AUTHORS
Hubert Jamart, M.D.; Pierre Drielsma, M.D., Ph.D.; Myriam Suetens, MA; Prof. Jan De Maeseneer, M.D., Ph.D.

KEYWORDS
capitation-fee; needs-based; alternative financing; health inequalities; multivariate regression

SUMMARY
To improve the predicted value of the model that forecast the burden of care for primary health care providers through the development of a system of needs-based capitation.

CONTEXT
In Belgium, most of the primary health care providers (family physicians, physiotherapists and nurses) work in fee-for-service (97.5% of the population). However, 2.5% of the Belgian population is looked after in a capitation system. The actual model for the calculation of the financing of the capitation system is based on the national average cost for primary care in the fee-for-service system, increased with 10% because of the higher prevalence of social problems in the capitated population, another 10% because of the way capitated health care centers work (less hospitalisation, less use of medical imaging and lab-tests) and a decrease with 10% of the denominator (because 10% of the population in the fee-for-service system does not use at all primary care). This leads to different categories that define the amount providers receive in the capitated system. The actual predictive power of this model is weak ($R^2 = 0.10$).

This model is split into four separate ranges according to the social status of patients for the three sorts of care providers as below in the official version you can find on the NIHDI website:

As you can see, we therefore have a 12 ‘pixel’ matrix.

STATE OF THE ART
Actually, there is, at macro-level, a predictive model that is used to calculate the financial accountability of the sickness funds, in order to calculate the burden of care of the members of the different sickness funds in Belgium. However, this model focuses the total costs, not only the costs in primary health care. Internationally, different models have developed that try to make predictions for costs (e.g. Starfield B: Adjusted Clinical Groups). In the National Institute for Health and Disability Insurance (NIHDI) in Belgium, a working party of the commission that negotiates the capitation system, has developed a model, adapted from the model used for the sickness funds, utilising a multi-variate linear regression model. The actual predicted value of the model varies from $R^2 = 0.26$ to $R^2 = 0.40$ according to the setting and the valuables used.

STATEMENTS FOR DEBATE
The search for a financing system that is more appropriate for the financing of capitated Community Health Centers should be built on a needs-based capitation system in Belgium. Multiple indicators are used to define e.g. pathologies, social factors, functional status. Morbidity-determinants are approached indirectly through utilisation of certain groups of medication, through hospitalisation…. In the future, every Community Health Center, could receive financing, based on the needs of the patients on the list, utilising multi-variate linear regression.

ORGANISATION
The European Forum for primary care (EFPC)

EVENT
The Future of Primary Health Care in Europe IV – “Crossing Borders in Primary Care” – Gothenburg 3-4 September 2012

BEHIND THE AGE/SEX, THE MAIN VARIABLES THAT ARE USED FOR THE MODEL ARE:
- Widow
- Low income: <15,000€
- Self-employed workers
- Deceased in that year
- Disability
- Urbanisation index in the neighbourhood
- Medical supply index in the neighbourhood
- Handicap
- Help from public welfare centres
- Impaired functional status
- Cardiac diseases
- COPD
- Asthma
- Cystic fibrosis
- Diabetes combined with chronic cardiac condition
- IDD
- NIID
- Exocrine pancreatic diseases
- Pneumonia
- Rheumatoid arthritis, Crohn's disease, ulcero-hemorragic recto-colitis
- Psychosis: young adults
- Psychosis: elderly people
- Parkinson's disease
- Epilepsy
- HIV
- Chronic hepatitis B & C
- Multiple sclerosis
- Post-transplant immunosupression
- Alzheimer
- Thyroid diseases
- Thrombosis
- Coagulation disorders
- Protected habitat

When we cross these health elements all together in the multi variate linear regression you actually get a theoretical average of $2^{12}$ combinations x 41 age/sex ‘pixels’ in this new matrix.