



National Prescribing Service Limited

Evaluation Report No. 7

2003–04

Progress, achievements and
future directions

December 2004

ISSN 1832-2808

An independent, Australian organisation for Quality Use of Medicines

ACN 082 034 393 | Level 7/418A Elizabeth Street Surry Hills 2010 | PO Box 1147 Strawberry Hills 2012
Phone: 02 8217 8700 | Fax: 02 9211 7578 | Email: info@nps.org.au | www.nps.org.au

Contents

1. Executive summary: Is NPS having an effect?	3
2. Monitoring processes and implementation	6
Provision of independent information	6
▪ For consumers on general QUM issues	6
▪ For health professionals on general QUM issues	6
▪ Specifically on new drugs	6
▪ Through telephone advice services	6
Improved access to patient materials	20
Consolidated access to education and quality assurance activities	21
Extended reach of services	26
Improved access to decision support material	28
▪ Through prompts at the point of prescribing	28
▪ Through use of data on personal prescribing behaviour	28
▪ Through integrated clinical and information models	28
Improved access to QUM knowledge and skills training	31
▪ For the QUM workforce	31
▪ For students	31
A nationally coordinated and collaborative approach to QUM	35
▪ Through work with divisions of general practice	35
▪ Through work with other stakeholders	35
Becoming a trusted source of medicines information	39
3. Measuring impacts and outcomes	41
Improvements in attitudes, skills and knowledge	41
▪ Among consumers	41
▪ Among health professionals	41
Improved prescribing and use of medicines	47
▪ Through changes in consumer behaviour	47
▪ Through changes in health professional behaviour	47
Improved QUM knowledge base and competence	57
▪ Among students	57
▪ Among the QUM workforce	57
Improved health and economic outcomes	58
A commitment to research and evaluation	60
Appendix 1. A national program for QUM	61
Education and quality assurance for health professionals	65
Community quality use of medicines	65
Curriculum and training	66
Pharmaceutical decision support	66
Australian Prescriber	66
Information services	67
Research and development program	68
Appendix 2. Program evaluation	69
Appendix 3: Evaluation data and methods	70

1. Executive summary: Is NPS having an effect?

Establishment of the National Prescribing Service Ltd (NPS) was announced in the 1997/98 Federal Budget and it was launched in March 1998 ([Appendix 1. A national program for QUM](#)). The underlying philosophy was to give health professionals and consumers access to information and other supports for good prescribing and medicine use decisions, thus promoting the best and most cost-effective treatments.

Program aims

The fundamental goal of the program is to achieve quality use of medicines (QUM), where this is selecting management options wisely, choosing suitable medicines if a medicine is considered necessary and using medicines safely and effectively to get the best possible results. Therapeutic areas are specifically targeted where there are known problems or dilemmas, with prescribing likely to result in sub-optimal health outcomes or possibly increased costs, and where education and information may have a positive impact. Specific aims of NPS are:

- To achieve better health and economic outcomes as a result of QUM
- To improve the quality of prescribing and use of medicines through implementation of interventions designed to change prescribing behaviour; provision of reliable information and prompts at the point of decision making; and provision of accurate, reliable, balanced and timely information about medicines and QUM issues
- To build awareness, knowledge and skills in the community that will lead to QUM by:
 - promoting consumer and community understanding and awareness of choices between the use of medicines and other approaches to health problems
 - raising awareness and increasing access to reliable and credible sources of information about medicines
 - providing consumers and the community with the opportunity to develop skills and knowledge to engage in decision making about medicines
 - increasing awareness and skills that enable consumers to become active partners with health professionals in their medicines management
- To build QUM competence and skills among medical, pharmacy and nursing students and junior practitioners in these fields
- To build capacity of a QUM workforce to ensure effective delivery of NPS and other QUM programs
- To facilitate national coordination of QUM activities and programs
- To provide evaluation and research that supports innovation and learning for NPS and the QUM community.

Strategies and interventions

NPS provides a multifaceted approach to improving the health of Australians through QUM services for health professionals (general practitioners [GPs], pharmacists, specialists, students and other health professionals) and consumers. Services are provided via seven core service arms: Education and Quality Assurance (including field support and training), Community QUM, Curriculum and Training, Pharmaceutical Decision Support, *Australian Prescriber*, New Drugs and Information Services (Therapeutic Advice and Information Service [TAIS] and Medicines Line). Most recently, a Research and Development program has been established. Program Evaluation, reporting directly to the CEO, is a core component integrated across all program delivery arms.

Program evaluation

NPS is committed to rigorous and broad scoping evaluation ([Appendix 2. Program evaluation](#)). NPS program evaluation applies rigorous evaluation methods to NPS programs to support the development and accountability requirements of the organisation and ultimately to inform and sustain the provision of a national QUM program. Specific objectives are:

- To provide evaluation support and feedback to individual NPS programs during development, implementation and review
- To monitor participation in NPS initiatives as well as how these activities are perceived by stakeholders
- To provide information on both the implementation and effect of NPS activities
- To aggregate evaluation information across all programs to assist with determining the effectiveness of the NPS program as a whole
- To provide advice and recommendations to the NPS board regarding strategic implications for future NPS activity
- To summarise the impact of NPS initiatives on QUM in Australia.

The current report

This 7th Evaluation Report provides detail on the progress of NPS since commencement in 1998 to end June 2004. Focus throughout is on discussing how effective the NPS program has been in achieving its stated goals and objectives. The information in this report is presented as a series of answers to key evaluation questions against the aims and objectives of the organisation. This information is presented under two broad areas: monitoring processes and implementation and measuring impacts and outcomes.

Within the first of these broad areas, monitoring processes and implementation, the evaluation information is presented under general topics:

- Provision of independent information
- Improved access to patient materials
- Consolidated access to education and quality assurance activities
- Extended reach of services
- Improved access to decision support material
- Improved access to QUM knowledge and skills training
- A nationally coordinated and collaborative approach to QUM
- Becoming a trusted source of medicines information.

For the second broad area of this report, measuring impacts and outcomes, the evaluation information is presented as:

- Improvements in attitudes, skills and knowledge
- Improved prescribing and use of medicines
- Improved QUM knowledge base and competence
- Improved health and economic outcomes
- A commitment to research and evaluation.

Detail on the methods and scope of data to inform the evaluation is presented at the end of the document ([Appendix 3: Evaluation data and methods](#)).

Has NPS achieved its goals and objectives?

- 26 therapeutic modules have been delivered over six years, plus telephone services taking over 50 000 calls from health professionals and consumers.
- Use of CMI and other patient materials is being promoted through prescribing, dispensing and administering software.
- Over 85% of GPs nationally have voluntarily participated in education and quality assurance activities.
- While a newer program, over 10% of pharmacists nationally have voluntarily participated in education and quality assurance activities.
- New, more comprehensive programs for specialist medical practitioners, nurses and hospitals are being developed.
- Clinical and information models have been developed to link independent information sources with prescribing and dispensing software.
- Nine medical schools have implemented a prescribing curriculum for senior medical students, and over 2 500 students have accessed the material ensuring prescribers of the future begin with a good grounding in appropriate prescribing.
- Over 170 NPS facilitators have been trained to provide educational visiting as part of NPS programs in divisions of general practice.
- Close to 100 NPS facilitators, HMR facilitators, peer educators, pharmaceutical industry representatives and others involved in running QUM education have been provided skills-based training on QUM.
- Ongoing work with divisions of general practice and other stakeholders is ensuring a nationally coordinated and collaborative approach to delivery of QUM messages.
- NPS is a valued and trusted source of reliable and independent information on medicines and therapeutics, 84% of GPs and 97% of pharmacists perceive NPS to be of either great or moderate value.
- Evaluation data are beginning to demonstrate changes in self-reported consumer and health professional attitudes, skills and knowledge.
- Antibiotic use is changing in keeping with NPS key messages, so too is NSAID use and low-dose thiazide use.
- QUM competence and skills among medical students and the general QUM workforce is improving as measured by self report.
- Savings over \$169 million have been made to the PBS from mid-1998 to June 2003.
- NPS remains committed to evaluation and research that supports innovation and learning for NPS and the QUM community.

2. Monitoring processes and implementation

Provision of independent information

- For consumers on general QUM issues
- For health professionals on general QUM issues
- Specifically on new drugs
- Through telephone advice services

Has accurate, reliable, balanced and timely independent information and services about medicines, therapeutics and QUM issues been provided to consumers?

- Provision of independent medicines information to consumers remains a priority.
- Over 11 500 patient symptomatic management pads for respiratory infections as well as brochures for patient self-management of heart failure have been distributed nationally.
- The NPS Community QUM program has dedicated resources to build awareness, knowledge and skills in the community that will lead to better use of medicines and ultimately improved health.
- The NPS Community QUM program provides information and services nationally and to targeted population-based groups: seniors, culturally and linguistically diverse communities (CALD), Aboriginal and Torres Strait Islander communities and rural communities.
- A national awareness campaign was undertaken in early 2004 to empower consumers to be more active in the quality use of their medicines and to encourage them to gain access to relevant and reliable medicines information. Over half of the surveyed population recalled the campaign television advertisement.
- Over 1.5 million copies of *Medimate*, a written resource dedicated to informing consumers about sources of reliable and accurate medicines information was distributed in the first six months and an additional 1 000 copies downloaded from the NPS website monthly.

- Services for consumers remain a priority for NPS. Patient information materials have been developed on a range of topics to assist GPs, pharmacists and consumers to discuss and decide on the appropriate therapeutic course. These include detail on symptomatic management for respiratory infections, patient self-management of heart failure, a tool to help GPs to review use of proton pump inhibitors and a tool to help GPs to review patient medication use.
- Funded by the Australian Government under the auspices of the Pharmaceutical Health and Rational Use of Medicines (PHARM) Committee, a small-scale community grants program was run in 2002–03 involving 75 community organisations. 158 activities were delivered (e.g. educational sessions, distribution of materials, shopping centre displays) reaching close to 6 000 consumers with the aim of raising awareness about Consumer Medicine Information (CMI) and improve its use.

- Consumer services in more recent years have been delivered primarily via the Community QUM program. In brief, the key elements of the program include:

Medicines without the mix-ups and *Medimate*

- In January 2004, a national campaign was launched using television and print advertising and editorial media to raise community awareness about the need for people to understand their medicines and obtain credible information about medicines. The priority themes for the national awareness campaign were empowering consumers to be more active in quality use of their medicines and to gain access to reliable, user-friendly consumer information. Television advertisements were screened from the 25 January until 28 February 2004.
- The national awareness campaign was supported by a brochure, *Medimate*, which provided more detailed information of what people needed to know and where further information could be found. *Medimate* is designed to be an interactive, consumer-friendly resource to help consumers find medicines information from reliable and accurate sources and to help them manage their medicines in partnership with health professionals.
- Advertising in national magazines also occurred for a 12-month period that commenced in February 2004 including publications in *Woman's Weekly*, *Good Medicine*, *Woman's Day*, *Family Circle* and *Readers Digest*. On-line advertising has also been developed and includes content and hyperlinks to the NPS website for a 12-month period. This on-line advertising includes the NINEMSN, Good Medicine, Family Circle, and Readers Digests websites.
- Recall of the television commercial (following a description of the commercial as showing a man adding medicines to a blender) post-campaign was 57% compared to 5% pre-campaign.
- The prompted awareness of the *Medimate* resource post campaign was 11% compared with 5% pre-campaign.
- In the first 6 months approximately 1.5 million copies of *Medimate* were distributed through GPs, pharmacists and community organisations and there have been in excess of 1 000 downloads of *Medimate* from the NPS website each month.



Common colds need common sense campaign

- This campaign builds on previous work undertaken by NPS. It is designed to remind the community that antibiotics are not appropriate treatment for a common cold and so reduce the demand for antibiotic prescriptions. This has been run in tandem with a complementary program for health professionals.
- Key messages of the campaigns were: *common colds need common sense*, keep well hydrated, take it easy, treat the symptoms; you won't get better more quickly by taking antibiotics; the common cold is a virus and antibiotics don't help; and talk to/ask for advice from your GP or pharmacist.



- The campaign includes advertising, media and distribution of brochures. To create local community awareness about the campaign and the objectives, small grants were also offered in 2001, 2002 and 2004 to assist organisations deliver community education programs.
- Awareness of the 'Common colds need common sense' campaign among consumers is modest, but increasing, 7% awareness nationally in 2001, 17% in 2002 and in 2004 the highest level reached to date at 22%.
- Awareness of the 'Common colds need common sense' campaign is high among health professionals, just under 80% of GPs and close to 90% of pharmacists.
- In 2004, general practices ordered over 38 000 common colds brochures and 704 symptomatic management pads; this is in addition to existing stocks from previous years.
- The total dollar value of the coverage received in the media, resulting from editorial, advertising and community service announcements as part of the 2002 campaign was \$1,629,514, roughly four times greater than the actual outlay costs. The total dollar value of the coverage received in the media as part of the 2003 campaign, resulting from editorial, was \$475,460 again many times greater than the total actual expenditure for the media strategy.
- Small grants were provided to 124 organisations in the 2002 campaign, attracting close to 6 000 participants. As part of the 2004 campaign, 53 community activities were funded, targeting parents with young children in preschool settings.
- Not only has this program had increasing recognition, it is beginning to change knowledge and attitudes (see Section 3 of this report).

Medicines Line

- Medicines Line is a phone information service for individual consumers who have questions about their medicines. Detail on this is reported on pages 18 and 19.

MedicinesTalk

- *MedicinesTalk* is a quarterly publication written by consumers that aims to inform consumer groups about QUM policy and programs, and to encourage groups to become involved in QUM activities. NPS provides the support and infrastructure for the publication while most of the writing and editorial work is undertaken by consumers.
- Currently 1 869 copies of *MedicinesTalk* are distributed quarterly to consumer and community groups.

A readership survey conducted in May 2003 found:

- The publication was read by staff in 62% of organizations, available to members/clients (47%), partially reprinted in newsletters (39%), kept in library (33%) and photocopied and distributed to members/clients (24%).
- The most popular topics were generic versus brand names (60%), drug interactions (50%), disposal of unwanted medicines (50%), CMI leaflets (44%), medicines causing incontinence and constipation (41%) and Medicines Line (40%).
- The articles were easily understood by 91% of respondents.

Seniors program

- In association with COTA (Council of the Ageing) National Seniors, the Community QUM program is in the process of training peer educators to run 1 500 medicines information sessions around the country which will involve approximately 50 000 participants.

- Currently more than 80 peer educators have been trained for this program together with six state/territory coordinators. The program has only been running for a few months and already over 116 sessions have been held reaching over 2500 consumers. The aim of these sessions is to encourage seniors to take a more active role in their own medicine management. This will be reflected in people asking their doctor or pharmacist more questions about their medicines when they are uncertain.

Seniors from culturally and linguistically diverse communities

- A contract with Combined Pensioners' and Superannuants Association of NSW has been agreed for an additional 50 interactive peer education sessions to be undertaken by June 2005 with Cantonese, Mandarin, Vietnamese, Greek and Italian speaking people. The aim is to establish the acceptability and feasibility of QUM peer education with CALD seniors in Sydney and Wollongong.

Culturally and linguistically diverse communities program

- The QUM needs of people from Vietnamese, Chinese, Greek and Italian communities have been explored via qualitative research so that culturally appropriate interventions can be provided in these communities. A total of 52 one-on-one in-depth interviews with key informants (GPs, pharmacists, community leaders and multicultural organisations/service providers) and 16 focus groups with consumers have been completed.
- Data from this research show that some of the consumer medicines issues consistent across all language groups were:
 - Lack of understanding about why medicines were chosen, exacerbated by lack of explanation by doctors and language barriers with doctors
 - The management of multiple medicines especially in the context of language barriers
 - Concerns about side effects
 - Avoidance of some medicines and overuse of other medicines due to misinformation
 - Continuing confusion about the differences between common practices in their country of origin and Australia regarding medicine use
 - Potential interactions of prescription and over-the-counter medicines with natural (e.g. herbal) or home remedies
 - Inappropriate hoarding and sharing of medicines
 - Loss of trust in health professionals when conflicting advice or information is given.
- Consumer views on the best ways to disseminate QUM information varied substantially between the language groups. According to the qualitative research undertaken, these were:
 - Cantonese-speaking participants were uniformly in favour of receiving health talks, via peer educators or by health professionals, preferring to learn in a social environment. Radio programs were also popular. Translated pamphlets or other reading materials were not considered useful.
 - Mandarin-speaking participants preferred written materials, especially translated medicines information such as CMI or a medicines booklet. Peer education or radio programs were possibilities, but they preferred to have a reference source for themselves and wanted to know very specific information about medicines. This is consistent with the higher educational level in the Mandarin groups. Local language media was considered a good way to promote activities.
 - Italian migrants rely heavily on their doctor as the source of medicine information. Use of radio programs was a possibility, since listening to community language radio is very popular, although they would return to their doctor to check out any medicines information given. Written or translated information might have some use, but with the

same proviso. Peer education was viewed positively as long as the person was clearly well informed.

- Greek migrants rely almost entirely on their doctor and pharmacist for medicines information. The suggestion of Medicines Line provided in Greek was popular. However, they were unsure about other sources of medicines information, having little experience with gaining information anywhere other than the doctor or pharmacist. They are used to being told what to do. Media, written information or peer education could be useful provided they were completely confident in the qualifications of the person providing the information.
- Vietnamese people also feel the doctor is the best source of medicines information, even though doctors were seen as not allowing much time for questions or discussion. Participants liked the idea of health talks, but preferred a health professional over peer educators as their major source of information about medicines. They also use other sources of information (e.g. books, magazines, internet), but remain concerned about trustworthiness.

Aboriginal and Torres Strait Islander program

- In collaboration with the National Aboriginal Community Controlled Health Organisation (NACCHO), this program is working with three communities in Melbourne, Kimberley and Port Lincoln to address the QUM needs of Aboriginal and Torres Strait Islander people.

