

A therapeutic equivalence program: evidence-based promotion of more efficient use of medicines

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The growing cost of health care presents a major challenge to governments all over the world, with one of the most complex components being the management of medication costs. This issue is no easier to handle at the hospital or hospital network level.

Southern Health (SH) is a large metropolitan health service in Melbourne's south-east; it includes five public hospitals, one private hospital, one day surgery centre, a number of community health centres and an extensive network of ambulatory care services.

In 2006, SH implemented a financial enhancement plan, in which expenditure on medicines was an area of focus. A number of successful strategies to contain medication costs and reduce wastage were already in place (including projects to promote the quality use of medicines). In addition, the introduction of the Pharmaceutical Benefits Scheme (PBS) to Victorian public hospitals in 2002 had led to the resolution of many equity-of-access anomalies and enabled reimbursement of most prescription medicine costs for outpatients, discharged patients and day oncology patients. Furthermore, generic prescribing and dispensing had been in place for several decades, as had local and state-based negotiation of special prices for a range of medicines. Thus there were no areas of medication expenditure that could be targeted for easy savings. Moreover, there was desire to avoid arbitrary authoritarian controls on medication expenditure which lacked clinician "buy in".

The concept of therapeutic equivalence is not new and has been used to promote efficient drug use,¹⁻⁴ but formal and effective application of the concept is not as common as might be expected. When it has been used to reduce drug costs, it has sometimes been associated with mandatory drug substitution.³ An alternative strategy to encourage the use of cheaper therapeutically equivalent medicines has been to reimburse patients for only the cost of the cheapest alternative.²⁻⁴ Nevertheless, therapeutic equivalence offered a sound strategy for potentially saving significant medication costs at SH.

We aimed to develop an effective therapeutic equivalence program (TEP) at SH

ABSTRACT

Objective: The development of an effective therapeutic equivalence program (TEP) through the collaborative support of medical staff, using the principles of disinvestment.

Design and setting: A TEP was introduced at Southern Health, a metropolitan health service in Melbourne, in the 2006–07 financial year. Therapeutic classes were selected for the TEP by stakeholder consensus, and a preferred medication for each class was selected on the basis of cost considerations and therapeutic equivalence. New patients were commenced on preferred medicines, but patients receiving another medicine from a therapeutic class included in the program were not automatically switched to the preferred medicine. For the first 4 years of the program, prescribing patterns were monitored, and savings achieved (due to lower prices for and increased use of preferred medicines) were calculated on a monthly basis.

Main outcome measures: Prescribing trends for preferred medicines, as a measure of acceptance of the TEP, and savings produced by the program.

Results: Over the 4-year study period, 11 therapeutic classes were targeted. The use of all preferred medicines increased once they become part of the TEP and a total of \$3.16 million was saved. The annual savings increased each year, and the rate of increase was six times that of the increase in patient separations.

Conclusions: The TEP at Southern Health resulted in significant savings. It showed that, by using a collaborative and evidence-based approach, the principles of disinvestment can be applied to use of medicines.

MJA 2011; 194: 631–634

through voluntary collaboration and collective support of medical staff, especially senior medical staff. We also aimed to use the principles of disinvestment to ensure limited resources were put to their most effective use. Key elements of the program are outlined in Box 1.

METHODS

The TEP was introduced at SH in the 2006–07 financial year, and we report findings to the 2009–10 financial year. It was approved by the Southern Health Therapeutics Committee and the Southern Health Medical Executive Committee. Representatives from these committees formed the High Cost Drugs Working Party, to provide support and guidance for the TEP. In addition, a project pharmacist was appointed to facilitate constant promotion of the concept to key stakeholders, with the position being funded from the savings achieved.

Choosing therapeutic classes and preferred medicines

Potential therapeutic classes to target were selected by:

- identifying therapeutic classes of medicines that are associated with significant costs and that act via clearly defined pharmacological targets;
- engaging directly with key clinical stakeholders (the medical head of unit and key specialists) to evaluate the acceptability of each potential therapeutic class for the TEP;

1 Key elements of the therapeutic equivalence program

- Medicines in the program need to be clinically equivalent in terms of safety and efficacy
- There should be no compromise to patient care
- The recognised objective is to maximise potential savings
- The therapeutic equivalence concept is separate from any arbitrary cost containment measures
- Money saved can be used to pay for expensive medicines which might not otherwise be available, or to minimise the need to place tight restrictions on the use of expensive medications

- investigating the suitability of potential therapeutic classes for the TEP, based on published evidence; and
- undertaking a preliminary financial impact assessment.

