

- FORECASTING THE DEMAND FOR DENTIST IN THE DUTCH PLANNING SYSTEM

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Main aspects:

- *The Dutch forecasting model produces different scenarios on the base of different pattern values and any parameter can be changed in the model, e.g. the percentage of men entering the training programs*
- *It considers a high and a low value for a number of the parameters of yearly change rated by the experts;*
- *The different scenarios are based on 6 incremental scenarios with low values and two scenarios with high values for the parameters;*
- *All scenarios are based on either an ongoing trend or a trend that ceases after 10 years;*
- *Starting with the unmet demand, three parameters are taken into account: the demographic parameter, the epidemiological parameter. The socio-cultural parameter.*

Description:

In 2006, a Dutch committee installed by government to advise on a one year extension of the 5-year study to become a dentist, concluded that little was known about the labour market for dentists in the Netherlands. Thereupon, the Ministry of Health, Welfare and Sports requested the ACMMP to explore the labour market for dentists and oral hygienists. The ACMMP has done so until 2014.

In this experience on the forecasting of the demand side they extend the unmet demand with the other 3 parameters on expected demography, epidemiology, and sociocultural changes. Starting with the unmet demand, the activity related to it was a custom made survey. There were no readily available data on the demand for dentists. This survey was actually done in 2012 by NIVEL on regional differences in the supply of dentists. In this study the age of the dentists was taken into account also. A province with a



relatively low number of dentists per 10.000 inhabitants or with much elderly dentists and few young dentists was considered a province at risk of having an unmet demand.

For the demographic parameter on the demand for dentists, they start out with the most recent forecasts of Statistics Netherlands (CBS) on the future. In the table below the forecast on the population of The Netherlands between 2011 and 2031 is shown.

AGE	#2011	#2025	#2031	IN-/DECREASE IN %
0-20 YEARS	3.913.819	3.705.141	3.743.002	-4.3%
20-45 YEARS	5.458.524	5.323.986	5.365.071	-1.7%
45-65 YEARS	4.688.510	4.573.752	4.244.724	-9.4%
65+ YEARS	2.594.946	3.786.220	4.275.336	+64.8%
TOTAL	16.655.799	17.389.099	17.628.133	+5.8%

Source: Statistics Netherlands January 1st, 2012

The increase of the Dutch population in the next 18 years is exclusively realised in the age compartment of 65 years and older. The ACMMP has age specific utilization ratios for dentistry for the years 2007, 2010 and 2011. In this way we can estimate the impact the demographic changes have on the demand for dentists.

The strength of the demographic parameter is high under regular circumstances. The data on the forecasts of the population are based on the “middle” scenario of Statistics Netherlands. The age-specific utilization ratios are based on a structural on-going population survey amongst 9.000 regularly changing inhabitants.

For the epidemiologic parameter, the ACMMP could use the results of structural surveys done by the College for Health Insurances (NZI) in 2007, 2010, 2011 and 2013. The 2007 survey still expected a worsening of the dental health amongst youngsters and extra demand amongst (mentally) handicapped and elderly in nursing homes. The 2010, 2011 and 2013 surveys were only done for youngsters up to 23 years of age. Therefore, the



ACMMP interviewed dental experts on the (mentally) handicapped and geriatric fields to get more reliable insights into the developments on dental health in these subgroups.

The strength of the epidemiological parameter is mediocre at best. Though there are sound data on the dental status of the population between 0 and 20 years, there has not been a usable survey on the dental status of adults since 2007. They had to rely heavily on the results of surveys of experts as far as (mentally) handicapped and elderly in nursing homes were concerned.

The sociocultural parameter is tricky. From the analysis of the utilization data, there seems to be an increase of demand amongst elderly for complex dental care. For this reason, we had some research done on the volume of implant dentistry. The necessary data was retrieved from the compiled database of Health Insurers Netherland (Zorgverzekeraars Nederland), which has coverage of close to 96% of the dentist declarations on the Dutch market.

Furthermore, there are some indications that the group between 45 and 65 years is also having more complex (and time-consuming) dental care than 5 to 10 years ago. On the other hand, dental care for adults is not covered by the Health Insurance Act which means that the demand for complex dental care is affected by economic aspects. One can insure him/ herself additionally for dental care but this is costly and there is a negative selection bias in people asking coverage. In the last two years, people tended to postpone the preventive visit to the dentist due to financial motives and low consumer's faith in economic relapse.

Results:

For the unmet demand, the NIVEL survey concluded that out of the 12 provinces, 3 were considered regions at risk of getting an unmet demand. Opposed to these regions there were other regions with a relatively high number of dentists per 10.000 inhabitants. These findings are consistent with the image of small regional shortages, partially compensated by regions with a slight oversupply of dentists. Having considered these data, the experts maintained their 2010 estimate of 1% unmet demand.