Rural program

- A project scheme that provides funding (flexible but capped at \$25,000) to consumer-based consortia in rural locations to run QUM community projects has been rolled out in 15 rural areas.
- A substantial resource kit has been developed to be distributed to rural consumer organisations.

Has accurate, reliable, balanced and timely independent information about medicines, therapeutics and QUM issues been provided to health professionals?

- Provision of independent medicines information to health professionals remains a priority.
- The NPS Education and Quality Assurance Program for health professionals targets five therapeutic topics each year (26 topics to date) using a wide range of print publications (*NPS News* and directly mailed prescription feedback with educational material) and interventions (clinical audit, educational visiting, peer group discussions and responses to written case studies).
- *Australian Prescriber* and *NPS News* are published six times each year with each issue distributed to over 55 000 health professionals.
- More than 90% of readers agree *Australian Prescriber* provides good overviews of clinically relevant topics, while 60% say that their prescribing has been influenced by *Australian Prescriber*.
- 74% of readers agree that *NPS News* helps them to make therapeutic choices, while 66% agree their prescribing/recommendations have been influenced by issues raised in *NPS News*.
- 63% of GPs rate the trustworthiness of general information on prescribing provided by NPS to be good or very good, while 64% rate the completeness of this information as good or very good.
- 57% of GPs rate the trustworthiness of feedback on personal prescribing behaviour provided by NPS to be good or very good, while 56% rate the completeness of this information as good or very good.

- The Education and Quality Assurance Program for health professionals continues to cover at least five therapeutic topics each year (Table 1). Of these, two to three topics are delivered using a wide range of interventions (written information, mailed feedback on personal prescribing, clinical audit, educational visiting, peer group discussions and responses to written case studies) and the remainder have involved print publications only (*NPS News* and *Prescribing Practice Review (PPR)* with educational material). The target audience for these topics is primarily GPs and pharmacists although relevant medical specialists also receive written information. In addition pharmacists receive *NPS News*, *PPR*, a tailored publication called the *Pharmacy Letter* and opportunities to participate in self-audits of over-the-counter medicine sales or dispensing practice.
- *NPS News* is published every two months and 34 issues have been distributed to date. It is sent to about 59 000 health professionals (31% GPs, 20% pharmacists and 49% other health professionals) and has an editorial committee to ensure its quality.
- *Prescribing Practice Review (PPR)*, sometimes with feedback on personal prescribing for GPs and medical specialists, has been sent on 26 occasions to an average of 27 000 health professionals on each occasion (80% GPs, 7% other medical professionals, including pharmacists, and 13% other medical specialists) and has covered 20 major therapeutic topics (including updated repeats of some topics). The prescribing review and feedback is overseen for quality by the NPS prescribing intervention working group.
- *Australian Prescriber* is published six times each year with each issue distributed to over 50,000 health professionals nationally. An additional 5 000 copies are distributed

internationally. Many more overseas readers access *Australian Prescriber* electronically. The website is popular averaging more than 1 000 000 hits per month. The number of visits to the home page each month exceeds 100 000 (compared with 35 000 for the Medical Journal of Australia, for example). The journal has an editorial executive committee to ensure its independence and quality.

- NPS continues to fund a telephone information service for health professionals, the Therapeutic Advice and Information Service (TAIS). Detail on this is reported on pages 18 and 19.

Key findings from independently commissioned readership surveys, focus groups and national surveys include:

NPS News

- *NPS News* is providing what is perceived to be a high standard of useful information. It is seen by its target audiences to occupy a unique and valuable position due to its perceived independence, and the unbiased, non-commercial information it conveys with brevity and clarity.
- Focus-group discussions with readers showed that the strongest impressions of *NPS News* in order of popularity are 'brief/concise/quick to read' (40%) and 'relevant/practical' (28%). In the case of GPs, results showed 'up-to-date/topical/current/brings me up-to-date with trends' (24%) and 'independent/unbiased/objective' (15%).
- 74% of respondents to a national readership survey agreed that *NPS News* helps them to make therapeutic choices. Similarly, 66% agreed that their prescribing/recommendations have been influenced by the issues raised in *NPS News*.
- In 2004, the majority of pharmacists (94%) rated the quality of *NPS News* to be good to very good and 91% rated its usefulness as good to very good. Additionally, 61% indicated that they had used *NPS News* as an information source in the previous four weeks. There has been a significant increase between 2002 and 2004 in the proportion of pharmacists who rate both the quality (90% to 94%, $\chi^2_1 = 5.017$; $p=0.025$) and usefulness (86% to 91%, $\chi^2_1 = 5.065$; $p=0.024$) of *NPS News* as 'good to very good'.

General prescribing information

- General information on prescribing provided by NPS is perceived by the majority of GPs to be both complete and trustworthy. In 2002, 21% of GPs surveyed rated the completeness of prescribing information as 'very good' and 24% rated the trustworthiness of this prescribing information to be very good. These proportions increased significantly from 2000 (13% for completeness, CMH = 12.3, $p=0.0005$, and 15% for trustworthiness, CMH = 22.0, $p<0.0001$).

Feedback on personal prescribing for GPs

- The feedback on personal prescribing behaviour provided to GPs is perceived by the majority of GPs to be both complete and trustworthy. In 2002, 15% of GPs surveyed rated the completeness of feedback information as 'very good', while 20% rated the trustworthiness of this prescribing information to be 'very good'. These proportions increased significantly from 2000 (9% for completeness, CMH = 15.0, $p<0.0001$, and 11% for trustworthiness, CMH = 36.3, $p<0.0001$).

Australian Prescriber

- *Australian Prescriber* is providing a high standard of useful information as judged by its target audiences. The journal is seen to occupy a unique and valuable position because of its independence; unbiased, non-commercial information, conveyed with brevity and clarity; and provision of useful, reader-friendly information that is valued by busy doctors, pharmacists and dentists.
- 86% of GPs who responded to the national survey undertaken in 2004 stated that they were aware of *Australian Prescriber*. Of these, 73% stated they frequently or sometimes read *Australian Prescriber*.
- 86% of pharmacists reported that they regularly read all six issues each year. In addition, 60% of pharmacists responding to the 2004 NPS survey reported using *Australian Prescriber* as a source of information on medicines in the past month.
- More than 90% of readers agree that *Australian Prescriber* provides good overviews of clinically relevant topics and that the information provided is accurate, topical and up to date. Many of the readers (60%) reported that their prescribing has been influenced by *Australian Prescriber*, including 74% of GPs.

Table 1. Summary of 26 therapeutic topics to June 04

Year	Topic	Start date
1998	Helicobacter pylori eradication therapy	December 1998
1999	NSAIDs	February 1999
	Antibiotics for respiratory infections	April 1999
	Benzodiazepines	June 1999
	COPD	August 1999
	Managing hypertension	October 1999
	New drugs	December 1999
2000	Medication review	January 2000
	COX-2 selective NSAIDs	April 2000
	Management of heart failure	April 2000
	Antibiotics for respiratory infections	June 2000
	Managing depression	August 2000
	Hormone replacement therapy	October 2000
	Polypharmacy	December 2000
2001	Management of dyspepsia	February 2001
	Antibiotics for respiratory infections	April 2001
	Issues in psycho-geriatrics	June 2001
	Managing type 2 diabetes	August 2001
	Allergic rhinitis	September 2001
	Management of hypertension	September 2001
	COX-2 selective NSAIDs	October 2001
	New drugs	December 2001
2002	Managing dyslipidaemia	February 2002
	Antibiotics for respiratory infections	April 2002
	Managing drug and alcohol problems	June 2002
	Managing asthma in primary care	August 2002
	Sleeping and confusion in the elderly	October 2002
	New drugs	December 2002
2003	Osteoporosis	February 2003
	Antibiotics for respiratory infections	April 2003
	Analgesics in musculoskeletal pain	June 2003
	Management of hypertension	August 2003
	Antithrombotics in primary care	September 2003
	New drugs	December 2003
2004	Hormone replacement therapy	February 2004
	Optimising use of proton pump inhibitors	April 2004
	Drugs in the elderly	June 2004

The topics in **bold** font were the subject of the full range of interventions, while the remainder were mostly delivered through written materials. The 'Start date' is the date that *NPS News* is published, other activity particularly educational visiting programs and other divisional work will continue for approximately 12 months after that date.

Has accurate, reliable, balanced and timely independent information about new drugs been provided?

- Provision of timely, balanced and independent information about new drugs remains a priority.
 - Generally, information about new drugs is addressed via articles in *Australian Prescriber* following the release of a new chemical entity onto the Australian market, in the December issue of *NPS News* each year and through regular new drugs seminars.
 - More specifically, the NPS new drugs program has dedicated resources to provide information on new and revised listings to the PBS as well as new and emergent research findings.
 - The principal resource for the new drugs program is *NPS RADAR* (Rational Assessment of Drugs and Research), which provides information on the PBS listing (wording of listing), reason for PBS listing (rationale behind listing), place in therapy, safety issues (particularly contra-indications/precautions, adverse effects, drug interactions of note), dosing issues and relevant consumer information.
 - At the end of June 2004 over 10,000 health professionals had registered to receive *NPS RADAR*. It has also been incorporated into the four main prescribing software packages.
 - Four issues of *NPS RADAR* have been released providing reviews on 17 drugs.
 - Early feedback from readers indicates that *NPS RADAR* is providing what is perceived to be unbiased, independent information that is an alternative to information from pharmaceutical industry. Readers particularly value the publication's brevity, format, timeliness, relevance and accessibility.
-
- Whenever possible, information about new drugs is published in the first issue of *Australian Prescriber* following the release of a new chemical entity onto the Australian market, following Therapeutic Goods Act (TGA) approval for marketing. This ensures that health professionals receive an independent assessment of a new product as soon as possible.
 - The December issue of *NPS News* continues to focus on issues with new drugs.
 - NPS continues to host regular new drugs seminars where delegates learn generic strategies to appraise the utility of a new drug compared to current alternatives. Three new drugs seminars for health professionals were held this year in Perth, Townsville and Adelaide, and were attended by 215 GPs, pharmacists and others.
 - *NPS RADAR*, published as part of the New Drugs program, provides information to health professionals on newly listed or revised drugs. This includes information on the PBS listing (wording of listing), reason for PBS listing (rationale behind listing), place in therapy, safety issues (particularly contra-indications/precautions, adverse effects, drug interactions of note), dosing issues and relevant consumer information (Table 2). *NPS RADAR* is distributed via email subscription database, NPS facilitators locally in divisions of general practice, NPS telephone services, weblinks and prescribing software.
 - Awareness raising and acquisition of registrants to the database of individuals requesting to receive *NPS RADAR* has continued to be a priority for the New Drugs program. At the end of June 2004 there were 10 247 registrants.

- All copies of *NPS RADAR* are uploaded onto the NPS website to coincide with the mailing of the e-newsletter to registrants. Figure 1 shows the increasing traffic on the website each month as measured by separate individuals (visits) and by pages viewed (pages).
- *NPS RADAR* has also been incorporated into the four main prescribing software packages: Medical Director, Locum, Genie and Medical Spectrum Plexus. *NPS RADAR* can be accessed either through a browser at the physician's leisure or as part of the prescribing process via automated links.

Key findings from a recent readership survey of *NPS RADAR* include:

- *NPS RADAR* is providing unbiased, independent information that is an alternative to information from pharmaceutical industry. Readers highlight the publication's brevity, format, timeliness, relevance and accessibility as the most positive aspects
- 94% of respondents were aware of *NPS RADAR* and of these 82% have visited the website and read an *NPS RADAR* medicine review
- 95% of respondents indicated the medicine reviews were appropriate to their needs, 94% indicated *NPS RADAR* was either of great or moderate value to them and 89% rated the quality and usefulness as good to very good
- 97% agreed that *NPS RADAR* provides timely reviews on new drugs with 93% agreeing the information was evidence-based.

Figure 1. *NPS RADAR* website traffic

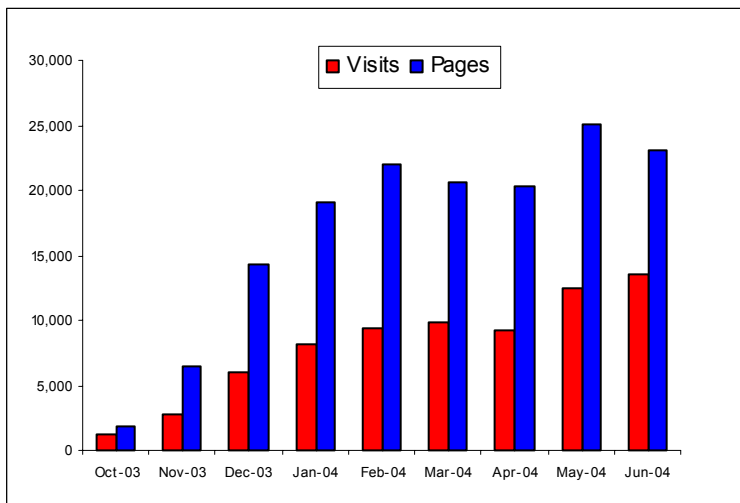


Table 2. NPS RADAR documents developed to August 2004

August 2004 NPS RADAR release
Carvedilol (Dilatrend) titration pack for heart failure
Ethacrynic acid (Edecrin) tablets
Ezetimibe (Ezetrol) for dyslipidaemia
Fenofibrate (Lipidil) for dyslipidaemia
May 2004 NPS RADAR release
Aripiprazole (Abilify) for schizophrenia
Metoprolol succinate controlled-release (Toprol-XL) for heart failure
Oral inactivated cholera vaccine (Dukoral)
Pioglitazone (Actos) for type 2 diabetes mellitus
Rosiglitazone (Avandia) for type 2 diabetes mellitus
February 2004 NPS RADAR release
Deferiprone (Ferriprox) for thalassaemia major
Escitalopram (Lexapro) for major depressive disorders
Medicines used in palliative care
Triptans for migraine
December 2003 NPS RADAR release
Adrenaline (EpiPen) auto-injector for acute allergic anaphylaxis
November 2003 NPS RADAR release
Moxifloxacin (Avelox) for community-acquired pneumonia
Ramipril (Tritace) titration pack

Have telephone advisory services that help health professionals and the community apply best practice in individual clinical situations been maintained and developed?

- NPS continues to fund a telephone advice line for health professionals, the Therapeutic Advice and Information Service (TAIS), and a similar service for the community, Medicines Line.
- Overall, 22 200 calls have been received by TAIS, increasing steadily from 4 700 calls in 2000–01 to over 6 000 in 2003–04. Calls to the service are primarily concerned with drug interactions and adverse drug reactions.
- More than 1500 people call Medicines Line each month, primarily to ask questions about side effects, drug interactions, therapeutic choices, medicine use in pregnancy or when breast-feeding. Calls to the service have increased following its promotion via the Community QUM program.
- There has been a sizable increase from 2003 to 2004 in the percentage of consumers believing Medicines Line provides trustworthy (49% to 61%) and complete (39% to 55%) medicines information.

TAIS

- There has been a steady increase in the use of TAIS from about 4 700 calls in 2000–01 financial year to over 6 000 in 2003–04, with more than 22,200 calls overall. Most calls are from community pharmacists (49%) and GPs (32%). The calls are most frequently about drug interactions (20%), adverse drug reactions (18%), or therapeutic strategy (12%) (i.e. where enquirers request information on the treatment of choice for a specified indication or justification for a treatment choice). Drugs or issues affecting the nervous system (including mental health problems) are consistently the major source of enquiries (16%) with cardiovascular, anti-infective and herbal/complementary medicines also frequent topics.
- 28% of GPs surveyed in 2004 were aware of TAIS and of those, 57% rated the usefulness of TAIS to be good to very good.
- 42% of pharmacists surveyed in 2004 were aware of TAIS and of those, 84% rated the usefulness of TAIS to be good to very good.

Medicines Line

- More than 1 500 people call Medicines Line each month primarily to ask questions about side effects, drug interactions, therapeutic choices, medicine use in pregnancy or when breast-feeding. Calls to the service have increased following its promotion in the newly launched Community QUM program (Figure 3).
- 16% of consumers surveyed in 2004 were aware of Medicines Line, similar to the previous year (15%). There has, however, been a sizable increase from 2003 to 2004 in the percentage of consumers believing Medicines Line provides trustworthy (49% to 61%) and complete (39% to 55%) medicines information.

- 26% of GPs surveyed in 2004 were aware of Medicines Line. Of those who were aware of Medicines Line (n=200) and who answered the question on whether they used it (n=189), only a minority (n=29, 15%) had sometimes or frequently referred consumers to this service.
- 57% of pharmacists surveyed in 2004 were aware of Medicines Line. Of those who were aware of Medicines Line (n=546) and who answered the question (n=506), 43% had referred consumers to it.
- 89% of pharmacists who had referred consumers to Medicines Line rated its' usefulness as good or very good.

