

# RGH Pharmacy E-Bulletin

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A joint initiative of the Patient Services Section and the Drug and Therapeutics Information Service of the Pharmacy Department, Repatriation General Hospital, Daw Park, South Australia. The RGH Pharmacy E-Bulletin is distributed in electronic format on a weekly basis, and aims to present concise, factual information on issues of current interest in therapeutics, drug safety and cost-effective use of medications.

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## The polypill

Heart disease is the leading cause of death worldwide. What if there was one tablet that could reduce heart disease by 80%. Too good to be true?

The concept of the “polypill” was first published in 2003 when Wald and Law conducted a theoretical projection analysis of a single pill which contained six drugs. That polypill comprised of three anti-hypertensives at half dose (thiazide, beta blocker and ACE inhibitor), plus aspirin, a statin and folic acid. The predicted benefit from this analysis was an 88% reduction in ischaemic heart disease events and an 80% reduction in stroke. A year earlier Yusuf had proposed a similar combination but without the catchy name: the predicted benefit of this four-drug combination was a 75% reduction of cumulative risk of CVD events when used for secondary prevention.

There had been little subsequent progress on this matter until recently, when The Indian Polycap Study (TIPS) results were released. TIPS was a randomised, double blind study conducted at 50 centres in India. 2053 subjects with one cardiovascular risk factor (aged between 45 and 80) were enrolled and randomised to one of the nine treatment groups in which they received one, two, three, four or five (the polycap) medications in one capsule. The medications used were hydrochlorothiazide, atenolol, ramipril, simvastatin and aspirin.

The main aims of the TIPS study were to determine the effect on blood pressure, cholesterol and platelet function leading to multiple endpoints to be measured (see study results for full details). The polycap appeared to have similar blood pressure lowering and antiplatelet effects to those expected from the use of the components on their own but the cholesterol lowering was significantly lower in the polycap compared to the use of simvastatin used alone. Also of interest was the discontinuation rate of 15% over only a 12 week period.

These results, while interesting, still leave many unanswered questions. Of course there is the need for a large outcomes trial but in what population? Is the aim primary or secondary prevention... or both? Then there are the issues of practicality. What if a patient were to experience a side effect, particularly a significant one - are all five drugs off limits? Another important consideration would be the dose or doses of the drugs. With a recent trend to the increasing availability of combination products, this may be problematic. For example, with only two drugs there can be up to eight different options available, and of course this issue would be even more pronounced with five drug doses involved. The use of a polypill style product would also make it even more difficult to address two of the major causes of heart disease, diet and exercise.

These and many more questions need to be addressed before a polypill is introduced into the market, where it may be seen by patients as a magic bullet.

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**FOR FURTHER INFORMATION – CONTACT THE PHARMACY DEPARTMENT ON 82751763 or email: [chris.alderman@rgh.sa.gov.au](mailto:chris.alderman@rgh.sa.gov.au)**  
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