| Which is the role of the stakeholders?1. Contributing to give advices.
2. Contributing to the take the decisions.
 | **ACMMP**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. **Research programme**The research programme has a different approach than the ACMMP. Reason is the difference in possible influences and therefore the dissimilar goal. The ACMMP concerns professions with an inflow in education controlled by the government. Hereby the government controls the inflow in the profession. The research programme concerns professions on who the government does not have a direct influence in the inflow of the profession through controlling the entrance of the education. Influence is only possible by policy on the labour market.Goal of the research programs is giving insight in the current and possible future situation of the health workforce with the goal to react proactively when and where necessary. Involved stakeholder all have their own responsibility in acting accordingly on the given information.The information gathered is discussed with a range of experts and a final forecast for the next four to five years is presented yearly to the stakeholders and published on line.. |  |
| Responsabilities in the decision making process:In the process to reach the defined goals, the responsibility of the final decision is up to1. One subject (who?);
2. Two or more subject (shared responsibility).
 | **ACCMP**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 upo to the point where they are presented to the CEO.**Research programme**All stakeholders together have to agree on the final forecast. An conclusive advice is not included. Involved stakeholder all have their own responsibility in acting accordingly on the final forecast. |  |
| Communication: How the decisions regarding “the goals” and “the results” are communicated/ published?1. Goals;
2. Results.
 | **ACCMP**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.**Research programme**It concerns a yearly publication with a forecast for the coming 4 to 5 years.. The information is publish on a website as well as in an official report to the ministry of Health, Welfare and Sports. | 2010 and 2013 recommendationsArbeidsmarkt-effectrapportage  |

**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 are1. 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?).
 | **ACCMP**The statutory objectives are:* 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 programme. 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.**Research Programme**In contrast to the goals of the ACCMP, the goal of the research programme is not to precisely predict any shortages or surpluses in the different regions. The goal is to signal trends on the labour market on which base the stakeholders can adapt their policy.Involved stakeholder all have their own responsibility in acting accordingly on the given information. |  |

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

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| **Main aspects** | Description / Examples | Documents |
| PlanWhich “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.
 | **ACCMP**The 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.The data obtained is then combined into a quantitative Excel based-model, with typically nine scenarios on estimated training numbers for each medical specialism within a given time period developed. The ACMMP discusses the findings with experts chosen from the professional associations, health insurance companies and universities to develop advice on the most likely scenario (in practice, two will usually be recommended). The final option(s) are communicated to the Ministry of Health, Welfare and Sports (VWS). **Research programma**The programme is a monitoring programme (not a planning programme), monitoring changes in the labour market in the past, trying to explain these changes and based on these explainings forecasting the future. It is based on financial and policy measurement and the resulting reaction of the labour market. It takes into account * the need of replacement (because of age)
* the need for grow of the workforce
* the inflow and outflow on the labour market

A regional Tool which will be available in early 2013. With this tool stakeholders can insert their own objects in the forecasting model. For example, the intention of a regional hospital to move to another region in the next year. |  |
| 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.
 | **ACCMP**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.

**Research programma**Different levers concerning the labour market and personnel policy (e.g.. hiring or firing personnel, more/less education) |
| DoHow are the plans realized and who is involved? | **ACCMP**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. **Research Programme**Involved stakeholder all have their own responsibility in acting accordingly on the given information. |  |
| CheckHow are goals and actions checked? Who is the checker? | **ACMMP**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.**Research Programma**Stakeholders decide together. | See left column |
| ActAre 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)? | **ACMMP**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. |  |