Figure 2. Calls to TAIS

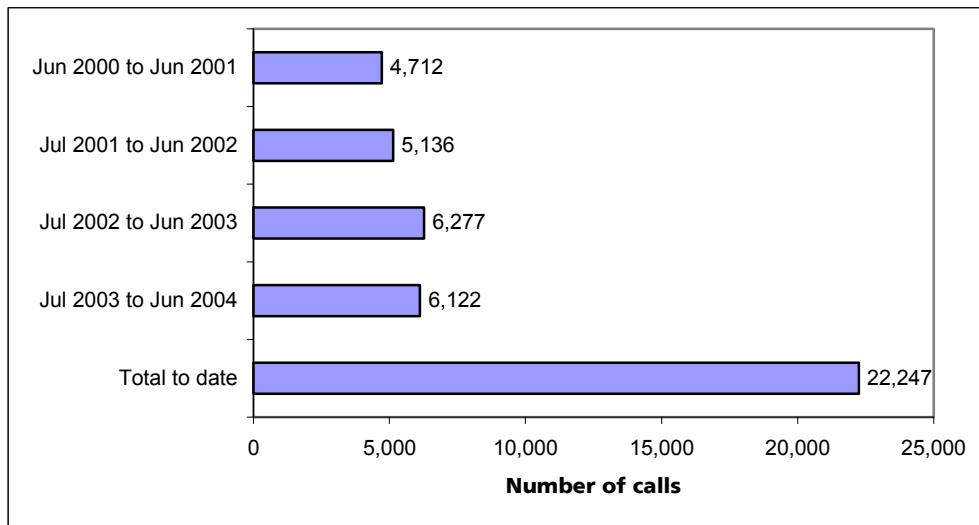
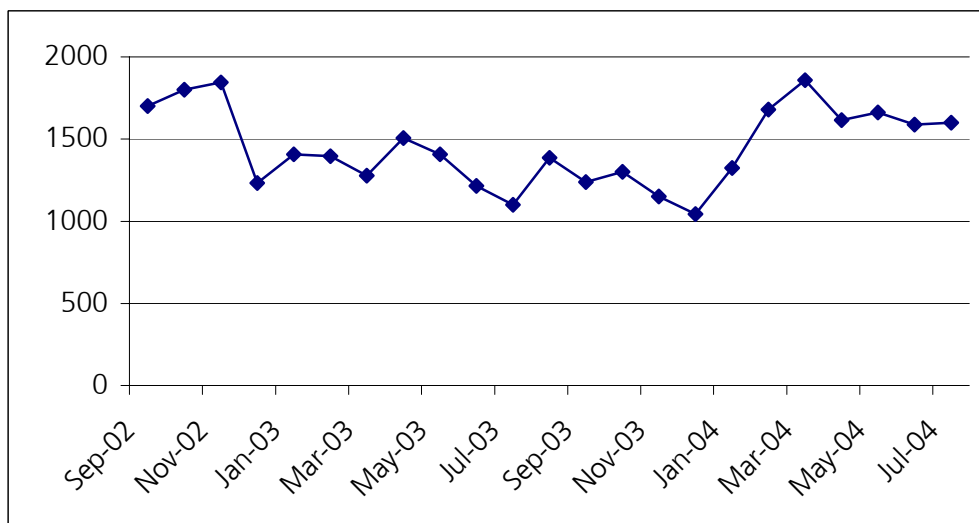


Figure 3. Calls to Medicine Line



Improved access to patient materials

Has the use of Consumer Medicine Information (CMI) and other patient materials been promoted through prescribing, dispensing or administering software?

- NPS patient information sheets and CMI are promoted in prescribing software generally and specifically through *NPS RADAR*.
- Plans are underway to incorporate direct access to CMIs via the NPS website as well as through *NPS RADAR* information provided in prescribing software.

- NPS patient information sheets have been included in Medical Director and other prescribing software.
- *NPS RADAR* documents, included in prescribing software, promote CMIs as a tool for medicines discussions between health professional and patients.
- Work towards direct access to CMIs via the NPS website is underway.
- Through the NPS New Drugs program, plans are in place with four software vendors—Medical Director, Global Health (Locum), Genie Software and IBA Spectrum (Medical Spectrum Plexus)—to incorporate ‘push of a button’ access to CMIs from their prescribing window or an easily accessible place. NPS has also asked for a pop-up button to appear to remind the doctor of CMI when the physician is prescribing a drug that has been reviewed in *NPS RADAR*. In time NPS will investigate the feasibility for this pop-up to operate when the patient is first prescribed any medication that is new to them.

Consolidated access to education and quality assurance activities

Has the reach of services for GPs and pharmacists been consolidated and expanded?

- Over 9 000 individual GPs voluntarily participated in NPS core activities in 2003–04, steadily increasing from 3 000 in 1998–99.
- Almost 16 000 GPs (over 85% of the approximately 18 800 vocationally registered GPs nationally) have participated in at least one NPS activity at any time during the past six years.
- 58% of the 16 000 GPs who have ever participated in NPS programs have participated three or more times since 1998.
- About 50% of GPs in Australia are actively participating in NPS activities each year.
- To the end of June 2004, pharmacists have been offered seven self-audits and seven case studies over 10 topics.
- Almost 2 000 (9%) pharmacists have participated in the more recent pharmacy program with over 1 000 having participated in the last financial year (as compared to 23 in 1999–2000).

- Up to five therapeutic topics have been covered by the Education and Quality Assurance program each year since 1998 (Table 1).
- Print publications continue to be disseminated to all GPs and pharmacists on a regular basis. Recently, GP registrars were also added to the distribution list for review of prescribing behaviour.
- In addition to receipt of print publications, GPs are regularly provided the opportunity to actively participate in education and quality assurance activities. The number of individual GPs who have voluntarily participated in NPS core activities has steadily increased from less than 3 000 in 1998–99 to around 9 000 in 2003–04. Almost 16 000 GPs have participated in at least one NPS activity at any time during the six years although many have had multiple occasions of participation. Currently, about 50% of GPs in Australia are actively participating in NPS activities each year in addition to receiving print publications. Furthermore, 58% of the 16 000 GPs who have ever participated in NPS programs have participated three or more times since 1998. Participation by individual GPs ranges from one activity to 48 activities. Figures 4 and 5 and Table 3 provide further details.
- Case studies have involved over 36 000 GP participants over all therapeutic topics, consisting of more than 7 200 unique GPs. Thirty two case studies for GPs have been offered since 1998. GP participation in case studies averages about 1 500 on each occasion.
- There have been over 29 000 educational visits since 1998, providing one-to-one contacts for more than 10 500 unique GPs and covering 14 topics.
- Clinical audits have also been popular, involving almost 8 000 GPs in 12 topics since 1998. Antibiotics was the most popular topic (over 8 000 GPs), followed by hypertension (over 3 800 GPs) and managing dyslipidaemia (over 1 700 GPs).

- GP participation in divisional small group case study discussions (peer groups) continues to grow in popularity with over 7 400 GPs involved in 23 topics since they started in 2000–2001.
- GP participation in the different topics offered by NPS has varied. The highest participation up to the end of June 2004 was for antibiotics (with over 8 800 GPs), type 2 diabetes (over 6 600 GPs), hypertension (over 6 500 GPs) and asthma (over 6 500 GPs).
- To the end of June 2004, pharmacists have been offered seven self-audits and seven case studies over 10 topics. Participation in core activities (case studies and self-audits) by pharmacists is lower than for GPs, but continues to increase. Almost 2,000 pharmacists have participated since 1999 and over 1 000 have participated in the last financial year (as compared to 23 pharmacists in 1999–2000) (Figures 6, 7 and 8). The participation by pharmacists for 2003–2004 represents about 9% of pharmacists (assuming around 12 000 active community pharmacists). Pre-registration pharmacists are a specific target of NPS prescribing interventions. Participation by this group is also increasing steadily to just over 600 ever (Figure 8).
- NPS facilitators in divisions of general practice report an increased incidence of mixed GP and pharmacist educational events. Divisional small group case study discussions now have mixed GP and pharmacist participants in about 35% of all peer group meetings (having risen from about 26% in the first two years of NPS operation). The overall proportion of pharmacist involvement in these meetings is now about 15% (having risen from about 10% in the first two years of NPS operation). Within the mixed groups, the proportion of pharmacists is now about 27% (having risen from about 24%).

Figure 4. Number of unique GPs who have participated in NPS Core QUM Program activities by financial year to end June 2004

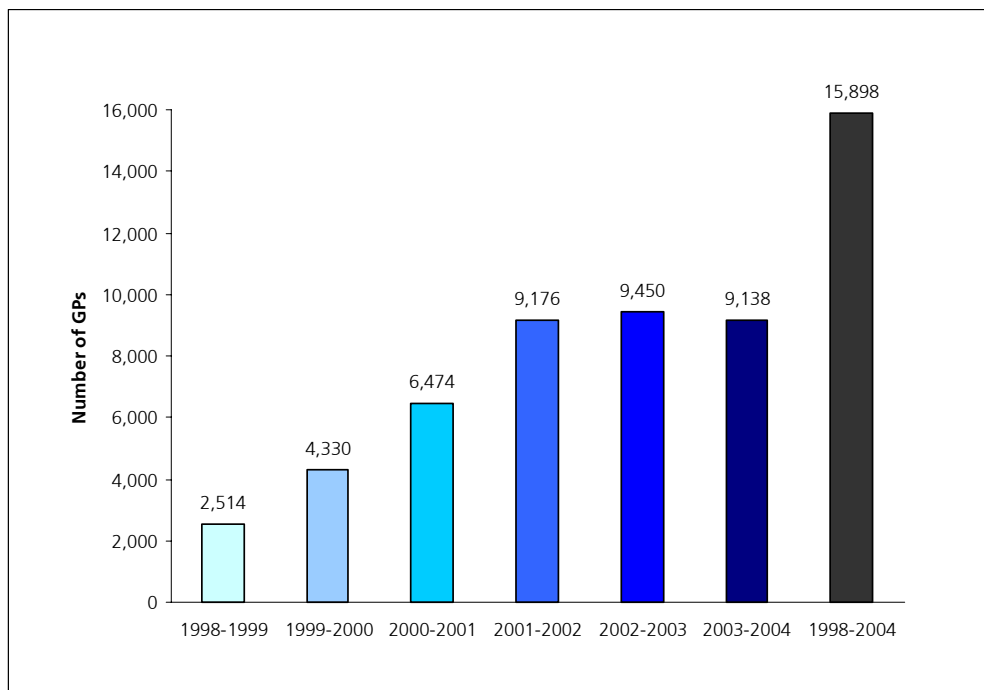


Figure 5. Total number of GPs who have participated in core NPS activities by financial year to end June 2004

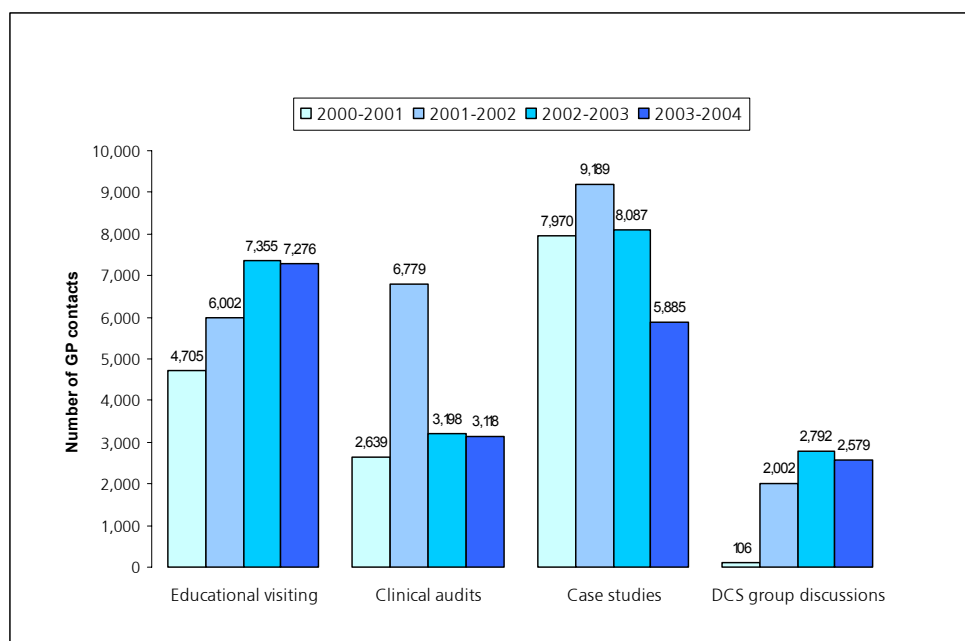


Table 3. Participation by GPs in program activities by type of activity

Program Topic	Activity			
	Educational visit	Division case study group discussion	Clinical audit	Case study
Antibiotics for URTI	3,888	651	8,267	4,459
Anti-thrombotic therapy in general practice	2	10	–	1,135
Management of asthma	4,229	1,392	1,149	1,421
Benzodiazepines	33	29	–	325
COPD	517	42	–	686
Managing depression	2,939	217	1,001	1,719
Managing drug and alcohol dependence	–	10	–	1,084
Drugs in the elderly	–	–	–	571
Managing dyslipidaemia	3,092	680	1,777	1,483
Management of dyspepsia	–	6	–	1,261
Helicobacter eradication therapy	–	8	–	12
Improving drug use in heart failure	1,000	106	69	1,660
Hormone replacement therapy	2,180	740	13	3,111
Management of hypertension	3,678	700	3,898	1,590
Medication review	16	40	43	1,410
New drugs	–	62	–	3,313
NSAIDs and COX-2 selective NSAIDs	–	63	106	1,533
Osteoporosis	–	23	–	1,572
Analgesics in musculoskeletal pain	3,241	1,156	835	1,292
Polypharmacy	–	42	–	1,248
Optimising the use of proton pump inhibitors	99	19	521	1,083
Psychogeriatrics	–	32	–	1,238
Sleep disorders	–	21	–	1,383
Managing type 2 diabetes	4,087	1,384	1,485	1,696

Figure 6. Participation by pharmacists across topics for case studies and self-audits to end June 2004

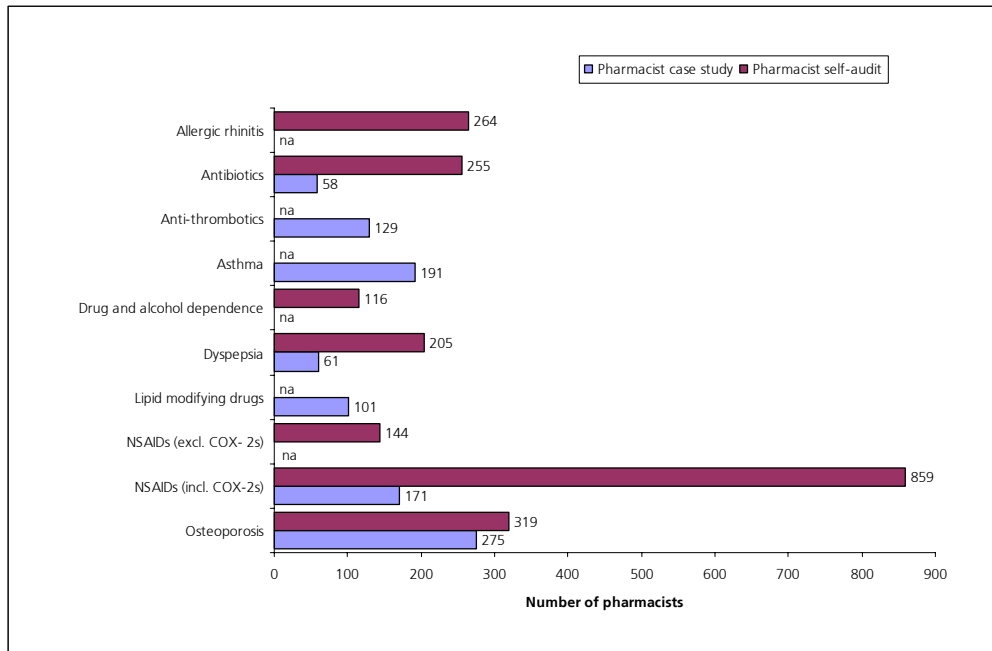


Figure 7. Participation by pharmacists in NPS core activities (case studies and self-audits) by financial year to end June 2004

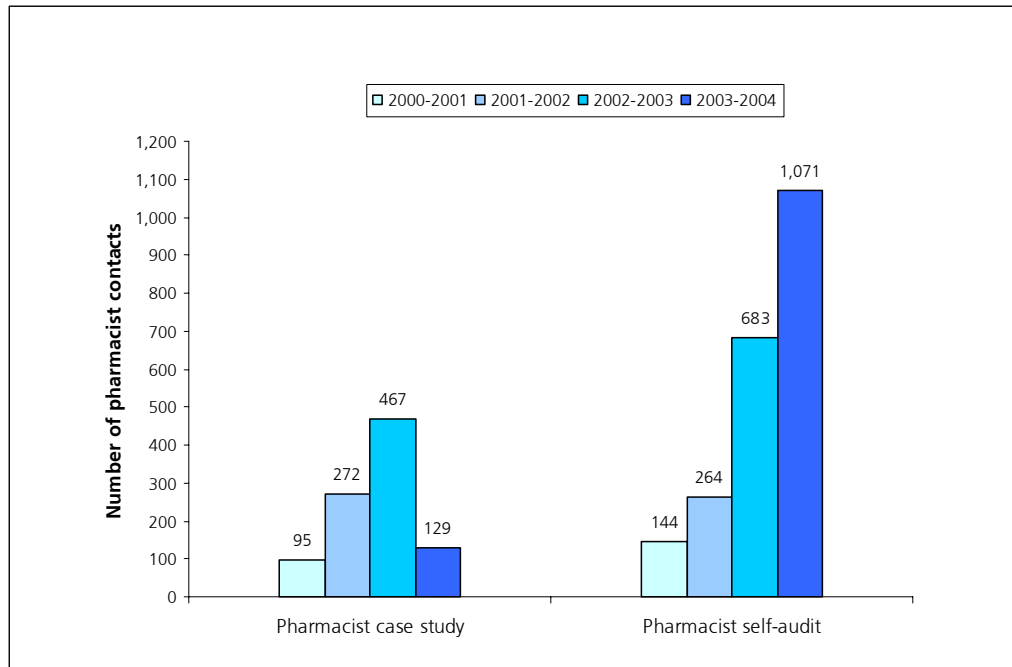
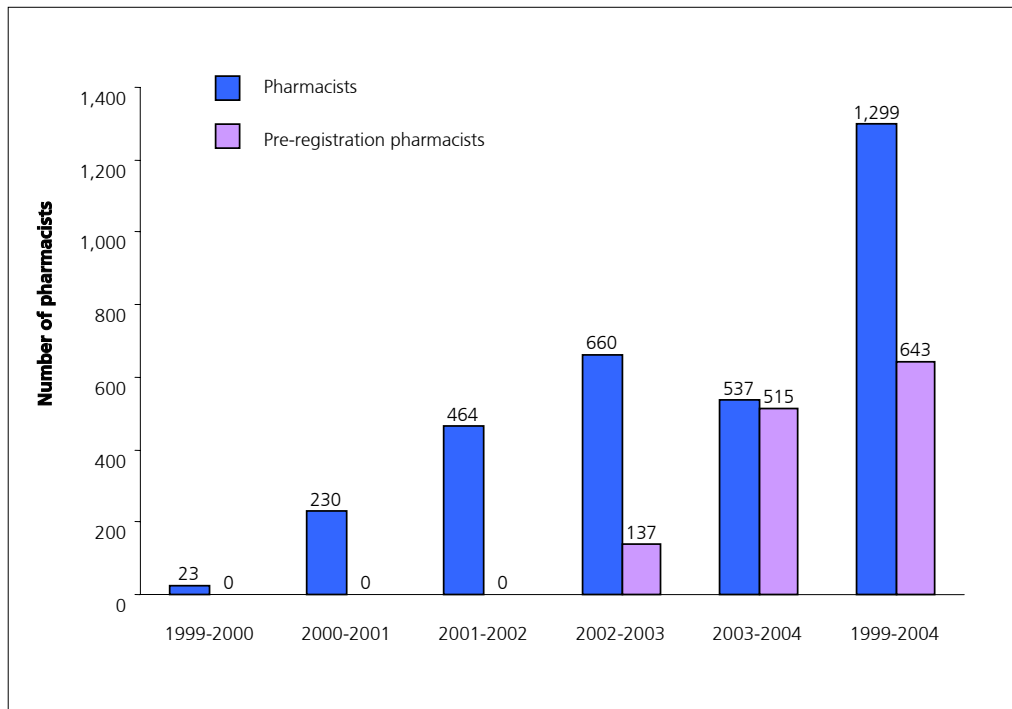


Figure 8. Participation by unique pharmacists in NPS core activities by financial year to end June 2004



Extended reach of services

Have new, more comprehensive programs for specialist medical practitioners, nurses and hospitals been developed and implemented?