The demographic parameter is a bit more complicated. Different age categories have different utilization ratios. In the table below the utilization ratio's in 2031 (*percentage persons with at least one visit to the dentist*) for the different age categories are demonstrated based on two approximations: the first based on the average utilization



ratios for the period 2010-2011, the two most recent years. The second based on the average utilization ratio's for the period 2007-2011, which comprises a much longer period.

AGE	BASED ON AVERAGE 2010-2011	BASED ON AVERAGE 2007-2011
0-20 YEARS	82.2%	82.2%
20-45 YEARS	83.9%	84.6%
45-65 YEARS	80.7%	80.3%
65+ YEARS	54.8%	53.3%

Source: NIVEL

The table shows clearly that the part of the population aged 65 years and older has considerably less contact with the dentist than the younger categories. A significant increase of the elderly implies not necessarily a significant increase in the demand for dentistry.

Multiplying the age-specific number of inhabitants that have visited the dentist with the average number of visits per person (not shown) results in the total number of dentist visits that will take place in The Netherlands by 2031. Based on table 2, two different projections have been made. If we use the average visit ratio from the longer period 2007-2011, the number of dentist visits will decline from 39,1 million in 2011 to 38,5 million in 2031. Based on the average of the two most recent years, the number of dentist visits will rise to 40,2 million. There was no strong case for any of the two projections, so the experts decided to average the two. Based on the average, there will be a slight increase in the demand of 0,85% in a 10 year period. In the recommendations 2010 the ACMMP still used 3,0% as the demographic change in 10 years.

The epidemiological changes in dentistry are twofold, the expected changes in juvenile dental health and (mentally) handicapped and elderly. The surveys by NZI in 2010, 2011, and 2013 showed no evidence for a decline of the dental health amongst youngsters. The interviews of dental experts in the (mentally) handicapped and elderly in nursing homes gave some indication of the (poor) dental health of persons in nursing homes.



It is expected that these groups will need more explicit attention in the near future. The experts decided that the two countervailing trends would be best expressed by maintaining the 2010 value of 3% change needed in 10 years.

Also there are data that suggest that the proportion of elderly edentate people is slowly declining. This is not accounted for under epidemiology, but in sociocultural changes. The elderly are visiting the dentist more frequent than in the past (as can be observed from table 2) and they get more complex treatments. The volume of implants among elderly has been expanding only mildly for the years 2009-2011. On this basis, the parameter for sociocultural change has been set to 3% in 10 years.

Helpful tips:

- *In addition to the indicator “number of visits to the dentist” for the forecasts on the future demand, it would be very useful to get more insight in the average “chair time” a patient has in the dentist’s chair yearly.*
- *For epidemiology, a better understanding of the dental health of adults could improve the rational evaluation of this parameter. The structural monitoring of dental health amongst juveniles should be expanded to adults again.*
- *Sociocultural changes can be examined by using consumer panels. The ACMMP had used this technique for the projections on dental demand on the case of vertical substitution of dentists by oral hygienists and it is promising, but basically it is a “what if...” technique.*
- *If the population composition is straight, one might consider abolishing age specific utilization ratios for a quick implementation. However, usually the population is not straight; there is e.g. substantial immigration/ emigration or there is significant ageing of the population. In that case, a survey amongst a small part of the population can yield the needed data for a quick implementation within six months.*
- *Sometimes, epidemiologic data can be retrieved from monitors or scientific research in the member state.*
- *Considering that sociocultural changes are only rarely documented for demand purposes, the expert opinion can be leading in this field.*

Further information:

The 2010 Recommendations for Medical Specialist Training <http://www.capaciteitsorgaan.nl/Portals/0/capaciteitsorgaan/publicaties/capaciteitsplan2010/0%20Capaciteitsplan%20Hoofdrapport%20Engels.pdf>

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

Capaciteitsplan 2010: deelrapport 3; mondzorg http://www.capaciteitsorgaan.nl/Portals/0/capaciteitsorgaan/publicaties/capaciteitsplan2010/Deelrap3_Mondzorg.pdf

Capaciteitsplan 2013: deelrapport 3; mondzorg <http://www.capaciteitsorgaan.nl/Portals/0/capaciteitsorgaan/publicaties/Capaciteitsplan%202013/Capaciteitsplan%202013%20>



[Deelrapport%203%20Mondzorg.pdf](#)

Regionale spreiding van de eerstelijns mondzorgcapaciteit in Nederland 2010-2012 http://www.capaciteitsorgaan.nl/Portals/0/NIVEL%20%282013%29%20Regionale%20spreiding%20tandartsen%20en%20mondhygi%C3%ABnisten_DEF_metkaft.pdf

Hove, ten M. & Yerro, R. ben. (2013). Volume Implantologie Kaakchirurgie en Mondzorg. Vektis

