Submission to Stage Three of the Review for Medicines used in the Treatment of Type 2 Diabetes by Professor Philip Clarke, University of Melbourne

Background

Before outlining my submission, it is useful to provide some information on my background. I am a Professor of Health Economics who has specialized for more than a decade in evaluating the cost-effectiveness of interventions for treating Type 2 diabetes and its complications. Much of my research has been in collaboration with clinicians working on long-term clinical studies including UKPDS, ADVANCE and use of large cohort studies such the data from the Swedish Diabetes Registry, as well as linked administrative data from Western Australia.

I have also developed the UKPDS Outcomes Model, a widely used health economic diabetes simulation models for evaluating treatment for diabetes and chaired the organizing committee for the *Mt Hood Diabetes Modeling Challenge*, the only international conference specifically devoted to health economic diabetes simulation modeling.

For the last few years, I have looked at generic pricing policies in Australia focusing on international comparisons and the high cost of Australia's current system of price regulation of generic medications.

I would also like to note that I do not consult to, own shares in or receive funding from any company or organization that would benefit from changes to PBS listing of Medications that may arise from this review.

1. Need for rigorous economic evaluation of relative benefits of various medications for Type Two diabetes and in the development of treatment guidelines

It is important to note there have been significant changes to the prices of many diabetes medications in recent years. There are now a wide variety of diabetes medications available, many of which are no longer under patent and are available at comparatively low cost. For example the ex-manufacture cost per of script of metformin (500mg) will be only $5.77 for 100 tablets after 1st of August 2013.

Further, following the recent patent expiry of some of the newer generation of therapies such as thiazolidinediones, the costs of these medications should decline significantly over the next few years. This will have important implications for the cost-effectiveness of the use of these medications (for example whether a drug such as pioglitazone should be subsidized as a monotherapy when low cost generic versions become available). The decline in price of generic

drugs, will also impact on the incremental cost-effectiveness of new therapies considered for listing on the PBS, as the cost of off-patent comparators is declining over time.

The examination of these questions should not be undertaken in an ad hoc basis, or driven by special or vested interest groups, but should involve a systematic independent evaluation of the range of therapies available for treating diabetes (including use of therapies to treat high blood pressure and cholesterol in people with diabetes). A good template for such an evaluation is the recent review of new agents for blood glucose control undertaken by the National Institute for Clinical Excellence in England (Waugh et.al. 2010). This review which runs to over 200 pages is based on a systematic review of clinical evidence which was used to inform a series of cost-effectiveness analyses of different treatment pathways.

A key component of such an evaluation is the use of a dedicated Type 2 diabetes simulation model to assist in determining the benefits and costs of different treatment options. Simulation modeling of long-term outcomes is crucial when evaluating treatments in a chronic disease such as diabetes, as the impact of an intervention can take years to develop. Such an evaluation should also use a standard set of reference values for complications that have an impact on costs and outcomes such as quality of life.

A systematic and comprehensive review along these lines would be required to adequately address the second term of reference i.e. to *consider if the utilisation of PBS listed drugs in current clinical practice represents expected cost effective use [of funds].*

2. Determining appropriate use of diabetes medications

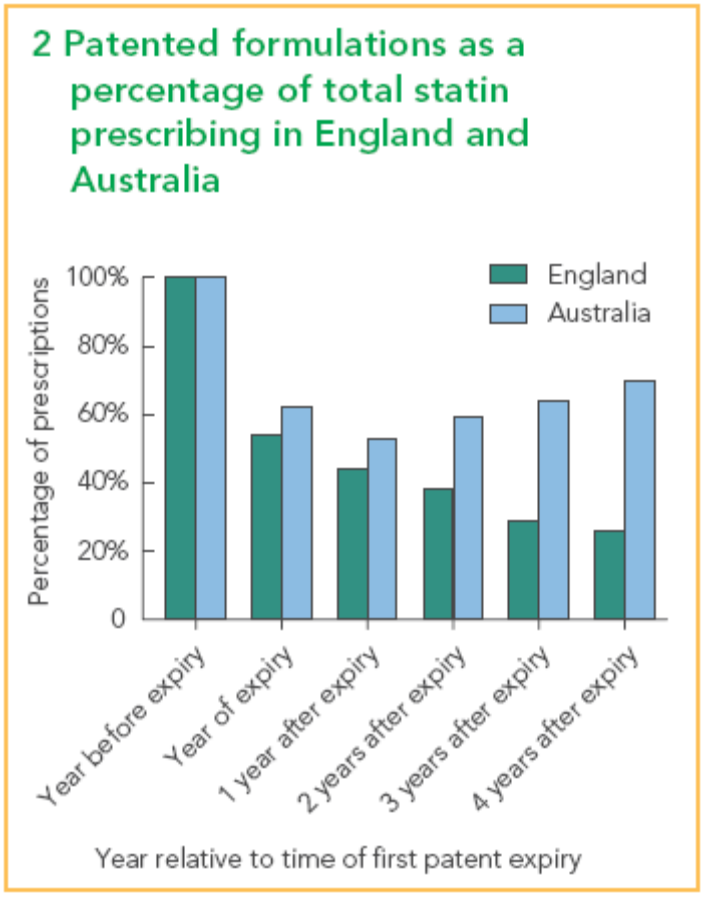
Several of the terms of reference relate to the utilization of PBS listed drugs and information on preferred medicines for specific sub-populations of patients with Type Two Diabetes. The availability of such information is currently relatively scant in Australia and has been greatly impeded by the lack of a patient registry for people with Type 2 diabetes.