- A priority for the organisation is to extend the reach of service to specialist medical practitioners, building on the early success of services provided for GPs and pharmacists.
- Developing and implementing useful and relevant interventions for nurses remains a strategic priority.
- Nurses are now being provided with selected NPS materials and a series of QUM in Nurse Education workshops have been hosted.
- Providing effective interventions in hospitals and aged care facilities also remains a strategic priority.
- NPS has supported a multicentre drug use evaluation project to improve management of community-acquired pneumonia in hospital emergency departments, involving 38 hospitals nationally.
- Resources for an audit of benzodiazepine use against national guidelines in residential aged-care facilities has been developed and pilot tested.

Specialist medical practitioners

- As a first step towards developing comprehensive QUM educational and quality assurance activities and services for specialist medical practitioners, NPS completed a review of available evidence (the final write up of the literature review will be available in early 2005). The specific aims of the literature review were to:
 - review the current literature on prescribing practices of specialists
 - review current literature on interventions to change or modify prescribing practices of specialists
 - review current literature on the influence of specialist prescribers
- Consultation links have been established with the Royal Australian College of Physicians (RACP).
- The potential role of the of the Maintenance of Professional Standards (MOPS) program of the RACP has been reviewed. This MOPS program provides a range of continuing education and quality assurance activities and aims to 'ensure that Consultant Physicians and Paediatricians are involved in a range of continuing educational activities which are directed at enhancing clinical standards throughout their professional careers so that clinical practice and patient care of the highest quality will continue to be provided'.

Nurses

- Nurses are now being provided with selected NPS programs that will assist them to implement QUM principles in their areas of practice. Recently, nurses in residential aged care facilities were provided with information about the NPS Drugs in the Elderly program and sent copies of *NPS News* and *PPR* on that topic, as well as a relevant case study.

- Future programs will also be made available to the nursing groups that will gain the most benefit from the information and activities.
- Recently, NPS appointed a nurse to the board and established a Nursing Advisory Group with membership from PHARM, the Royal College of Nursing Australia, the Australian Council of Deans of Nursing, the Australian Nursing Federation and the Australian Nursing Council.
- In collaboration with PHARM, a series of metropolitan QUM in Nurse Education workshops were facilitated throughout 2004, where a presentation on QUM in Nursing was made, QUM resources distributed and discussion generated around local and national action plans for the involvement of QUM in nurse undergraduate courses.
- In 2005, work will continue to support nursing schools to integrate QUM within undergraduate curricula. A range of workshops will also be provided to regional areas, if possible. Strategies will be developed to support identified QUM initiatives within nursing schools.

Hospitals

- NPS is funding and supporting a multicentre drug use evaluation (DUE) project to improve patient outcomes through implementing national guidelines for managing community-acquired pneumonia in hospital emergency departments. The project engages the expertise of State DUE groups from Victoria, New South Wales, Tasmania, South Australia and Queensland that work directly with hospitals.
- To date, hospital project teams have been formed in all of the 38 participating hospitals, data collection tools have been developed with data collection commenced in some hospitals and academic detailing skills training has been completed. Resources required for delivering the intervention key messages have been developed.
- Resources for a facility-based audit of benzodiazepine use against national guidelines in residential aged-care facilities (RACFs) have been developed and pilot tested. Their use has been promoted among accredited pharmacists and directly with the facilities as a way of implementing the Australian Pharmaceutical Advisory Council (APAC) Guidelines for Medication Management in RACFs. Further work is planned with Medication Advisory Committees (MACs) to raise awareness of QUM issues and assist MACs to share information and resources.

Improved access to decision support material

- **Through prompts at the point of prescribing**
- **Through use of data on personal prescribing behaviour**
- **Through integrated clinical and information models**

Has access to reliable information and prompts at the point of decision-making been improved?

- *NPS RADAR* information has been incorporated at the point of prescribing in four software programs. Plans continue for other prescribing prompts.

- NPS has worked with software providers to incorporate an interactive and timely interface for *NPS RADAR* so that when a new drug is prescribed the prescribers are able to access information specific to that drug.
- To inform this area of work three focus groups of GPs were undertaken in 2002 to explore how Australian GPs use pharmaceutical decision-support (PDS) systems, determine GPs' perceptions of the deficiencies and strengths of these systems and how they believe they can be improved. Specifically, this research investigated the advantages and disadvantages of using PDS software, ideas for improving PDS systems and attitudes to electronic evidence-based guidelines. Main results showed that GPs believe:
 - Important interactions may be missed because of desensitisation resulting from too many alerts (which also intrude on workflow)
 - Interaction alerts need to be severity graded and only significant ones should appear
 - Improved computer–user interface design could enhance the usefulness of PDS systems.

Have doctors been provided with methods for extracting and interpreting prescribing data relevant to QUM and patient care?

- As part of the Enhanced Divisional QUM project NPS has hosted two workshops for divisions of general practice to inform them of the use of pharmaceutical utilisation data to stimulate improvements in prescribing.
- NPS has also supported a pilot project to explore GP responses to an educational model using prescribing data within a peer group discussion to inform quality prescribing in a specific therapeutic area. Three workshops have been hosted involving peer groups of 6–10 GPs.

- As part of the Enhanced Divisional QUM (EDQUM) project, NPS has hosted workshops for divisions of general practice to inform them of the use of pharmaceutical utilisation data to stimulate improvements in prescribing. The first workshop aimed to give participants a basic introduction to understanding and interpreting pharmaceutical utilisation data. It was attended by 32 participants. The second workshop focused on the application of the understanding of the pharmaceutical data sets gained at workshop one, to guide and stimulate quality improvement and a discussion of the models/tools to do this. A total of 27 participants attended the second workshop.
- As part of a multi-site hospital drug use evaluation project, emergency department doctors and respiratory physicians in 38 hospitals across Australia have been provided with resources and training to collect, interpret and review data on the emergency department treatment of community-acquired pneumonia in comparison with national guidelines.
- NPS has also supported a pilot project to explore GP responses to using prescribing data within a peer group discussion to inform quality prescribing in a specific therapeutic area. Three evening workshops of 90–120 minutes duration involving peer groups of 6–10 GPs and facilitated by a GP and NPS facilitator were undertaken in the Southern Tasmanian Division of General Practice. GPs who registered for the workshop were mailed a pre-workshop task to complete. This involved simple instructions to enable them to collect basic data from their clinical software systems on their prescribing of proton pump inhibitors (PPIs) and H₂ antagonists. At the meetings the peer groups reflected on their own and their peers PPI prescribing patterns against best practice guidance. Feedback from workshop participants showed:
 - 87% agreed or strongly agreed that the workshop had updated their understanding of best practice in the management of gastro-oesophagol reflux disease (GORD) and 96% agreed or strongly agreed they had gained useful information that they would apply to their practice.
 - 'Peer group discussion' (52%, n=12), 'review of evidence based guidelines' (40%, n=9) and 'presentation and discussion of prescribing data' (22%, n=5) were reported to be the most valuable aspects of the workshop.
 - 78% of participants agreed or strongly agreed that reflecting on their personal prescribing data against best practice guidelines was a useful activity
 - 61% agreed the workshop had stimulated them to think about using their desktop prescribing data to review their prescribing patterns in other areas.

Have clinical and information models been developed for pharmaceutical decision support that support an integrated approach to use of QUM resources?

- A collaborative project is underway between NPS, the General Practice Computing Group and the University of Melbourne to build an information model of prescribing practice to facilitate the development of integrated and evidence-based decision support systems.

- A major collaborative project between the NPS, the General Practice Computing Group (GPCG) and the University of Melbourne is currently building an information model of prescribing practice to guide the development of integrated and evidence-based decision support systems. The starting point is the GPCG-funded General Practice Data Model and Core Data Set which identified a set of 'core' information elements that are appropriate to the clinical management of a patient by a GP. This new project is developing a model that describes the prescribing process with appropriate inputs, logics and outputs. Independent medicine providers are collaborating by providing drug information and guidelines to incorporate into this model. The information model and reference implementation developed in this project will be open source software, allowing and encouraging software developers to develop a functional prototype linking the clinically based information model with the decision support drug and guideline reference database.
- This open-source decision support engine will be made available to organisations that develop prescribing, dispensing and drug administration software so they can link to it, thereby facilitating access to best-evidence, decision support resources.

Improved access to QUM knowledge and skills training

- **For the QUM workforce**
- **For students**

Have skills training and professional development been provided for the QUM workforce?

- Provision of professional development and skills training opportunities to the QUM workforce remains a priority for NPS.
- NPS facilitators employed in divisions of general practice are provided with regular training and support through skills training workshops, therapeutic briefings, an annual forum and divisional visits from NPS support staff.
- A generic QUM training module has been developed and used with HMR pharmacists, pharmaceutical companies, NPS facilitators and staff and consumer representatives.
- Specific QUM training has been developed and provided for consumer peer educators.
- Eight project officers involved in an Australia wide multi-centre hospital-based drug use evaluation for appropriate treatment of community-acquired pneumonia have been provided training on academic detailing.
- 21 nurses and Aboriginal health workers based in remote areas of Australia have been provided training on QUM, small group facilitation skills and the therapeutic management of hypertension.
- NPS has provided training to divisions of general practice as well as individual GPs to increase their ability to interpret and use pharmaceutical utilisation data to improve quality of prescribing.
- Every two years NPS continues to co-host the National Medicines Symposium, an opportunity for debate and discussion on current and future issues for QUM as well as an opportunity for professional development of the QUM workforce.

- NPS continues to provide field support and training to NPS facilitators employed through divisions of general practice to provide local delivery of program messages. In the past year facilitator training included educational visiting workshops (3 held with 36 participants), building on skills workshops (advanced educational visiting, 3 held with 34 participants) and group skills (facilitation skills) workshops for running GP peer groups and case discussions (3 held with 36 participants).
- Therapeutic briefings for NPS facilitators are also held in each state and territory for the major therapeutic modules. In the past 12-months, five therapeutic briefings were held on hypertension (attended by approximately 90 NPS facilitators), four therapeutic briefings on optimising the use of proton pump inhibitors (attended by approximately 50 facilitators) and six on analgesics in musculoskeletal pain (attended by just under 90 facilitators).
- Each year a two-day conference, the NPS Facilitators' Forum, is held for all NPS facilitators for networking, professional development and up-skilling.

- NPS facilitators continue to receive regular support from NPS staff via divisional visits and monthly telephone meetings of small support networks. Advice and assistance with specific therapeutic topics has also been provided through topic specific teleconference sessions.
- Training products have been developed for consumer peer educators and NPS facilitators.
- A generic QUM training module has been developed and used with HMR pharmacists, pharmaceutical companies, NPS facilitators and staff and consumer representatives.
- Training on academic detailing has been provided to eight project officers involved in a multicentre hospital-based drug use evaluation for appropriate treatment of community-acquired pneumonia.
- Through a project aimed at trialling a model for provision of QUM and therapeutic information to nurses and Aboriginal health workers in remote areas of the Northern Territory, two training sessions have been provided in Alice Springs (attended by 10 participants) and Darwin (attended by 11 participants) in May and June 2004. The training sessions comprised an introduction to QUM, training on how to facilitate small group meetings, training on enhancing communication skills and briefing on a specific therapeutic topic (management of hypertension). Feedback from participants in both sessions was positive and NPS has increased understanding of how best to target ongoing support and resources for this group. Further training sessions will be conducted in 2005 and evaluation is ongoing.
- As part of the Enhanced Divisional QUM project (EDQUM), NPS has provided training to divisions of general practice as well as individual GPs to increase their ability to interpret and use pharmaceutical utilisation data to improve quality of prescribing.
- Every two years, NPS co-hosts a two-day conference, the National Medicines Symposium. This symposium provides an opportunity for debate and discussion on current and future issues for QUM and also provides an opportunity for professional development of the QUM workforce. QUM stakeholders who attend these symposia include consumers, general practitioners, pharmacists, other health and medical professionals, NPS facilitators and staff, government, medicines industry, academia and the media. The most recent symposium was held in July 2004.

Feedback received on the training and support provided by NPS to facilitators as well as feedback on the Facilitators' Forum and the National Medicines Symposium is on the whole extremely positive:

Skills training provided to facilitators

- Facilitators were in total agreement that training provided by NPS is of high quality.

Ongoing support provided to NPS facilitators

- There is near unanimous endorsement among facilitators that support provided by NPS is good or very good and appropriate to needs.

Facilitators' Forum

- The perceived quality of speakers at the Facilitators' Forum was excellent. An overwhelming majority of respondents (98%) either strongly agreed or agreed that the speakers were of high quality.
- The majority (71%) of those who attended felt that the forum had met some of their needs, with 25% saying it had exceeded their expectations or met all of their needs.

National Medicines Symposium 2004

- The majority of responses to the National Medicines Symposium evaluation were positive, over 60% of delegates indicated that the symposium either met all of their needs or exceeded their expectations.
- Respondents were overwhelmingly positive with respect to the perceived quality of the speakers with 97% either agreeing or strongly agreeing that they were of high quality. A similar proportion positively rated the relevance and interest of the symposium themes/streams.

Have education resources been provided and continually developed that better equip medical, nursing, pharmacy and other health profession students to be good QUM practitioners?

- A nationally accepted prescribing curriculum for senior medical students has been implemented nationally in nine medical schools.
- A web-enabled, interactive curriculum for postgraduate medical students is in development.

- Via the NPS Curriculum and Training Program, NPS has worked in collaboration with all Australian medical schools and the Australian Society of Clinical and Experimental Pharmacologists and Toxicologists to develop a nationally accepted prescribing curriculum for senior medical students. The web-based interactive curriculum comprises a number of modules that are now being used by medical students around Australia. The modules are based on the World Health Organization's *Guide to Good Prescribing* and use the *Australian Medicines Handbook* and *Therapeutic Guidelines* as references. This curriculum addresses both cognitive and behavioural issues relevant to prescribing. The curriculum is being used routinely in nine medical schools and a CD-ROM version has been developed as a separate project at the request of the World Health Organization because of the broad value of the product internationally.
- In recent surveys of medical students it was found that:
 - 97% had used the curriculum as part of their study
 - 90% reported therapeutic content was appropriate to their needs
 - 86% reported the website allowed easy navigation through each module.
- In conjunction with the Confederation of Postgraduate Medical Education Councils and state-based Postgraduate Medical Education Councils, a web-enabled, interactive curriculum for postgraduate medical students is in development. The format for the curriculum is a more sophisticated set of modules, with additional modules also available for bedside teaching. Pilot testing of this curriculum began in May 2004.
- NPS is working with pharmacy and nursing educators to ensure that NPS materials are useful resources for undergraduate students and to advocate for inclusion of QUM in their curricula. There is ongoing consultation and development of appropriate teaching and learning strategies for QUM.
- In August 2004, NPS surveyed heads of schools of pharmacy in universities across Australia to examine use of NPS as well as other general QUM resources within Australian pharmacy schools. Feedback was received from eight schools (66%). Use of NPS materials varied both across schools and between postgraduate and undergraduate teaching. *NPS News*, *NPS RADAR* and *Australian Prescriber* were the most recognised NPS resources used with undergraduate students. All schools that responded to the survey reported that QUM is taught by integration throughout the course structure, rather than as a separate subject. A document listing the QUM resources available and encouraging their use for undergraduate pharmacy students will shortly be disseminated to all pharmacy schools with the results of the survey.

A nationally coordinated and collaborative approach to QUM

- **Through work with divisions of general practice**
- **Through work with other stakeholders**

Has NPS worked closely with divisions of general practice on innovative models of program delivery that encourage local ownership and respond to local needs?

