

meet eligibility criteria when compared with their Caucasian counterparts. These identified shortcomings related to MTM delivery within the Part D population remain unresolved. In order to target beneficiaries that will benefit most from MTM services, and ensure optimal outcomes in all MTM delivery settings, our recommendations to CMS are as follows: CMS should incorporate medication adherence measures into annual MTM eligibility criteria; CMS should require that plan sponsors adhere to the industry standard of including at least 25% of their total Part D population in MTM programs; CMS should include MTM outcomes data in the determination of health plan star ratings and reimbursement structures; and CMS should require health plans and affiliated healthcare organizations to grant MTM providers access to patients' electronic medical records.

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COMMERCIAL HEALTH INSURANCE – A NEW POWER TO PUSH CHINA HEALTHCARE REFORM FORWARD?

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Astrazeneca (China), Beijing, China, Commercial health insurance – A new power to push China healthcare reform forward?

BACKGROUND: The coverage and payment level of China basic medical insurance grew rapidly during the healthcare reform. Those growth leads huge pressure to the financing mechanism. How to well allocate limited budget is a challenge. Thus the government started to buy commercial health insurance for some critical diseases for people since 2012. In 2014, the State Council further published 2 notifications to encourage commercial insurance agencies to take more responsibility in healthcare. **METHOD:** This article searched and reviewed the studies for the medical insurance system of China, US (the country with the largest commercial insurance system) and UK (typical universal welfare country), then compared social environment (population, age structure and etc.), economic status, government structure and medical insurance system among the 3 countries, to discuss the possibility that commercial health insurance can solve the challenge in the reform. **RESULTS AND DISCUSSION:** Those factors compared are different and decide that commercial health insurance will play different role. Although China government wish to provide universal basic medical insurance like UK, while the limited inputs pushed the government have to consider US mode. The policies from the State Council in 2014 encouraged commercial insurance agencies “comprehensive interfere in the management of medical insurance”, and “give more preference to commercial insurance”. However commercial health insurance is hard to relieve the financial pressure in the reform: 1. Currently commercial insurance agencies are only allowed to interfere in critical diseases and will face high risk (and potential loss); 2. The government only allow state-owned agencies to participate, hence government still needs to pay the bill for the potential loss; 3. Unlike US, all Chinese residents should participate basic medical insurance, and the financial pressure will continue to increase due to aging population.

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PATIENT REGISTRIES IN INDIA – NATIONAL CANCER REGISTRY PROGRAM

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A patient registry is defined, by Gliklich and Dreyer, as “an organized system that uses observational study methods to collect uniform data (clinical and other) to evaluate specified outcomes for a population defined by a particular disease, condition or exposure, and that serves one or more predetermined scientific, clinical, or policy purposes”. In a vast country like India it is important to have patient registries in order to understand epidemiology and plan healthcare programs effectively in order to reduce morbidity and mortality, and develop a long term strategy to provide appropriate care to patients. First such registry was started in India by Indian Council of Medical Research (ICMR) in December 1981, which was a network of cancer registries across the country. This program was termed National Cancer Registry Program (NCRP). The objectives of the NCRP were to generate reliable data on magnitude and patterns of cancer, undertake epidemiological studies, provide strategies for National Cancer Control Program and Develop human resource in cancer registration and epidemiology. The data for NCRP is collected through hospital based cancer registry and population based cancer registry. The NCRP has generated invaluable human resources in cancer epidemiology and registration. The registry has provided high level data on cancer occurrence, which is used for National Cancer Control Program (NCCP). However, the notification of cancer cases by public and private hospitals, for NCRP, is not mandatory. This might lead to possibility of many cancer cases go unnoticed. A mechanism to have nodal agencies to collect and collate data from public and private hospitals as well as private nursing homes, through legislation mandating compulsory reporting of cancer cases might provide much more useful information on epidemiology, morbidity and mortality cases along with future direction for designing intervention strategies.

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HEALTH DATA ENTANGLEMENT AND ARTIFICIAL INTELLIGENCE-BASED ANALYSES TO IMPROVE THE EFFECTIVENESS OF SERVICES AND TACKLE THE HEALTHCARE SPENDING GROWTH