The key selection criteria for target therapeutic classes were: multiple therapeutically equivalent medicines in the class; key clinical stakeholder support; evidence to support therapeutic equivalence available and accepted by medical heads of unit who frequently prescribe the medicines and key specialists in that area of practice; and the potential to obtain a lower price, if this had not previously been negotiated.

When a therapeutic class was accepted into the program, the costs of medicines in the class were compared. Pharmaceutical companies were invited to submit an expression of interest in becoming the preferred medicine supplier for the therapeutic class at SH. This enabled price negotiations to be conducted. To ensure transparency in choosing the preferred medicine, the lowest therapeutic equivalent daily treatment cost was the dominant selection criterion. This process commenced with three therapeutic classes, and other classes were added every few months from 2006–07 onward. The preferred medicines that were chosen are not listed in this article due to commercial-in-confidence obligations.

The designated preferred medicine from a therapeutically equivalent group was then to be used when patients commenced therapy with a medicine from that group. Patients already taking another medicine from a therapeutically equivalent group were not automatically or mandatorily switched to the preferred medicine. However, if such a change was clinically appropriate, this could occur. It was also expected that prescribers would have a sound reason for any instances of not following the TEP guidelines.

The medicines in each therapeutic class could change as market dynamics changed. Changes in the status of individual medicines and the inclusion of new target therapeutic classes were subject to continued total agreement from the key stakeholders.

Promoting the TEP

The strategies used to promote the TEP to prescribers included: posters in clinical areas; presentations and distribution of leaflets at grand rounds, unit meetings and medical intern tutorials; one-to-one or group meetings with key stakeholders and “academic detailing”;⁵ letters and memoranda to medical staff; and free promotional

2 Therapeutic classes targeted

- Angiotensin-II receptor antagonists
- Angiotensin-converting enzyme inhibitors
- Oral proton-pump inhibitors
- Injectable lincosamides
- Penicillins
- 3-hydroxy-3-methylglutaryl-coenzyme A (HMG-CoA) reductase inhibitors
- Immunosuppressants
- 5-HT₃ antagonist antiemetics
- Bisphosphonates
- Glycoprotein IIb/IIIa inhibitors
- Atypical antipsychotics

pens, on which “Think Therapeutic Equivalence” was printed. In addition, clinical pharmacists played an educational support role to reinforce the therapeutic equivalence concept.

Calculating the savings

A spreadsheet was developed to calculate savings generated by the TEP on a monthly and cumulative basis. When a lower price was negotiated because of the preferred medicine process, the cost difference between the preferred medicine and the appropriate comparative medicine was multiplied by the total number of preferred medicine units used at SH over the relevant period. Data entered in the spreadsheet were based on the purchasing and issuing data in the Pharmacy Department computer system.

RESULTS

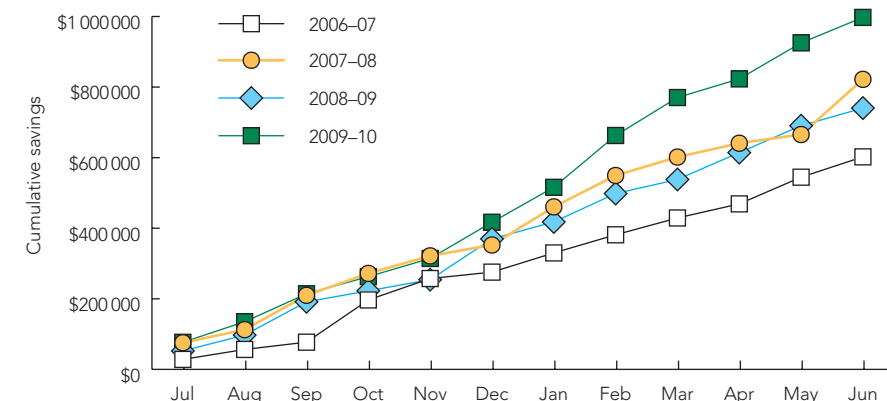
During the study period, 11 therapeutic classes were targeted (Box 2). A total of \$3.16 million was saved as a result of the

program, representing an average saving of \$790 477 per annum (range, \$602 207 to \$997 418). The annual savings increased over the 4-year period (Box 3), as additional preferred medicines were included in the program. Between 2006–07 and 2009–10, TEP savings increased by 65.6%, whereas patient separations increased by 10.4% (162 720 separations in 2006–07, 179 633 separations in 2009–10).

