

## **Computational Methods in Official Statistics with an Example on Calculating and Predicting Diabetes Mellitus [DM] Prevalence in Different Age Groups within Australia in Future Years, in Light of the Aging Population**

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**Abstract :** An analysis of the Australian Diabetes Screening Study estimated undiagnosed diabetes mellitus [DM] prevalence in a high risk general practice based cohort. DM prevalence varied from 9.4% to 18.1% depending upon the diagnostic criteria utilised with age being a highly significant risk factor. Utilising the gold standard oral glucose tolerance test, the prevalence of DM was 22-23% in those aged  $\geq 70$  years and  $<15\%$  in those aged 40-59 years. Opportunistic screening in Australian general practice potentially can identify many persons with undiagnosed type 2 DM. An Australian Bureau of Statistics document published three years ago, reported the highest rate of DM in men aged 65-74 years [19%] whereas the rate for women was highest in those over 75 years [13%]. If you consider that the Australian Bureau of Statistics report in 2007 found that 13% of the population was over 65 years of age and that this will increase to 23-25% by 2056 with a further projected increase to 25-28% by 2101, obviously this information has to be factored into the equation when age related diabetes prevalence predictions are calculated. This 10-15% proportional increase of elderly persons within the population demographics has dramatic implications for the estimated number of elderly persons with DM in these age groupings. Computational methodology showing the age related demographic changes reported in these official statistical documents will be done showing estimates for 2056 and 2101 for different age groups. This has relevance for future diabetes prevalence rates and shows that along with many countries worldwide Australia is facing an increasing pandemic. In contrast Japan is expected to have a decrease in the next twenty years in the number of persons with diabetes.

**Keywords :** epidemiological methods, aging, prevalence, diabetes mellitus

**Conference Title :** ICSA 2014 : International Conference on Statistics and Analysis

**Conference Location :** Osaka, Japan

**Conference Dates :** October 12-13, 2014