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Healthcare spending has been keeping on rising faster than national gross domestic product. The public healthcare expenditure can be associated with two major key categories: demographic and economic drivers. The increase of healthcare budget in response to growing demand without its assessment and governance is no longer a valuable option. Health data are essential because their analyses give the chance

to allow a better comprehension of health events experienced in patients' real life. Moreover, it is worth noting that health data are also extremely important as a compelling tool in evaluation and advancement of health governance. In spite of its magnitude in the overall economy, the tangled key elements that drive healthcare expenditure have been rarely recognised, measured and comprehended. To tackle the healthcare spending growth, it may be useful to design and implement an effective, advanced system to generate and analyse real and qualified health data. To this purpose, the methodological approach given by the Health Data Entanglement is a particularly suitable option. Entanglement concept is borrowed from quantum physics and means that multiple particles (or information) are linked together in a way such that the measurement of one particle's quantum state (in our context, individual health conditions and related economic requirements) determines the possible quantum states of other particles (i.e. population health forecasts to predict their overall impact and support policy decisions). The value created by the Health Data Entanglement is based on wider and combined evaluation of clinical, economic and social effects generated by health interventions. Subsequent analyses of data can be performed using the self-learning artificial intelligence, in which sequential decisions are based on Bayesian algorithmic probabilities. Health Data Entanglement and artificial intelligence-based analyses can be adopted to improve the effectiveness of health governance system in ways that also lead to better quality of care.

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POPULATION BASED VALUATION OF PRIVATE ANNUITY AND LIFE INSURANCES UNDER TAIWAN'S NATIONAL HEALTH INSURANCE SYSTEM

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OBJECTIVES: National Health Insurance of Taiwan has offered every citizen equal access to health services and financial risk protection from medical expenses. In addition, purchasing private insurances is still popular. The average contracts owned per person is 2.23 in 2012 and has increased to 2.30 in 2013. The premium cost of the National Health Insurance of Taiwan is not a user charged policy, but rather an income-based formula, and most insurances including the National Health Insurance is powered by workforces from the younger cohort. We want to estimate the value of insurance policies by adding the population structure factor. This will reveal the impact to the average value as the population changes. **METHODS:** We have added the population module into our FinancialCloud system. Data are acquired from Taiwan government open data and dynamic information, i.e., interest rate and foreign exchange rates, are update daily. By computing every possible output of insurance policies for each age cohort (in 5-years interval, e.g. 0-4, 5-10, and so on), we can derive the expected value of a policy. A single year, single term policy pricing may require more than 50 thousand evaluations. For multiple years, terms, and policies, our FinancialCloud is especially suitable for massive, distributed, and parallel computations. **RESULTS:** Considering a single cohort over the total population can cause price differences of more than 2%, and can even be greater if the term length and population structure changes. For 10 years term, approximately 60% younger cohort is supporting the 40% older cohort, and changes to 68%/32% in 20 years estimate. **CONCLUSIONS:** For different cohort, the value of a same insurance policy can be different. This factor must be considered to get a better estimate of the policy's expected value. Rebalancing the premium fee for insurances is necessary if the population structure changes.

DISEASE- SPECIFIC STUDIES

INDIVIDUAL'S HEALTH – Clinical Outcomes Studies

PIH1

COMPARING MEDICAL THERAPIES FOR HEAVY MENSTRUAL BLEEDING RELATED TO UTERINE FIBROIDS

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OBJECTIVES: Uterine fibroids (UF) affect more than one-fifth of US reproductive age women. While multiple medical therapies are available, there are little data on how long patients stay on a medical therapy before they switch to other medications or procedural treatment. Identifying successful and lasting medical therapies would better inform patients and providers, and reduce the number of hysterectomies. This study compares four medication classes (short-acting reversible contraceptive steroids (SARC), long-acting reversible contraceptive steroids (LARC), leuprolide acetate (LA) and tranexamic acid (TA) for controlling heavy menstrual bleeding (HMB) in UF patients. **METHODS:** Using a large private health insurance claims database (Optum Labs Data Warehouse), we identified women aged 18-54 with UF and HMB diagnoses and medical therapy between 2000 and 2013. We defined patients' first medication after diagnosis as the index medication (and the study drug cohorts), and assessed the duration of their index medical therapy and whether they switched. Propensity score matching and survival analysis were used to compare different medications. **RESULTS:** Of the 41,561 eligible women, the four drug cohorts had 33,000 (79.4%: SARC), 3,928 (9.5%: LARC), 3,525 (8.5%: LA), and 1,108 (2.7%: TA), respectively. 16,594 (40.0%) switched to non-index medication or procedural treatment. Among the patients who switched, 45.7% switched to hysterectomy, 24.1% switched to endometrial ablation, 8.5% switched to myomectomy, and 18.4% switched to another medication class. Patients on LARC were much less likely to switch in the short term (e.g., within 60 days), but the effect was similar to SARC in the long term (on average HR=0.63, p<0.001). Patients on leuprolide acetate (HR=2.41, p<0.001) and tranexamic acid (HR=1.49, p<0.001) were more likely to switch, compared to those on SARC. **CONCLUSIONS:** When treating HMB related to UF, women are more likely to stay on medications that have contraceptive benefits (i.e., LARC and SARC), compared to leuprolide acetate and tranexamic acid.