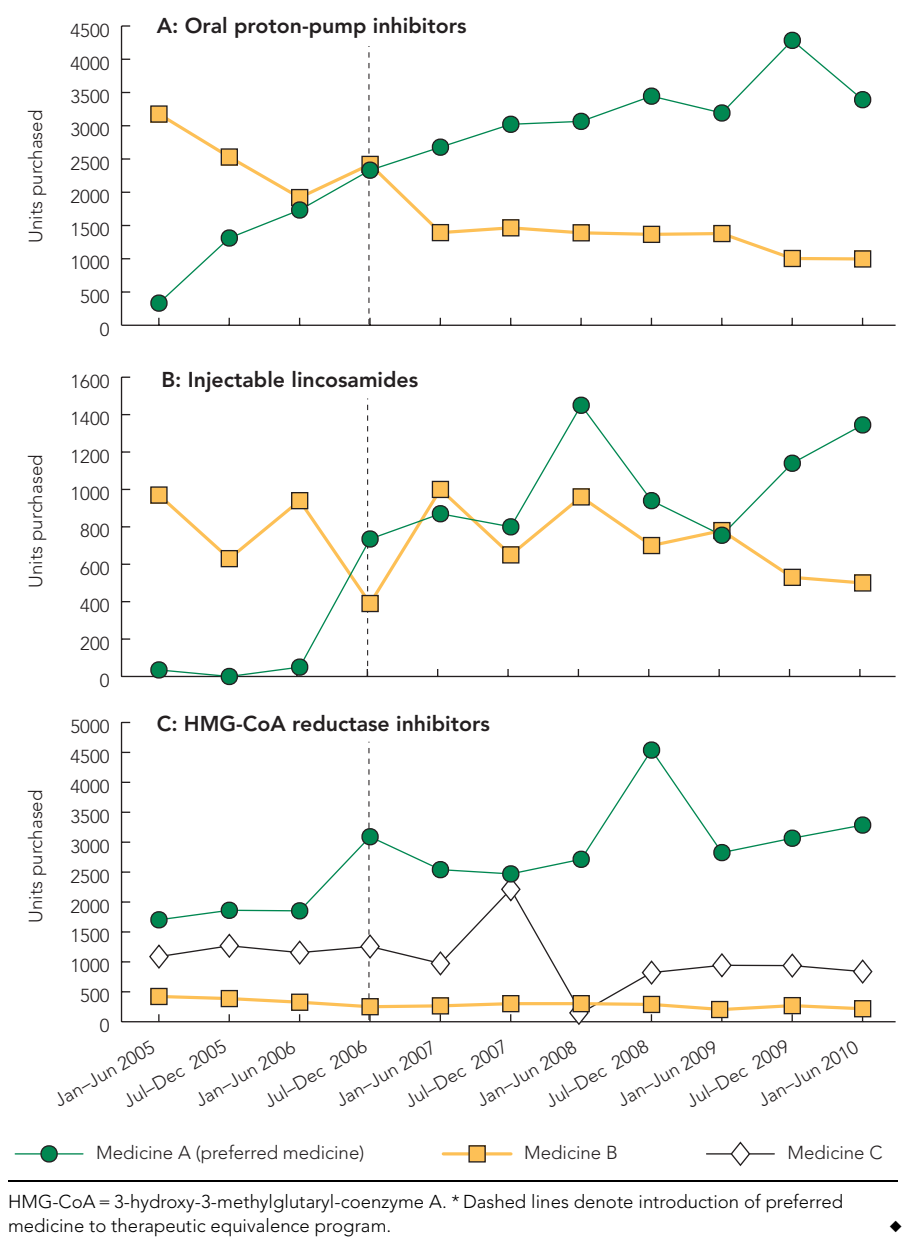
The costs incurred were the salary for the project pharmacist and expenditure on promotional materials. The net savings enabled the Southern Health Therapeutics Committee to support an increased number of single-patient requests for compassionate use of medicines. Over the study period, the High Cost Drug Working Party, the Southern Health Therapeutics Committee and the Adverse Drug Reactions Subcommittee received no complaints or adverse drug reaction reports relating to the effect of the TEP on patient care.

The use of all designated preferred medicines increased after their addition to the TEP, which indicated the support of medical staff for the program. However, the pattern of use varied according to how frequently the medicine was commenced in hospital and the extent of the background use of therapeutically equivalent medicines, especially for medicines that are widely used in the community. For oral proton-pump inhibitors, a clear growth in the use of the preferred medicine was seen because proton-pump inhibitors were frequently commenced in hospital (Box 4, A). However, significant background use of the alternative medicine continued because many patients were admitted to hospital on that medicine. For injectable lincosamides (which are largely used for inpatients), there

3 Cumulative savings produced by the therapeutic equivalence program, by financial year



4 Use of proton-pump inhibitors, lincosamides and HMG-CoA reductase inhibitors at Southern Health*



was also a substantial rise in the use of the preferred medicine (Box 4, B). In this case, background use of the alternative medicine was largely due to use in paediatric patients, which was excluded from the TEP. For 3-hydroxy-3-methylglutaryl-coenzyme A (HMG-CoA) reductase inhibitors, there was background use of two alternative medicines owing to their common use in the community. Nevertheless, there was a steady increase in the use of the preferred medicine (Box 4, C) because HMG-CoA reductase inhibitors were frequently commenced in hospital.