- | |
|---|
| <ul style="list-style-type: none">▪ Divisions of general practice remain a key partner for local delivery of national QUM messages.▪ 97% of divisions across the country now have a contract with NPS to ensure local relevance and ownership of program delivery among GPs. |
|---|

- Close alliances have been formed with 116 divisions of general practice (current August 2004). NPS provides each division with funding for the local program delivery which is necessary to ensure local relevance and ownership by GPs.
- Facilitators (usually pharmacists or nurses) are then employed by the Divisions to carry out the local implementation.
- NPS provides substantial training, skills development, day-to-day program support and quality assurance for the facilitators to ensure they are effective.
- There has been a steady increase in participation by divisions of general practice in NPS activities from 43 divisions in 1999 to 116 in 2004 (97% of divisions). Figures 9, 10 and 11 provide further details.
- As well as choosing to deliver the core NPS activities 56 divisions have run continuing medical education programs in the form of didactic lectures on NPS topics and others continue to provide sessions for consumers.
- Currently, a detailed review of divisions' operations is being undertaken to examine models for how the NPS program is being implemented on the ground. Once finalised, this work will provide important feedback on the barriers and enablers to program delivery. This information will be provided to divisions to help them develop and implement best practice models for program delivery.

Figure 9. Division participation in locally coordinated activities (January 1999 to June 2004)

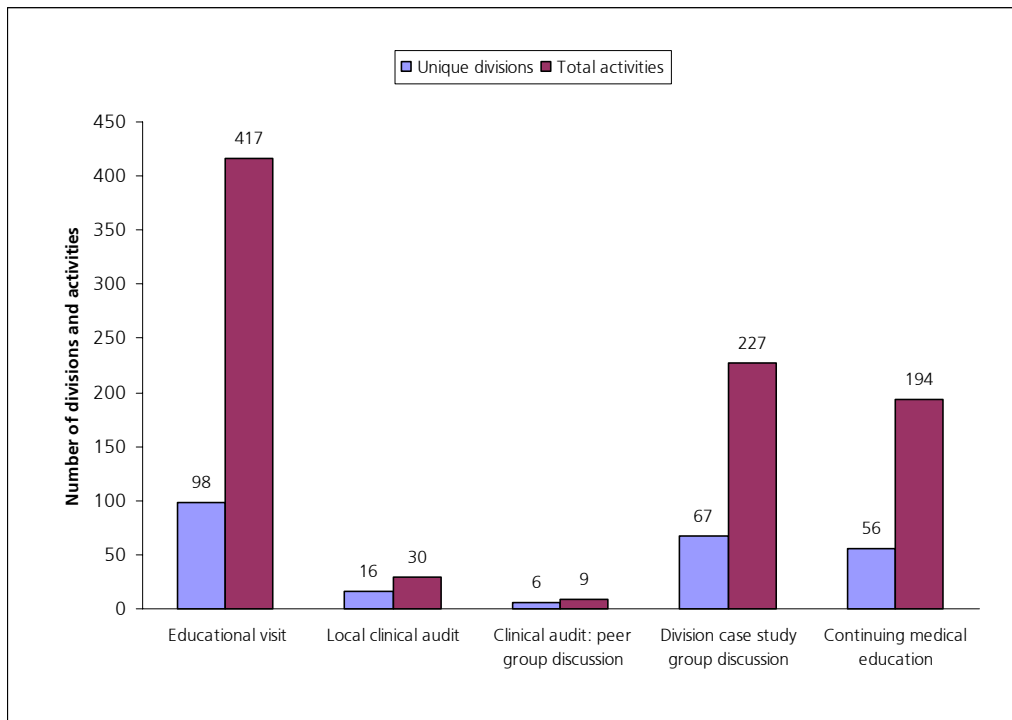


Figure 10. Participation by unique divisions in locally coordinated activities by financial year to end June 2004

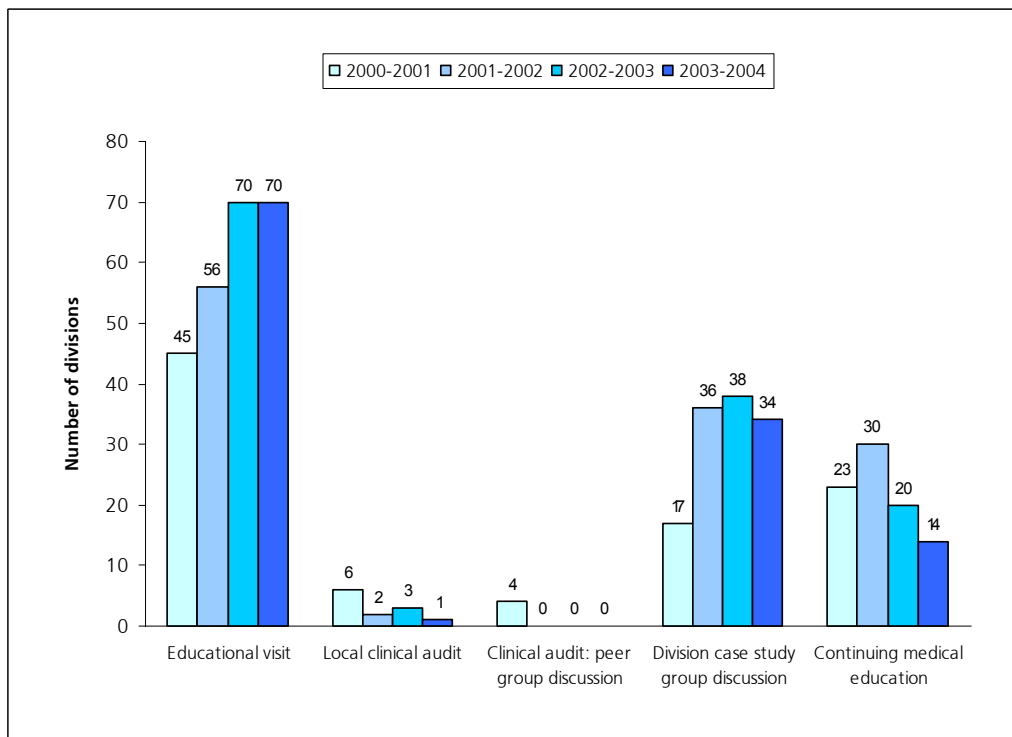
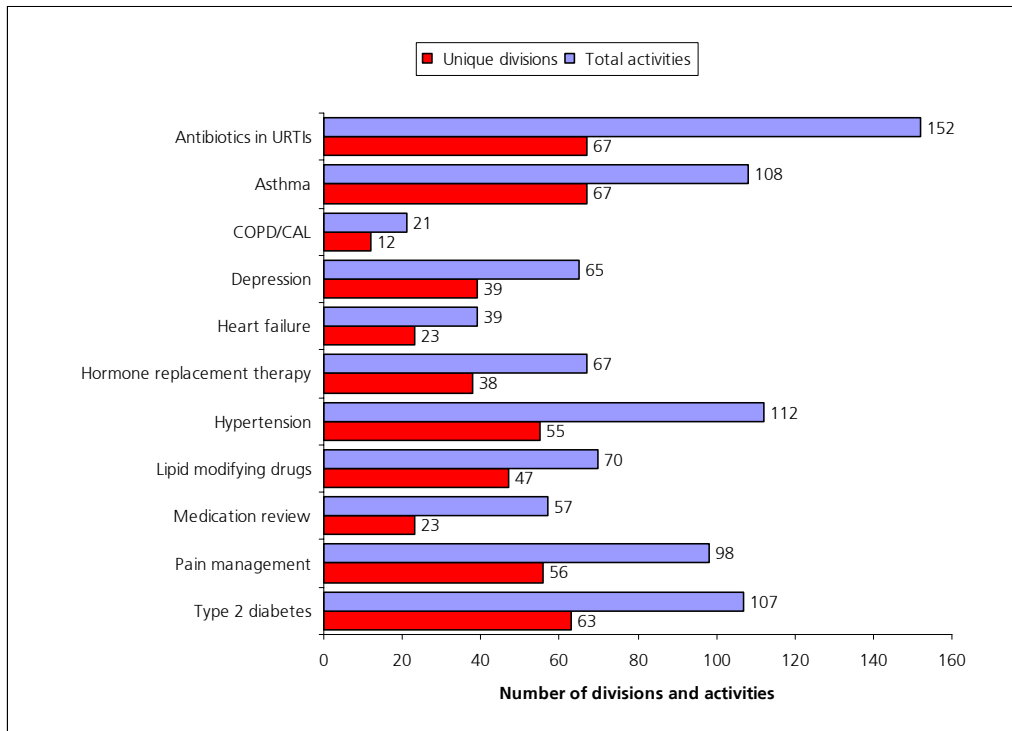


Figure 11. Participation by divisions across major topics for locally coordinated activities to end June 2004



Has NPS worked closely with specialist medical bodies, disease-based foundations, guideline groups and other stakeholders for a nationally consistent and coordinated approach to QUM programs and messages?

- NPS continues to work closely with specialist medical bodies, disease-based foundations (e.g. Diabetes Australia, National Asthma Council, National Heart Foundation of Australia), and guideline groups (e.g. National Institute for Clinical Studies, Therapeutic Guidelines Ltd, Australian Medicines Handbook Pty Ltd) to ensure a nationally consistent and coordinated approach to QUM programs and messages.

- NPS is currently working on the Joint Heart Failure Project in close collaboration with the National Institute for Clinical Studies (NICS) and the National Heart Foundation of Australia (NHF). This collaboration will ensure consistency in messages and maximise reach of program.
- The multi-centre drug use evaluation (DUE) project coordinated by NPS has involved engaging state DUE groups to agree on consistent national strategies to improve treatment of community-acquired pneumonia in 38 hospitals across Australia.
- NPS continues to provide regular comment on new editions of *Therapeutic Guidelines*.
- NPS provided comment on the *Guidelines for Management of Hypertension* written by the NHF.
- NPS worked closely with staff from Therapeutic Guidelines Ltd (TG) to review materials developed to assess and improve concordance with management of community-acquired pneumonia.
- NPS publications often refer to the Australian Medicines Handbook Pty Ltd (AMH) and TG. There are close links between *Australian Prescriber* and these other publishers of independent information. The editor-in-chief of *Australian Prescriber*, for example, is a member of the editorial advisory board of the *Australian Medicines Handbook* and of the *Therapeutic Guidelines* board. He has also chaired the Australian expert group preparing evidence-based guidelines for the treatment of respiratory diseases.
- AMH and TG provide their resources to NPS for use with the medical student and postgraduate National Prescribing Curriculum.
- *Australian Prescriber* has increased its interaction with the advisory editorial panel. The panel consists of representatives of all the major specialist colleges and societies, so is an important link between NPS and these organisations.
- In October the UK House of Commons Select Committee on Health visited Australia to investigate influences on prescribing. Although this group was only in Australia for a few days, the NPS was one of the few key organisations they wanted to meet with.
- The editor-in-chief of *Australian Prescriber* was invited to attend a meeting of the Committee of the International Society of Drug Bulletins (ISDB) in Europe. This was a productive meeting and as the next international congress of ISDB will be held in Australia there will be a further opportunity to showcase Australian independent information.

Becoming a trusted source of medicines information

Has NPS been positioned as a trusted source of reliable and independent information on medicines and therapeutics?

- The vision of NPS is to be the most trusted source of independent information about medicines for Australians.
- Over three quarters of GPs (84%) and pharmacists (97%) surveyed in 2004 endorsed NPS as being of either great or moderate value to them.
- Pharmacists overwhelmingly believe NPS information is independent (80%), evidence-based (85%) and appropriate to their needs (78%).
- NPS is seen to be playing an important role in countering pharmaceutical industry perspective and providing independent medication/prescribing advice.

- Over three quarters of GPs surveyed in 2004 (84%) endorsed NPS as being of either great or moderate value to them. The value of NPS to GPs has grown significantly over the years. In 2000, 14% of surveyed GPs considered the NPS to be great value. By 2002 this figure had improved to 20% and again to 23% in 2004.
- Up to 95% of pharmacists in 2002 rated NPS to be either of great or moderate value to them. This increased to 97% 2004.
- The NPS is seen by many GPs to play an important role in countering the pharmaceutical industry perspective and providing independent medication/prescribing advice ('Very important role in countering drug company misinformation') as well as providing valuable advice and information ('A great resource', 'I find it very valuable', 'It tends to confirm what I read in the journals').
- There has been a significant increase between the first and second survey of pharmacists in the proportion of pharmacists that believe NPS information is independent (71% to 80%, $\chi^2_1 = 16.888$, $p < 0.0001$), evidence-based (77% to 85%, $\chi^2_1 = 20.705$, $p < 0.0001$) and appropriate to their needs (72% to 78%, $\chi^2_1 = 9.409$, $p = 0.002$).
- Overall, 86% of pharmacists surveyed in 2004 believed NPS activities support the enhancement of QUM and also help improve over-the-counter prescribing (89%).
- The NPS is envisioned by the majority of its stakeholders to be charged with promoting quality prescribing and use of medicines. NPS is widely credited with having strongly contributed to the increased awareness and importance that is attached to QUM principles throughout the health sector. This is seen to have been largely achieved through considerable GP targeted educational activity and provision of information resources resulting in informed prescribing. Through such activity the NPS is seen to have created an environment in which quality prescribing is a natural outcome with many examples of this occurring in day-to-day prescribing behaviour. Hence on this level NPS can be said to have achieved the objective of promoting quality prescribing.
- With regard to ensuring the effective and affordable use of medicines, many stakeholders felt that NPS has been too heavily focused on 'affordable use' in that they are seen to only focus upon the promotion of medications that are cost-effective for the PBS.

- Stakeholders place considerable value on the activities undertaken by NPS. In particular, NPS' role as a provider of unbiased and factual information is considered to be an essential resource within the health community at large. As is the educational function NPS fulfils at the student stage of professional development.

3. Measuring impacts and outcomes

Improvements in attitudes, skills and knowledge

- **Among consumers**
- **Among health professionals**

Have there been improvements in consumer attitudes, skills and knowledge?

- There have been modest improvements in consumer awareness of reliable medicines information sources and services (e.g. Medicines Line, Home Medication Reviews and CMI) from 2004 to 2005.
- An increasing proportion of the community endorse symptomatic management of cold and flu symptoms.
- Only 22% of consumers reported considering it necessary to use antibiotics for colds and flu in 2004, a fall from previous surveys.

- The national surveys undertaken by NPS measure consumer awareness of reliable medicines information sources as well as consumer beliefs about the value of antibiotics for treatment of cold and flu. Data from these surveys show changes in consumer knowledge and attitudes consistent with program key messages.
- There have been modest improvements in consumer awareness of reliable medicines information sources or services from 2003 to 2004 (Table 4).
- Among consumers aware of NPS, there has been a substantial increase in the percentage of consumers believing the information provided by the NPS is trustworthy and complete (Table 5). There has also been a sizeable increase in the percentage of consumers believing Medicines Line provides trustworthy and complete medicines information.
- An increasing proportion of the community endorse symptomatic management of cold and flu symptoms over antibiotics.
- Consumer beliefs regarding the appropriateness of behaviours for treating cold or flu are detailed in Table 7. Of most importance, the responses show modest reductions in those indicating taking antibiotics is appropriate compared to previous years. These data are supported by that reported in Figure 12, which shows modest declines in the proportion of consumers who believe antibiotics are appropriate for coughs/colds, sore throat and flu. Similarly, Figure 13 demonstrates a gradual increase in the proportion of people who see the disadvantages rather than the advantages of using antibiotics for cough and colds.

Table 4. Consumer awareness of appropriate medicines information sources and services

Medicine information sources or services	% Aware	
	2003	2004
Medimate – consumer brochure	na	6
Medicines Line	15	16
Home Medication Reviews (HMR)	31	32
Consumer Medicine Information (CMI)	24	26
HealthInsite website	12	12
National Prescribing Service (NPS)	26	22

Table 5. Consumer attitudes toward promoted information sources and services in terms of beliefs about trustworthiness and completeness of the information provided

Medicine information sources or services	% Believe trustworthy		% Believe complete	
	2003	2004	2003	2004
Doctors	84	83	75	74
Pharmacists	86	85	80	80
Medicines Line	49	61	39	55
HealthInsite website	48	49	43	45
National Prescribing Service (NPS)	47	56	39	50

- % of those aware of Medicine Line, % of those aware of HealthInsite, % of those aware of NPS

Table 6. Consumer beliefs regarding the best way to treat a cold or flu (free recall) (pre-post omnibus surveys)

	Pre-2002 (%)	Post-2002 (%)	Post-2003 (%)	Pre-2004 (%)	Post-2004 (%)
Get rest / take time off work	55	48	60	57	58
Keep warm / dry / indoors	19	16	17	24	16
Have plenty of fluids / hot drinks / water / juices	36	38	38	41	41
Visit doctor / pharmacist	15	22	23	20	16
Pharmaceutical medication / remedies	44	40	48	57	54
Take vitamins / multi vitamins	10	10	13	14	12
Herbal / natural	6	5	5	6	6
Sweat it out / let it run its course	11	8	13	11	11

Table 7. Percentage of consumer reporting that certain behaviours are appropriate for treating cold or flu (before and after each national campaign using omnibus surveys)

Symptomatic management	Pre-2002 % Appropriate	Post-2002 % Appropriate	Post-2003 % Appropriate	Post-2004 % Appropriate
Get some rest	89	90	91	91
Drink lots of fluids	96	98	97	97
Take antibiotics	29	25	26	22

Figure 12. Percentage of consumers who indicate that antibiotics are appropriate for coughs/ colds, sore throat and flu

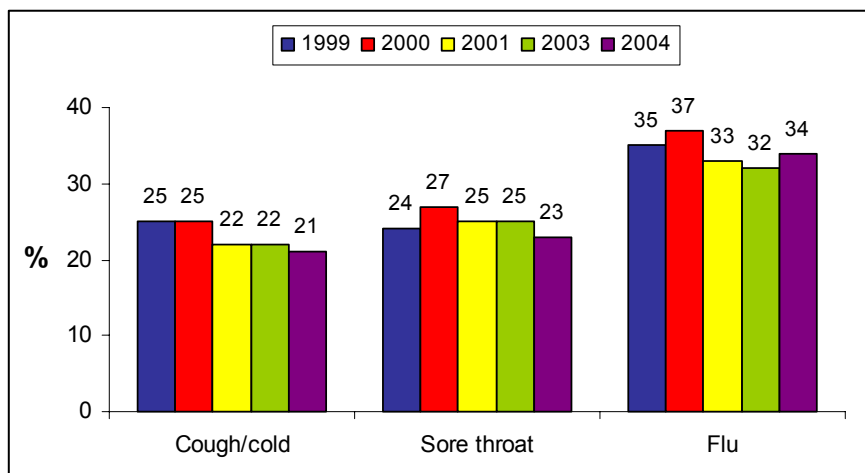
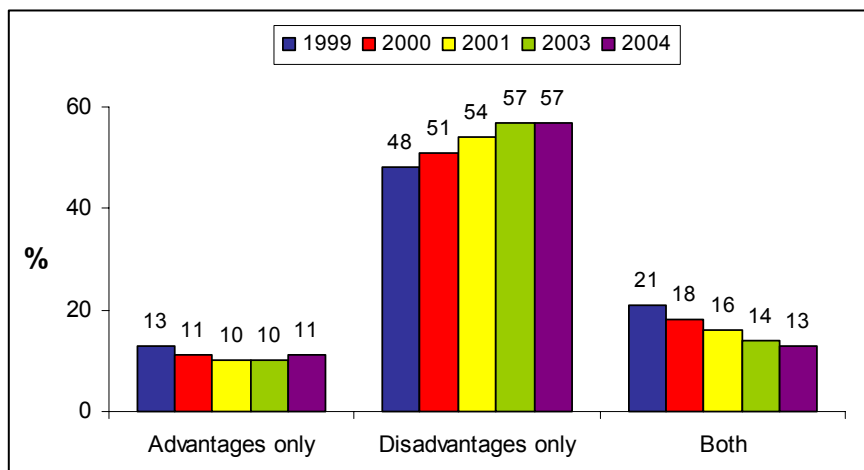


Figure 13. Percentage of responders who reported a belief that antibiotics confer an advantage or disadvantage when treating cold and flu.