**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 sourcesIs there a unique database with data stored in for the planning purposes? | There are two different approaches to workforce planning, one for physicians and one for nurses and care assistants, each uses a different range of data sources.**ACMMP**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. **Research programme**Researchers use a range of micro data collected from hospitals and municipalities by the CBS, including labour workforce surveys.In addition, specialist agencies such as NIVEL provide research and advice to the government, insurance companies, professional associations, and other agencies. |  |
| The database contains:1. Aggregated data
2. Individual data
 | The databases contain most of the time individual data that can be aggregated for the ACMMP in a number of ways.  |
| Which are the data sources?1. Unique
2. Multiple
 | Multiple:e.g. 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)
 |
| Who reports the data? | Every named organization on a yearly or monthly basis on demand. |
| Timely DataNow you are working on supply side data regarding which year?1. 2014
2. 2013
3. …
 | In 2013 we were using supply side data from januari 1th 2013 on the persons, corrected for fte on the most reliable data from 2010. The rest of the supply side data are as of January 1th 2013. We have all of these data at least back to 2000, sometimes even much older.  |  |
| Data collectionWhich Is the data collection main purpose?1. Specifically for planning
2. For other purposes and used for planning.
 | The data are collected for all kinds of purposes, but never for planning. Data collection for planning purposes is done on specific occasions only on our behalf. |  |
| List of the data collected for planning (indicating also the data used by the mathematical forecasting model) | Data collected:Supply side:* Number of persons, age and sex
* Distribution of fte
* Employer characteristics
* Attrition rates due to retirement, unability to work, death
* Inflow from other countries

Demand side:* Demographic changes
* Epidemiological changes
* Sociocultural changes
* Policy changes

Working process:* Technological improvements
* Information improvements
* Professional improvements
* Working hours changes
* Horizontal substitution
* Vertical substitution

Training characteristics :* Number in training, gender specific
* Attrition rate
* Duration of training
* Expected attrition after training ends
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**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 concern1. Only Supply
2. Supply and Demand
3. Supply and population needs
 | The ACMMP and the research programme use demand and supply projections.**ACMMP**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.  |  |
| 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) | **ACMMP**There is no segmenting, since the ACMMP states that all medical and nursing professions are interlinked by substitution.**Research Programme**The programme breakes down the forecasts into 7 sectors: Hospitals, eldery care, handicapped care, mental care, youthcare, child care, and others (combines the rest).  |  |
| Does the model take into account any interaction between demand and supply?(e.g. supply-induced demand) | No. |  |
| Which are the projection periods? | **ACMMP**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).**Research Programme**It looks 4-5 years ahead. | Recommendations 2013 |
| 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)? | **ACMMP**: only access to care.  |  |
| How frequently do you update health workforce forecasting exercises? | **ACMMP**:Updates are scheduled 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.**Research Programme**: yearly |  |
| Integration of different professional groupsDoes 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)
 | Out of the standard 9 scenario ’s of the ACMMP there are 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. For the last 3 advices (2005, 2008, and 2010) the government decided on accepting scenario’s that take into account only horizontal substitution. **Research Programme**: no |  |
| Forecasting methods used1. Only quantitative methods
2. Only qualitative methods
3. Combination of quantitative and qualitative methods
 | The 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. |  |
| Quantitative forecasting methodWhich statistical forecasting method is used?1. Classical time series analysis
2. Stochastic time series analysis
3. Multiple Regression Analysis
4. Other
 | The statistical method used by the ACMMP is a classical time series analysis. |  |
| Qualitative forecasting method (if used)1. Delphi
2. Brainstorming
3. Market survey
4. Other
 | Qualitative forecasting is done with Delphi methods, experts agreeing on most likely scenario ‘s, and consumer panels. |  |
| Evaluation of forecast1. Forecast error calculation (MAD, percent confidence interval, tracking signal, etc)
2. Test on historical data
3. Others.
 | The ACMMP does not use forecasts of the error calculation. There have been tests on the historical data, tests on the reliability of the model, sensitivity tests, and research on the acceptance of the model by the health field. |  |
| Scenario analysis 1. Just one scenario developed
2. More scenarios developed with not adjustable assumptions
3. More scenarios developed with adjustable assumptions
 | **ACMMP**The ACMMP uses 9 scenario ‘s. The assumptions are adjustable in the model.**Research programme:** not applicable |  |

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)