Australia should be well placed to set up such a patient registry, as there is linked administrative hospital and mortality data in several States, as well as PBS and MBS information at a national level. It is more than a decade since a trial project linked administrative data on more than 100,000 people with diabetes in Western Australia, which was able to produce information on costs and rates of mortality following major complications of diabetes (Clarke et. al 2008; Hayes et. al. 2011). It is surprising so little progress has been made to link administrative data in Australia, including clinical risk factors and potential patient characteristics that would enable full understanding of utilization of PBS medications and whether these are being used according to guidelines.

Patient registries are now common overseas having been set up at a National level in Scotland and Sweden. A local registry would greatly assist in understanding the progression of the disease in an Australian setting, as well pick-up unforeseen side effects of therapies and monitor the degree of compliance.

3. Creating incentives for appropriate prescribing

Evidence from other classes of drugs would suggest that Australian doctors make much greater use of more costly patented medications than their counterparts overseas. For example consider the prescription patterns for statins (Cholesterol lowering medications commonly used by people with diabetes). As the Figure below demonstrates, in England the proportion of generic statins used quickly expanded following the expiry of the patent on simvastatin in the mid-2000s, while in Australia an increasing proportion of patented statins were prescribed over the same period.



Source: Clarke and Fitzgerald (2010)

Just prior to expiry atorvastatin's patent in 2012, PBS data indicate that prescriptions for off-patent therapies (simvastatin and pravastatin) constituted only 22 per cent of statins prescribed

in Australia at that time. In contrast, generic drugs constituted 75 per cent of the statins used in England at that time and more than 50 per cent in the United States (Clarke, 2012). The high relative use of patented drugs in Australia has substantially contributed to increased PBS expenditures. Clarke and Fitzgerald (2010) estimated that had generic statin used matched that in England $1087 million could have been saved. It would be useful for similar international comparisons to be undertaken with Australia to examine prescribing of high and low cost anti-diabetic medications.

A significant limitation in the Australian system is there are few incentives for doctors or patients to consider low cost drugs. Our current system of fixed co-payments mean that patients often face the same out of pocket cost regardless of the actual cost of the therapy. The only incentives that currently flow from use of generics are to pharmacists, who benefit from the discounts on the wholesale cost of many generic medications. While the price of generic drugs are falling this will have limited impact on consumers, as the relatively high pharmacy dispensing fees in Australia mean PBS listed drugs will always be priced above the co-payment for concession patient which is currently $5.60. There is a need to either have verifiable and enforceable prescribing guidelines, or to provide incentives for patients or doctors to consider lower cost medications where appropriate.

A potential model for setting PBS benefits has been established by the Pharmaceutical Benefits Advisory Committee (PBAC) in its review of the price of atorvastatin based on an extensive review of the clinical evidence. While the PBAC regarded the newer statins (atorvastatin and rosuvastatin) to be more effective, the committee maintained that the price atorvastatin should be linked to the price of Simvastatin. (i.e. that the price of atorvastatin should not more than 12.5% more than the equivalent dose of simvastatin). This evidence based approach to value-based price setting (although not currently implemented by the Department of Health and Ageing) could be extended to other drugs on the PBS, particularly where there are generic comparators available.

If such an approach was adopted, the PBS benefit should be set so that it matches the value of the additional clinical benefits that a newer drug confers over the off-patent alternative. Importantly, such an approach will enable an upward or downward revision of the benefit as new evidence emerges regarding the clinical benefit of new therapies. Hence newer drug would receive only a partial subsidy in proportion to the evidence of additional clinical benefit. Such an approach should be considered for the subsidization of new medications for people with diabetes, especially when there is uncertainty about long-term clinical benefit of many of the newer diabetes medications.

References

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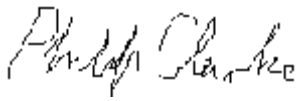

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