Have there been improvements in health professional attitudes, skills and knowledge?

- In 2002, only one third of GPs surveyed were aware that amoxicillin is the preferred agent for a patient presenting with acute sinusitis. By 2004, this proportion has more than doubled to 70%, in line with NPS program key messages.
- Consistent with program key messages there has been a significant increase in the proportion of pharmacists correctly recommending either intra-nasal corticosteroid, or intra-nasal corticosteroid and oral antihistamine as first line drug therapy for allergic rhinitis (58% of pharmacists surveyed were aware of this in 2002 compared to 63% in 2004).
- In 2002, only 36% of GPs were aware HRT increases the early risk of cardiac events in women with pre-existing cardiac disease. By 2004, this proportion has increased significantly to 60%, in line with NPS program key messages.
- Pharmacists who have participated in NPS activities are more likely to report appropriate knowledge and attitudes with respect to evidence-based management of: acute sinusitis; allergic rhinitis; dyspepsia; hypertension; asthma; and atrial fibrillation.

NSAIDs

- In the 1999 national survey, GPs were asked to consider which of a group of conventional NSAIDs had the lowest risk for gastrointestinal bleeding. The drugs from which they could choose were diclofenac, piroxicam, ibuprofen, sulindac or 'other NSAID'. GPs were asked to choose only one drug.
- Consistent with the key messages of programs delivered by NPS the majority of GPs (72%) made a correct response, i.e. they chose diclofenac or ibuprofen, and 45% reported that diclofenac was the last NSAID for which they wrote a prescription.
- Similarly, results from the national survey of GPs undertaken in 2002 show that nearly all GPs (93%) were aware that COX-2 selective NSAIDs are no more effective for symptom relief in osteoarthritis than traditional NSAIDs.

Antibiotics for respiratory infections

- The 2000, 2002 and 2004 national surveys of GPs asked respondents to record the medicine they prescribed for a patient who presented with acute sinusitis.
- In 2000, 33% of respondents recorded the preferred agent as amoxicillin, a key message of NPS programs aiming to reduce inappropriate use and improve selection of antibiotics in primary care. By 2002, the proportion of respondents recording amoxicillin in response to this question had increased significantly to 59% ($\chi^2_1 = 121.96$; $p < 0.0001$) and in 2004 it had risen again to 70% of GPs ($\chi^2_1 = 113.1$; $p < 0.0001$).
- In 2004, pharmacists were asked to consider a series of statements relating to the appropriate use of antibiotics. 71% of respondents correctly answered 'acute bronchitis improves in approximately 85% of patients without need for treatment with antibiotics'. Significantly more pharmacists who had participated in NPS activities answered this question correctly (74%) compared to non-participants (64%) ($\chi^2_1 = 9.751$; $p = 0.002$).

- 60% of pharmacists correctly answered 'the appearance of coloured sputum with a respiratory tract infection is not a reliable indicator of whether an infection is bacterial or viral'. Significantly more pharmacists who had participated in at least one NPS educational activity answered this question correctly (66%) compared to those who had never participated (47%) ($\chi^2_1 = 31.775$; $p < 0.0001$).
- 65% of pharmacists correctly answered 'amoxicillin is the antibiotic of first choice for acute sinusitis'.
- 84% of pharmacists correctly answered 'less sedating antihistamines are not recommended first-line drugs for managing common cold symptoms in adults'. Significantly more participants answered this question correctly (87%) compared to non-participants (79%) ($\chi^2_1 = 11.173$; $p = 0.004$).

Hormone replacement therapy

- Results from the national survey of GPs undertaken in 2002 show that only 36% of GPs correctly knew that hormone replacement therapy (HRT) had been shown in a randomised controlled trial to increase the early risk of cardiac events in women with pre-existing cardiac disease. In 2004, following NPS interventions aimed at improving knowledge and skills about the appropriate use of HRT, the proportion of GPs correctly responding to this question significantly increased to 60% ($\chi^2_1 = 93.2$; $p < 0.0001$). It is important to note that extensive media coverage was occurring at the same time as NPS programs reinforcing the messages about the appropriate use of HRT.

Helicobacter eradication therapy, management of dyspepsia, optimising use of proton pump inhibitors

- Just under half of pharmacists surveyed in 2002 (47%) correctly knew that 'the most appropriate approach for managing a patient with uninvestigated dyspepsia and no other risk factors for serious gastrointestinal disease' was a trial of an H₂ antagonist, a key message of NPS programs to improve evidence-based prescribing in this area. Significantly more pharmacists who had participated in NPS activities answered this questions correctly (52%) compared to non-participants (37%) ($\chi^2_1 = 15.371$; $p = 0.002$).

Managing hypertension

- Consistent with key program messages delivered by NPS, just over four fifths of pharmacists (82%) correctly knew that 'low dose thiazides are effective for the treatment of hypertension'. Significantly more participants answered this question correctly (84%) compared to non-participants (78%) ($\chi^2_1 = 7.636$; $p = 0.022$).

Allergic rhinitis

- In 2002, pharmacists were asked to identify the 'most appropriate first-line therapy to recommend for allergic rhinitis': just over half of respondents (58%) answered correctly (intra-nasal corticosteroid or intra-nasal corticosteroid and oral antihistamine). A further 41% incorrectly recommended non-sedating oral antihistamine. Encouragingly, only a few pharmacists (0.6%) recommended a sedating oral antihistamine. Significantly more participants answered this question correctly (43%) compared to non-participants (15%) ($\chi^2_1 = 14.685$; $p < 0.0001$).
- This question was repeated in 2004. At this time just under two thirds (63%) of pharmacists correctly recommended either intra-nasal corticosteroid or intra-nasal corticosteroid and oral antihistamine. A further 36% incorrectly recommended non-sedating oral antihistamine. Only a few pharmacists (0.5%) recommended a sedating oral antihistamine. Significantly

more participants answered this question correctly (66%) compared to non-participants (55%) ($\chi^2_1 = 10.670$; $p=0.001$).

- Overall, there was a significant increase in the proportion of respondents correctly recommending either intra-nasal corticosteroid or intra-nasal corticosteroid and oral antihistamine as first line drug therapy between 2002 (58%) and 2004 (63%) ($\chi^2_1 = 4.088$; $p=0.043$).

Asthma

- In the 2004 national survey, pharmacists were asked to indicate whether a series of inhaled corticosteroids were low, medium or high doses. Consistent with key messages delivered by NPS in this therapeutic topic, the majority of pharmacists (81%) correctly identified fluticasone 50–125 micrograms twice daily as low dose. Just under half (46%) correctly identified beclomethasone CFC-free 200 micrograms twice daily as medium dose. Only 20% of pharmacists correctly identified budesonide 200 micrograms twice daily as low dose. The majority of pharmacists (84%) correctly identified fluticasone 250–500 micrograms twice daily as high dose. Participants were significantly more likely to answer this question correctly (86.1%) compared to pharmacists that had not participated (76%) ($\chi^2_1 = 15.675$; $p<0.0001$).

Antithrombotics

- In 2004, pharmacists were asked to indicate what target range INR will provide maximum benefit in the patients with atrial fibrillation. Consistent with the recommendations provided by NPS, 62% correctly identified INR 2.0–3.0. Significantly more pharmacists who had participated in NPS programs answered this question correctly (66%) compared to non-participants (52%) ($\chi^2_1 = 16.973$; $p<0.0001$).

Improved prescribing and use of medicines

- **Through changes in consumer behaviour**
- **Through changes in health professional behaviour**

Has the capacity of consumers to seek, obtain, understand and use appropriate information on medicines been enhanced?

- The proportion of consumers who remember receiving a CMI with their last new prescription has increased from 13% in 2003 to 19% in 2004.
- The proportion of consumers who remember reading a CMI with their last new prescription has increased from 12% in 2003 to 17% in 2004.
- In 2004, 58% of consumers reported to ask questions of their doctor the last time they were prescribed a new medicine, an increase from 48% in 1999.
- In 2004, 30% of consumers reported to ask questions of their pharmacist the last time they were prescribed a new medicine, almost doubling from 16% in 1999.
- The proportion of consumers who reported to take an antibiotic the last time they suffered from a cold or flu has steadily decreased with time, from 11% in 1999 to 7% in 2004.

- There has been a significant increase in the proportion of consumers who remember receiving a CMI the last time they were prescribed a new medicine. There has also been a significant increase in the percentage of people who indicated they have read or glanced through a CMI they received with their last prescription medicine (Table 8).
- Consistent with a major key message of the Community QUM program, there has been slight but constant increase in the proportion of consumers reporting to have asked question(s) of their doctor or pharmacist the last time they were prescribed a new medicine (Figure 14).
- As can be expected, in only the early stages of the Community QUM program, consumer self-reported behaviour in terms of seeking and obtaining other appropriate information on medicines remains unchanged (Table 9).
- Changes in self-reported behaviour for treating colds and flu are more encouraging. In 2004, when asked about specific action(s) they took the last time they suffered from a cold or flu there have been increases in reports of resting at home and using non-prescription medicines for symptomatic relief (Table 10 and Figure 15). Importantly, there has also been a small, but consistent, corresponding decline in the proportion of consumers reporting to have taken antibiotics the last time they suffered cold or flu symptoms.
- Importantly, and of remaining concern, 56% of the consumers who visited a doctor the last time they suffered symptoms of a cold or flu recalled being prescribed an antibiotic.

Table 8. Consumer self-reported use of appropriate medicines information sources

Medicine information sources or services	% Usage	
	2003	2004
<i>Medimate</i> – read a copy	na	4
Medicines Line – called	2	2
Home Medication Reviews (HMR)	9	9
Consumer Medicine Information (CMI) – received	13	19
CMI – read or glanced through	12	17

Figure 14. Proportion of consumers reporting to have asked a question of their doctor or pharmacist the last time they were prescribed a new medicine

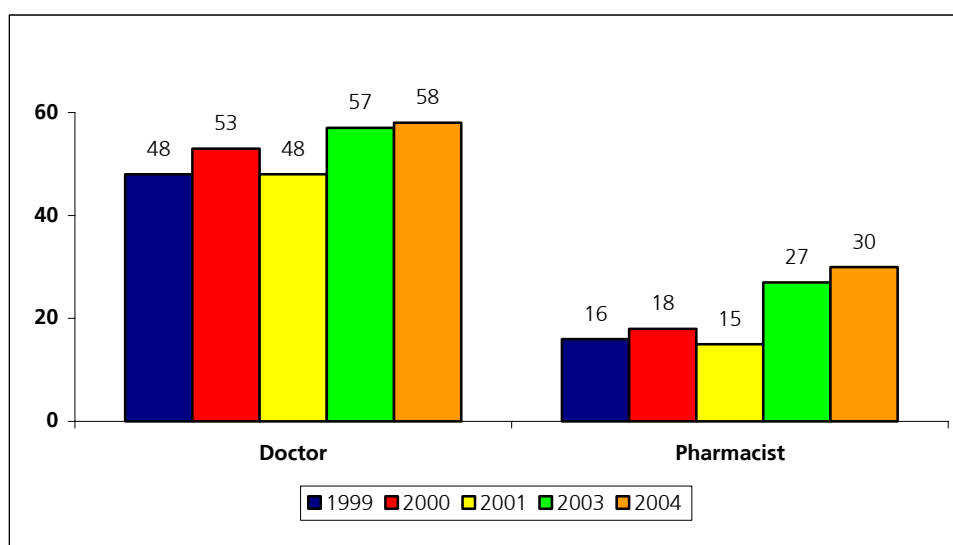


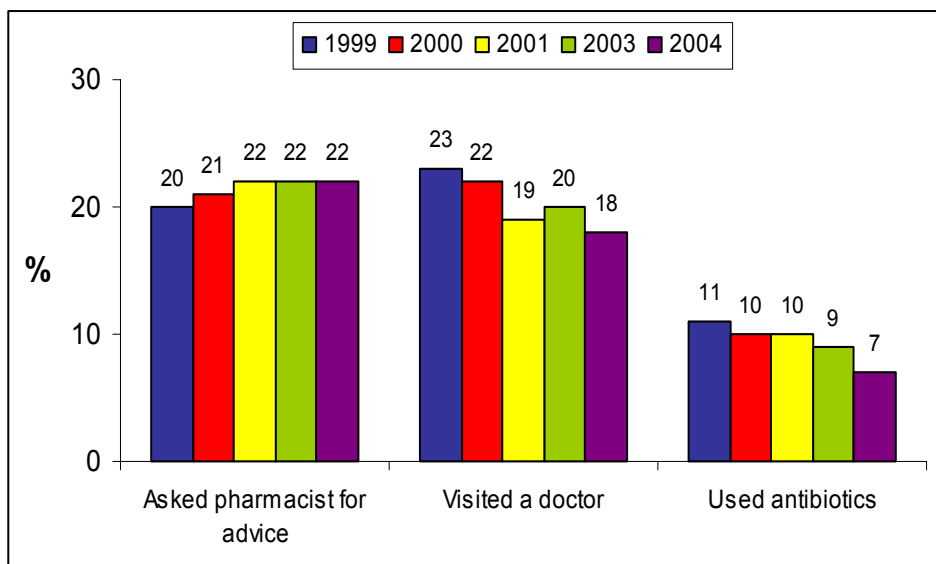
Table 9. Consumer self-reported behaviour for seeking and obtaining appropriate medicines information

Behaviour	% Yes	
	2003	2004
Interested in having or had a Home Medication Review	26	25
Requested CMI with last new prescription medicine	2	3
Discussed CMI with doctor or pharmacist	6	7
Have written list of medicines in <i>Medimate</i>	na	<1

Table 10. Consumer self-reported behaviour the last time they suffered cold or flu symptoms

Behaviour	1999	2000	2001	2003	2004
Took non-prescription medicine	68	69	69	71	70
Rested at home	57	54	54	61	58
Asked pharmacist for advice	20	21	22	22	22
Visited a doctor	23	22	19	20	18
Took an antibiotics	11	10	10	9	7

Figure 15. Modest but consistent trends in favour of symptomatic management of cold and flu symptoms over antibiotics



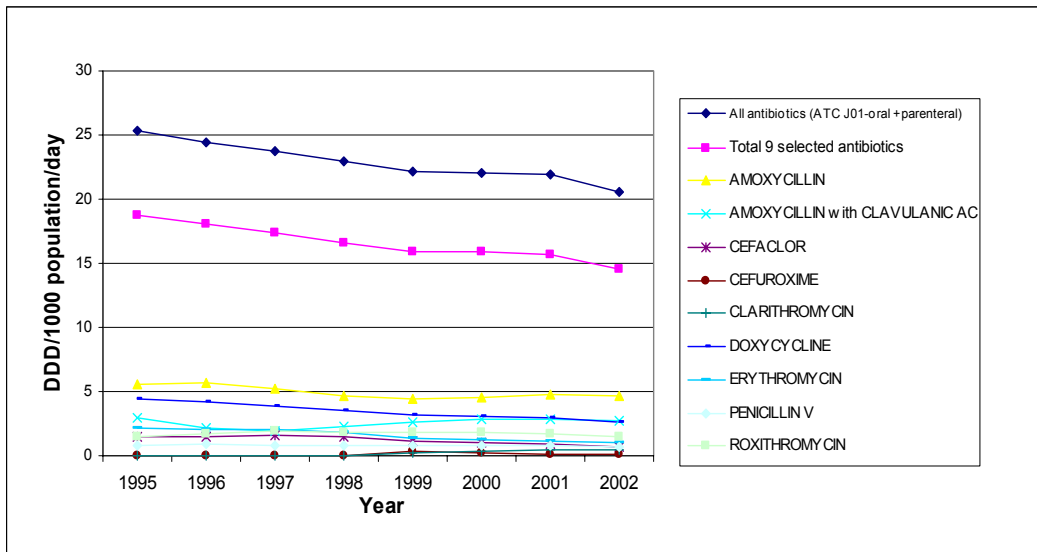
Has the quality of prescribing and use of medicines improved?