DISCUSSION

Between 2006–07 and 2009–10, preferred medicines from 11 therapeutic classes were introduced to the TEP at SH. Savings of \$3.16 million were achieved during this period, and the annual savings increased each year. Increased prescribing of the preferred medicines indicated that the program was well accepted by medical staff. As the TEP did not dictate automatic switching to preferred medicines, a background of existing medicine use persisted, especially for

patients who were admitted to hospital already on non-preferred medicines.

The funding of pharmaceuticals in Victorian public hospitals is a complex process. In 2009–10, SH spent \$59.74 million on pharmaceuticals, of which 79.6% was recovered through the PBS, the Highly Specialised Drugs program and patient copayments. Inpatient and specialised medicine use are the major components of the remaining expenditure. The savings achieved by the TEP at SH in 2009–10 were equivalent to 1.7% of the total expenditure on pharmaceuticals and 8.2% of net expenditure on pharmaceuticals.

Although patient throughput (eg, patient separations) has a strong relationship with expenditure on medicines for inpatients, there was no such correlation between patient throughput and TEP savings in our study. While patient throughput would have had some influence on medicine expenditure, the savings achieved were largely dependent on the numbers and types of medicines included in the TEP.

Several factors are likely to affect the success of a TEP. First, the market dynamics for pharmaceuticals are constantly changing. Therefore ongoing vigilance is required to ensure that preferred medicines selected for a TEP remain the most economical options, and long-term price agreements should be closely monitored and maintained. Second, identification of new target therapeutic classes should be an ongoing process. Third, continuous marketing and promotion of the TEP concept, ideally through ongoing employment of a TEP project pharmacist, is essential, as is support from senior medical staff and clinical pharmacists.

At SH, it was important for medical staff to see the benefits of saving money in concrete terms, as reflected in the decisions made by the Southern Health Therapeutics Committee — for example, their support for compassionate use of rituximab for Wegener's granulomatosis, relapsing thrombotic thrombocytopenic purpura and antiphospholipid syndrome. However, the strongest motivation, irrespective of whether drug budgets are centralised or decentralised, may be the desire to maximise the benefits of limited resources. A key incentive for prescribers to support the TEP at SH was that it enabled savings to be achieved with no disadvantage to their patients. This enabled a less rigid system for the control of expenditure on expensive medicines and helped to facilitate easier access to medicines that might not otherwise be available.

An unexpected finding was the popularity of the TEP among junior medical staff. Promoting use of a narrow range of medicines enabled junior staff to gain a greater degree of expertise with the doses of the preferred medicines; hence this may have improved medication safety due to a lower risk of prescribing errors.

One issue that can be frustrating in a TEP is that there is often a lack of comparative data between the various medicines in a therapeutic class. Given the high expenditure on the PBS, it might be beneficial to invest in Phase 4 comparative clinical drug trials. The success of the TEP at SH indicates that such an investment could enable significant cost offsets to be achieved.

A TEP can be considered to be a genuine disinvestment process, in which resources are diverted to their most productive use. Disinvestment is a subject of increasing interest, and discussion on how this concept should be moved forward in the Australian health care setting has begun.⁶ The achievements at SH indicate that therapeutic equivalence is one model of disinvestment that can succeed. However, the concept of therapeutic equivalence is a special subset of disinvestment, because it does not deal with obsolete medicine. Nevertheless it does

illustrate that the process can be applied to drug therapy.

The TEP at SH has demonstrated that positive input and support from medical staff, in a collaborative environment, can lead to significant savings. These savings will continue as long as the strategy is maintained. It is hoped that the success of the TEP at SH will encourage others to pursue the same benefits.

ACKNOWLEDGEMENTS

The support and encouragement of the following people in making this project a reality is gratefully acknowledged: Richard Harper, Richard King, Bill Shearer, William Sievert, Wayne Ramsey; members of the High Cost Drug Working Party; staff at the Centre for Clinical Effectiveness; and medical and pharmacy staff at Southern Health.

COMPETING INTERESTS

None identified.

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Provenance: Not commissioned; externally peer reviewed.

(Received 12 Jul 2010, accepted 17 Jan 2011)

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