- Consistent with NPS messages to use first-line antibiotics preferentially for URTI a higher proportion of amoxicillin is being prescribed today, in contrast with declining proportions of cefaclor and slightly declining proportions of roxithromycin.
- Community use of antibiotics (expressed as defined daily dose/1 000 population/day) for the subgroup of antibiotics of interest most commonly used in URTI has fallen from 23.08 in 1998–99 to 21.44 in 2001–02.
- By the end of June 2003, consistent with NPS program messages, the proportion of low-dose thiazide diuretics prescribed by GPs had more than doubled in comparison to the period pre-NPS program.
- By the end of June 2003 the proportion of high-risk NSAIDs prescribed by GPs had fallen by approximately one-third in comparison to pre-NPS programs.

Antibiotics for Upper Respiratory Tract Infection (URTI)

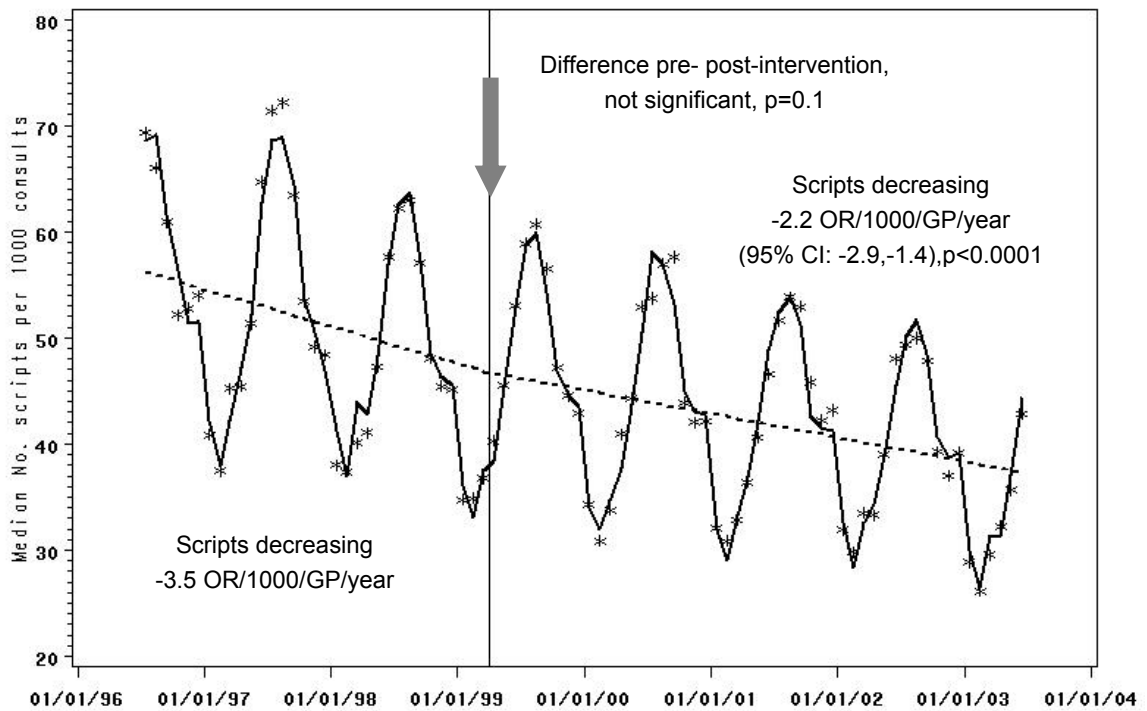
- Antibiotic prescribing rates continue to fall, counter to the growth seen with all other ATC groups (Figure 16 and 17). This sustained reduction in prescribing, especially for the antibiotics targeted in the NPS programs, is remarkable in international terms for its longevity.
- Moreover, the NPS messages to use first-line antibiotics preferentially for URTI also appear to have been successful (Table 11) with a higher proportion of amoxicillin being prescribed (Figure 18), declining proportions of cefaclor (Figure 19) and slightly declining proportions of roxithromycin (Figure 20).
- Community use of antibiotics (expressed as defined daily dose/1 000 population/day) fell from 22.1 in 1999 to 20.5 in 2002. The number of prescriptions for the subgroup of antibiotics of interest most commonly used in URTI fell from 23.1 in 1998–99 to 21.4 in 2001–02 (Figure 21).

Figure 16. Defined daily doses of antibiotics prescribed by GPs and specialists



Data source: Drug Utilisation Sub-Committee (DUSC), 2004

Figure 17. Median original scripts (9 antibiotics)/1 000 consultations/GP/year



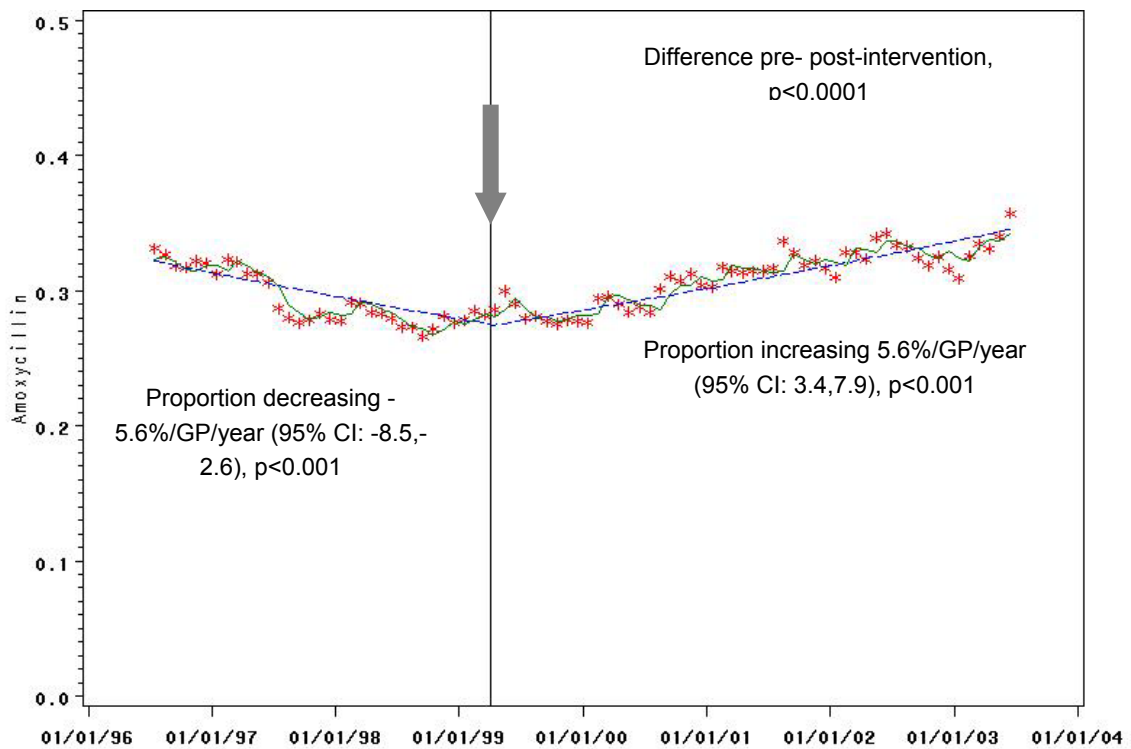
↓ Indicates start date of first intervention, Data source: HIC evaluation data provided to NPS

Table 11. Annual rates of change for the mean proportions of original scripts for selected antibiotics

	Annual % change in proportions for each drug (95% CI)		Difference between pre- and post-intervention (p value)
	Pre-intervention	Post-intervention	
Amoxicillin	-5.6 (-8.5, -2.6)	5.6 (3.4, 7.9)	<0.0001
Amoxicillin + clavulanic acid	6.4 (4.4, 8.6)	5.3 (4.0, 6.6)	0.4
Cefaclor	0.93 (-4.8, 7.0)	-15.3 (18.4, -12.1)	0.0002
Penicillin V	-2.5 (-5.1, 0.1)	-0.38 (-2.1, 1.4)	0.3
Roxithromycin	11.8 (8.5, 15.2)	-1.7 (-3.6, 0.24)	<0.0001

Data source: HIC evaluation data provided to NPS

Figure 18. Mean proportion of original prescriptions amoxicillin



↓ Indicates start date of first intervention, Data source: HIC evaluation data provided to NPS

Figure 19. Mean proportion of original prescriptions cefaclor

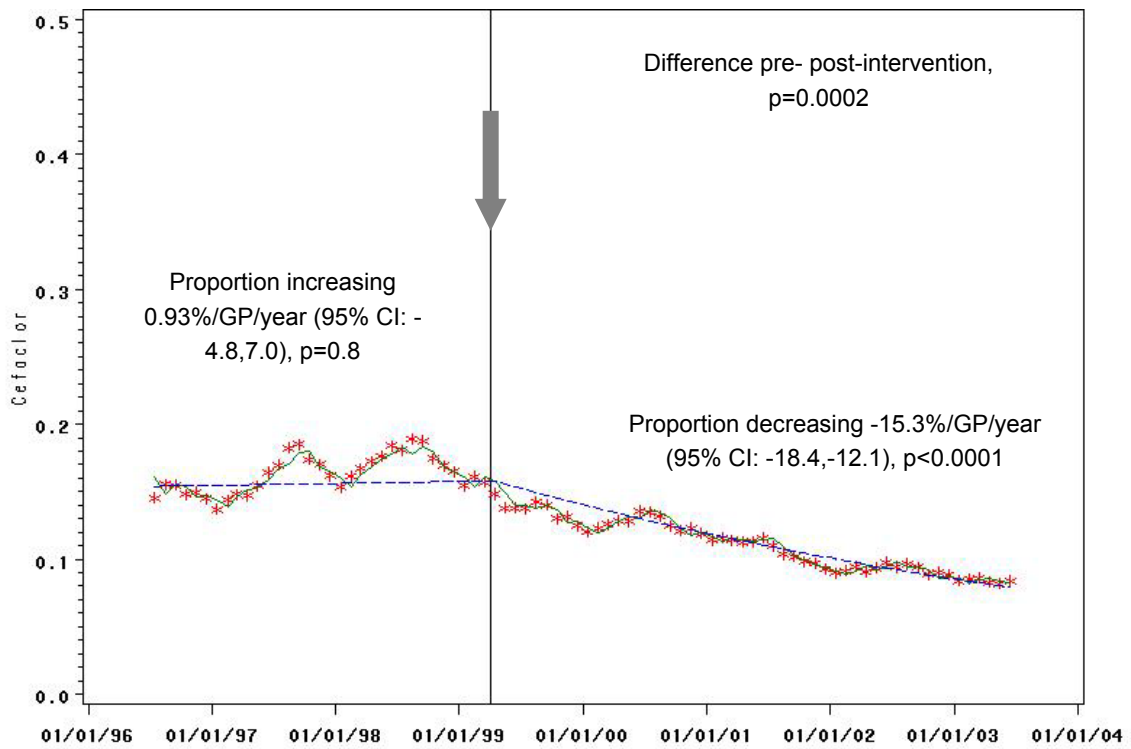
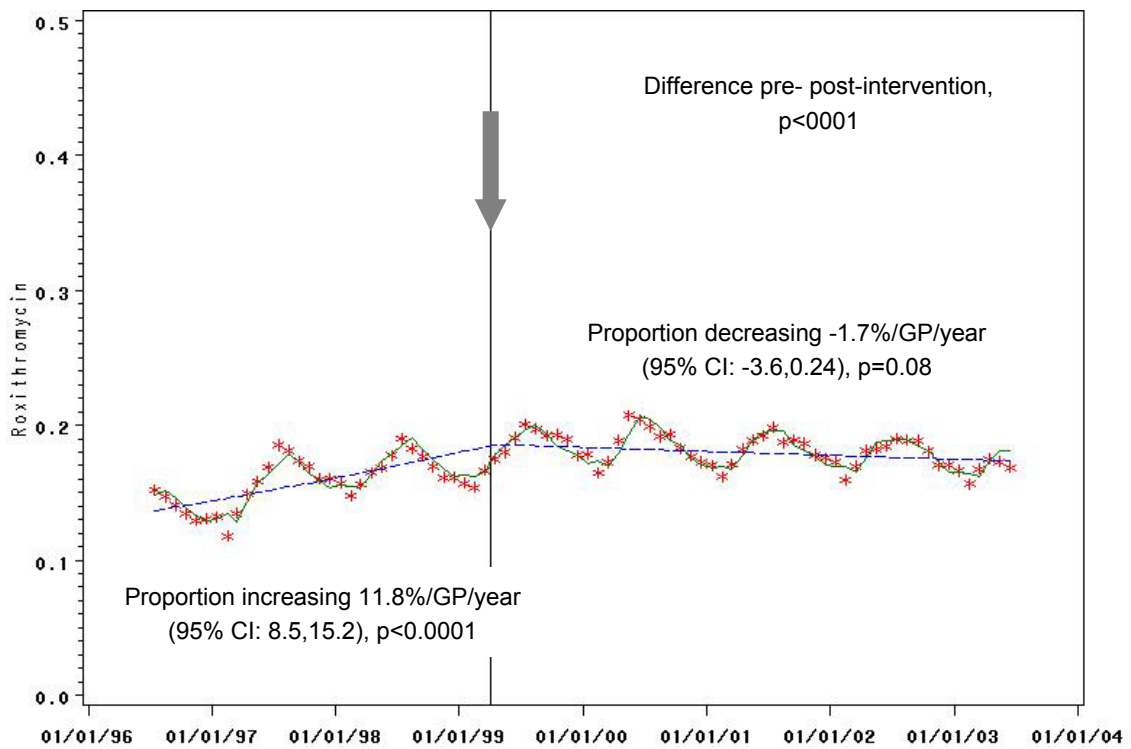
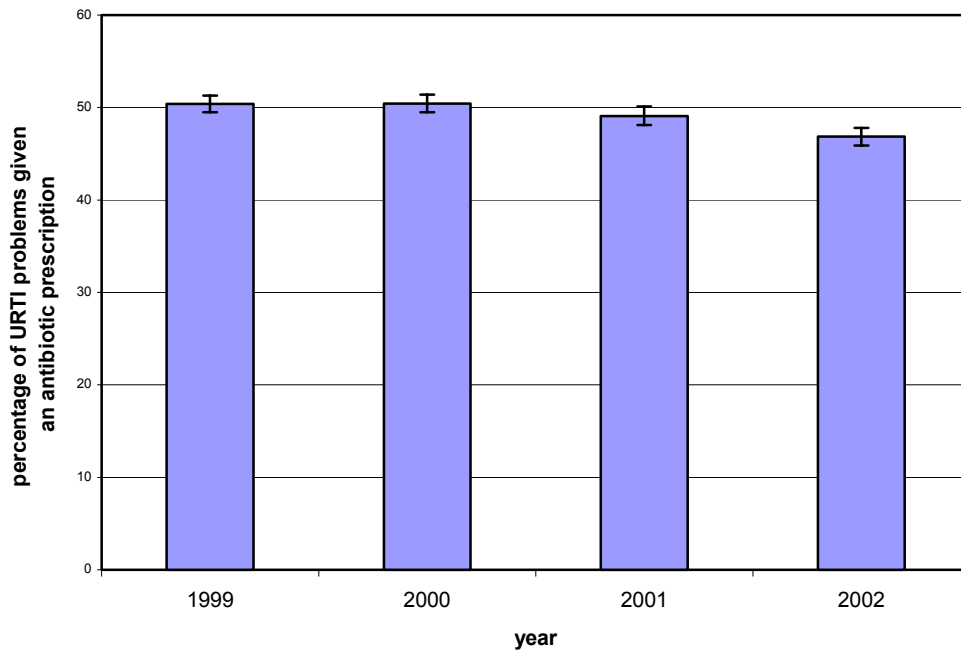


Figure 20. Reducing proportion original prescriptions roxithromycin



↓ Indicates start date of first intervention, Data source: HIC evaluation data provided to NPS

Figure 21. GP prescribing rate all URTI problems – significant decrease over four years in the percentage of URTI problems where an antibiotic was prescribed

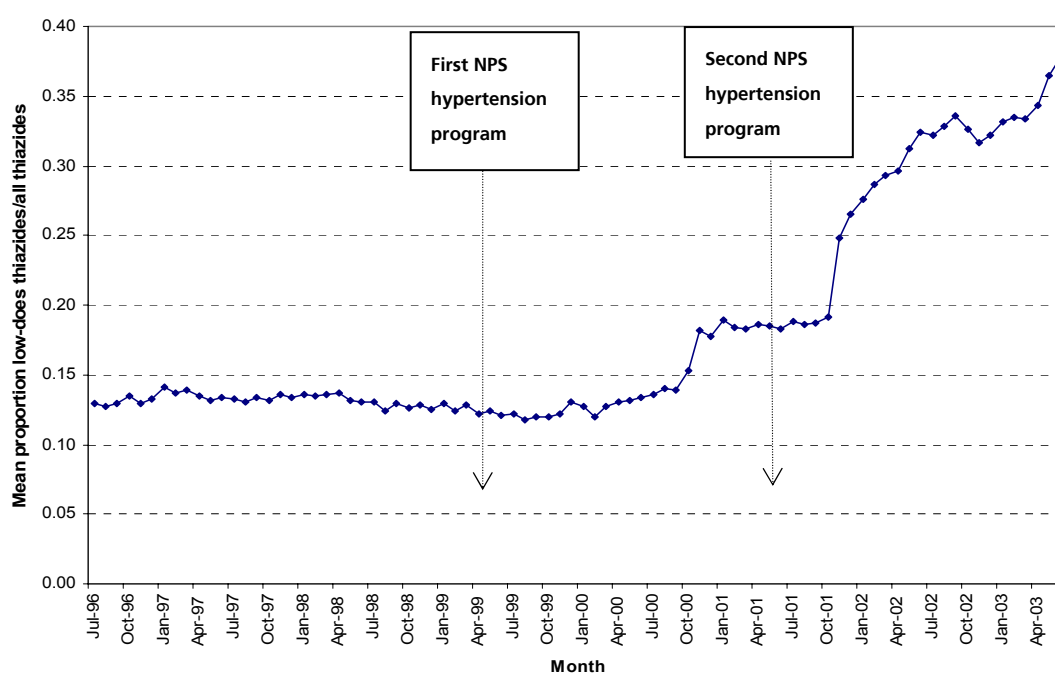


Data source: Bettering the Evaluation and Care of Health (BEACH)

Cardiovascular medicines

- Medication for hypertension and lipid management is a major expense for the PBS, reflecting an ageing population with a high level of cardiovascular risk factors. Appropriate use of these medicines is unlikely to mean a reduction in the volume of use overall. However, quality use of these medicines would result in some people receiving more treatment, some people being prescribed fewer medicines, better use of lifestyle interventions such as diet and exercise and a change in the selection of agents to reflect best-practice guidelines. The latter would result in the use of agents such as thiazide diuretics either alone or as adjuncts to other antihypertensive medication.
- NPS interventions aimed at prescribing for hypertension commenced in both October 1999 and September 2001. Data from the Health Insurance Commission (HIC) on PBS prescribing for the seven years 1 July 1996 to 30 June 2003 were analysed in relation to prescriptions written by GPs for the management of hypertension. One of the objectives of these interventions was to increase use of the low-dose formulations where thiazide diuretics were prescribed. The number of prescriptions for low-dose formulation thiazides was calculated for each GP as a proportion of their total thiazide diuretic prescriptions. The mean of these proportions was then calculated for each month.
- Figure 22 shows the effect on GPs' prescribing following NPS programs. By the end of June 2003 the proportion of low-dose thiazide diuretics prescribed by GPs had more than doubled in comparison to the pre-NPS program period.
- Time series analysis was undertaken using a seasonal decomposition technique and regression modelling which took GP participation in NPS programs into account. This analysis showed that the proportion of low-dose thiazides (as proportion of all thiazides and expressed as a percentage) increased ($p=0.001$) after the October 1999 program such that a GP was using 5% more low-dose thiazides than 12 months previously. This trend continued after the second intervention ($p=0.02$).

Figure 22. Low-dose thiazide diuretics as a proportion of all thiazides per GP per month

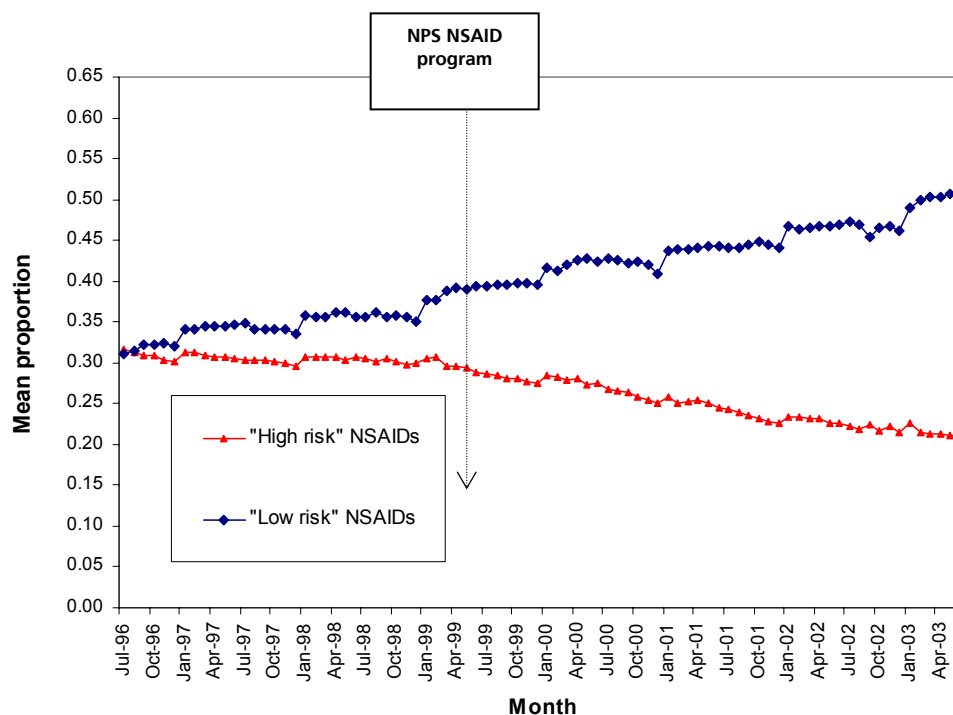


Data source: HIC evaluation data provided to NPS

Non-steroidal anti-inflammatory agents (NSAIDs)

- NPS interventions related to the prescribing of non-steroidal anti-inflammatory agents (NSAIDs) were undertaken beginning February 1999 and October 2001. The first program in February 1999 had specific messages relating to the use of high- and low-risk NSAIDs. NSAIDs with a long half life, ketoprofen and piroxicam, are known to have a higher risk of causing serious upper gastrointestinal complications (predominantly perforations, ulcers and bleeding). The lower risk NSAIDs are diclofenac and ibuprofen.
- One of the objectives of the intervention was to decrease use of the high-risk NSAIDs when a GP chose to prescribe an NSAID and to increase prescribing of low-risk agents. Data from the HIC on PBS prescribing for the seven years, 1 July 1996 to 30 June 2003, were analysed in relation to prescriptions written by GPs for NSAIDs. The number of prescriptions for high- and low-risk NSAIDs was calculated for each GP as a proportion of their total NSAID prescriptions. The mean of these proportions was then calculated for each month.
- Figure 23 shows the effect of the NPS programs on GPs' prescribing. By the end of June 2003 the proportion of high-risk NSAIDs prescribed by GPs had fallen by approximately one-third in comparison to pre-NPS programs. Over the same period, the proportion of low-risk agents as a proportion increased by approximately 40%.
- Time series analysis was undertaken using a seasonal decomposition technique and regression modelling which took GP participation in NPS programs into account. This analysis showed that the proportion of high-risk NSAIDs (as proportion of all NSAIDs and expressed as a percentage) decreased by 0.138 per month per GP ($p=0.001$) after the October 1999 program.

Figure 23. Mean proportion of high- and low-risk NSAIDs as a proportion of all NSAIDs/GP/month



Data source: HIC evaluation data provided to NPS

Improved QUM knowledge base and competence

- **Among students**
- **Among the QUM workforce**

Have QUM competence and skills among medical, pharmacy and nursing students and junior practitioners in these fields been built?

- 86% of medical students surveyed felt better equipped to prescribe as a result of the curriculum.
- 53% of students surveyed had developed their own personal formulary, the key objective of the curriculum.

In recent interviews with medical students who had used the NPS National Prescribing Curriculum:

- 86% felt better equipped to prescribe as a result of the curriculum
- 53% had developed their own personal formulary, the key objective of the curriculum
- Of those that had developed their own personal formulary, 93% reported the curriculum was of great assistance in the development of their personal formulary.

Has the capacity of a QUM workforce to ensure effective delivery of NPS and other QUM programs been built?

- Self-reported survey data from NPS facilitators suggest this group feel better able to competently deliver local QUM messages.

Recent feedback from NPS facilitators who have been provided with training and ongoing support from NPS showed:

- Near unanimous belief that new skills had been developed as a result of training received
- Near unanimous endorsement that training had provided appropriate skills to ensure effective delivery of local programs
- Near unanimous belief that training and support provided by NPS has positively influenced confidence in delivering specific NPS activities as well as more general QUM messages and activities.

Improved health and economic outcomes

Have better health and economic outcomes as a result of QUM been achieved?

- Although not yet measurable, improved health outcomes (e.g. reductions in stroke, gastric haemorrhage and diabetes complications) would be expected to follow from demonstrated improvements in prescribing, including increased use of metformin, increased use of low-dose thiazides, decreased use of high-risk NSAIDs and reduced use of antibiotics.
- From mid-1998 to June 2003 NPS activities have generated savings of at least \$169 million to the PBS.

- The initial funding agreement with the government required that the core QUM program achieve savings to the PBS of \$45.616 million over four years: \$2.851 million in the first year and \$14.255 million in each of the three subsequent years. Three years into the four-year contract period NPS achieved savings of just under \$49 million, clearly satisfying the contract requirements.
- The current agreement with the government required that with four-year funding of \$45.76 million, NPS must deliver savings of \$111 million to the PBS: \$28.5 million in the first year and \$27.5 million in each subsequent year. Similarly, NPS can already attribute savings of \$106 million to its activities at the mid-point of the savings period (Table 12).
- Table 13 summarises the PBS savings generated as a result of NPS activities over the period July 2000 to June 2003. For these three years, PBS savings estimates have been calculated using the methodology revised following initial savings estimates. This provided the opportunity to estimate savings at ATC Level 1 for drug groups affected by the following prescribing intervention programs: Antibiotics in primary care (start date of programs April 1999, June 2000, April 2001, April 2002 and April 2003), Peptic ulcer management (December 1998) and Management of dyspepsia (February 2001), NSAIDs (February 1999), COX-2 selective NSAIDs (October 2001), Managing hypertension (October 1999 and September 2001) and Managing dyslipidaemia (February 2002).
- The savings claim focussed on these areas for two main reasons. Firstly, for these areas the NPS interventions were considered significant enough to have had an impact on prescribing. And secondly, consistent with QUM principles, the desired outcome for each of these areas was reduced prescribing and therefore savings in PBS expenditure.
- NPS activities in the three-year period 1 July 2000 to 30 June 2003 generated savings in the range of \$121.0 million to \$163.6 million to the PBS (Table 12).
- From mid-1998 to June 2003 NPS can show that activities have generated PBS savings of at least \$169 million. Table 13 summarises the savings generated, contracted and brought forward for each year since the inception of the NPS (mid 1998) to the last month of the current contract (June 2005). The actual savings in excess of contracted savings available to be brought forward as of July 2003 are \$68.2 million, \$13 million in excess of the contracted amount to be saved over the remaining two years of the current contract.

Table 12. Summary of savings attributable to NPS activity for July 2000 to June 2003

PBS Saving generated per topic	Savings claimed (\$ million)			Possible extent of savings (\$ million)		
	2000/01	2001/02	2002/03	2000/01	2001/02	2002/03
Antibiotics in primary care	5.9	3.0	5.5	9.5	12.2	19.9
Peptic ulcer management and Management of dyspepsia	8.6	–	–	8.6	–	–
COX-2 selective NSAIDs	–	4.1	–	–	19.4	–
Managing hypertension and Managing dyslipidaemia	–	34.0	59.8	–	34.0	59.8
Total PBS savings generated per year	14.6	41.1	65.3	18.2	65.7	79.7
Total PBS savings generated for three-year period		121.0			163.6	

Table 13. Savings generated, contracted and brought forward, 1997–2005

Year	Savings brought forward at 1 July (\$million)	Savings generated (\$million)	Savings required by contract (\$million)	Available savings at 30 June to carry forward (\$million)
1997–98	0	3.8	2.9	0.9
1998–99	0.9	19.2	14.3	5.8
1999–00	5.8	25.9	14.3	17.5
2000–01	17.5	14.6	14.3	17.8
2001–02	17.8	41.1	28.5	30.4
2002–03	30.4	65.3	27.5	68.2
2003–04	68.2	Awaiting data	27.5	40.7
2004–05	40.7	Awaiting data	27.5	13.2

A commitment to research and evaluation

Has evaluation and research that supports innovation and learning for NPS and the QUM community been provided?

- A program area dedicated to research and development has become a core part of NPS' infrastructure.
- NPS remains committed to rigorous and broad scoping evaluation to support the development and accountability requirements of the organisation.

- In 2004 NPS launched a research program with a focus on improving our understanding of strategies that lead to better use of medicines. The program plan for this area and focus for work are currently being finalised.
- NPS remains committed to rigorous and comprehensive evaluation and as such program evaluation remains a core part of the organisation's infrastructure. Evaluation priorities in the short term include:
 - A revised evaluation plan for the organisation. The original evaluation plan for NPS was written in 2000. Since that time the NPS has greatly expanded in content, complexity and scope. Original programs have matured and new programs have been initiated in the organisation. It is therefore timely to review the evaluation plan, taking into account changes in the organisational objectives, all program activities and the objectives of each program, what we have learnt about methodology and measurement, and current stakeholder needs.
 - Linking prescribing changes to health outcomes. The program design for NPS through 2005 to 2009 includes a focus on management of diabetes over four years to reinforce messages about diet and lifestyle as well as medicine use. As part of this work, we propose to measure the impact of the NPS program not only in changes in drug utilisation, but also in the health of people with diabetes.
 - A review of telephone advice services. NPS telephone advice services, TAIS and Medicines Line, have both been in operation for several years. It is timely, therefore, to review these services, to assess call frequency and to examine user satisfaction with the services and perceived quality and usefulness of information provided.
 - Informing decisions regarding future program implementation. So far, the focus for NPS evaluation has been on reporting processes, for example, reach of activities. There is now enough data to begin to develop hypotheses about different uptake rates of NPS activities per topic, across activities and by differing regions (e.g., rural versus metropolitan, state versus state, etc.). To assist NPS in decisions regarding future therapeutic topics and activities, the evaluation will need to undertake more complex interpretative work that examines these differing uptake rates, both for nationally implemented activities and those implemented locally through divisions of general practice.

Appendix 1. A national program for QUM

Vision and mission

The vision of National Prescribing Service (NPS) is to be the most trusted source of independent information about medicines for Australians. The mission is to create an awareness, culture and environment that will support quality use of medicines among all stakeholders.

Program aims

Quality Use of Medicines (QUM), reflects the premise that: if medicines result in better health outcomes, or use of fewer health services such as hospitals, then meeting health care needs by prescribing medicines also represents value for money. Specific aims of NPS are:

- To achieve better health and economic outcomes as a result of QUM.
- To improve the quality of prescribing and use of medicines through implementation of interventions designed to change prescribing behaviour; provision of reliable information and prompts at the point of decision making; and, provision of accurate, reliable, balanced and timely information about medicines and QUM issues.
- To build awareness, knowledge and skills in the community that will lead to QUM by:
 - promoting consumer and community understanding and awareness of choices between the use of medicines and other approaches to health problems
 - raising awareness and increasing access to reliable and credible sources of information about medicines
 - providing consumers and the community with the opportunity to develop skills and knowledge to engage in decision making about medicines
 - increasing awareness and skills that enable consumers to become an active partner with health professionals in their medicines management.
- To build QUM competence and skills among medical, pharmacy and nursing students and junior practitioners in these fields.
- To build capacity of a QUM workforce to ensure effective delivery of NPS and other QUM programs.
- To facilitate national coordination of QUM activities and programs.
- To provide evaluation and research that supports innovation and learning for NPS and the QUM community.

Objectives 2005–09

The objectives of NPS are detailed below. Maintaining consistency with contractual arrangements, these objectives are listed first for core QUM activities followed by Community QUM, New Drugs and Australian Prescriber.

Core QUM activities comprising: Education and Quality Assurance Services for Health Professionals; Curriculum and Training; and Pharmaceutical Decision Support.

- To provide programs that incorporate adult education, social marketing and behaviour change strategies in therapeutic areas that are important to health professionals and which result in measurable changes in drug utilisation that show appropriate and cost-effective prescription of medicines

- To consolidate and expand the reach of programs for general practitioners and pharmacists that result in measurable changes in drug utilisation and that show appropriate and cost-effective prescription of medicines
- To develop and implement new, more comprehensive programs for specialists and nurses that engage and raise the knowledge and awareness about QUM issues and lead to changes in drug utilisation consistent with appropriate and cost-effective prescription of medicines
- To provide skills training and professional development for the QUM workforce
- To work closely with Divisions of General Practice on innovative models of program delivery that encourage local ownership and response to local needs
- To work closely with specialist medical bodies, disease-based foundations, guideline groups and other stakeholders for a nationally consistent and coordinated approach to QUM programs and messages
- To provide and continue to develop education resources for use by medical, nursing and pharmacy schools and other health profession students that better equip them to be good QUM practitioners
- To develop clinical and information models for pharmaceutical decision support that support an integrated approach to use of QUM resources
- To promote use of Consumer Medicine Information (CMI) and other patient materials through prescribing, dispensing or administering software
- To provide doctors with methods for extracting and interpreting prescribing data from their own desktop relevant to QUM and patient care
- To provide health professionals, consumers and media with access to easy to read, clinically relevant, evidence-based, balanced information on drugs from an independent source
- To maintain and develop telephone advisory services which help health professionals apply best practice in individual clinical situations and patients to use medicines appropriately.

Community QUM activities

- To encourage uptake of lifestyle choices as options for managing health conditions
- To increase the ability of consumers to recognise information about medicines and information sources that are credible, reliable and balanced, including use of CMI, or Medicines Line
- To increase the ability of consumers to access and use the information they need in order to manage their medicines effectively
- To increase the proportion of consumers who ask questions of their doctor or pharmacist when a medicine is prescribed
- To provide consumers with independent information about medicines, consistent with information provided to health professionals to reinforce appropriate prescribing behaviours
- To provide population-based interventions to improve medicine use in areas also being addressed by the core QUM program for health professionals and so assist in achieving the health and drug utilisation objectives of the core program
- To develop and deliver infrastructure, resource materials and training opportunities to support population-based interventions

New drugs activities

- To develop information about each new or revised listing to the Schedule of Pharmaceutical Benefits (excluding Section 100 and Repatriation PBS listings)

- To develop information about new and emergent research findings, particularly those of importance to general practice
- To make the information available no later than the date for which new listings become effective
- To provide information to general practitioners, pharmacists, medical specialists, and members of the Australian public (within the constraints of the Therapeutic Goods Act 1989)
- To provide the information in a range of forms and via several media to meet the information needs of the primary audience(s)
- To provide the information as decision-assisting prompts in medical prescribing software.

Australian Prescriber

- To promote health professionals' knowledge of therapeutics and QUM by the production of up-to-date peer-reviewed information in print and electronic formats
- To publish quality peer-reviewed material that is independent of the influence of government and the pharmaceutical industry
- To support national coordination of Australian sources of independent medicines information and learn from international experience through collaboration with Australian and overseas producers of drug information.

Strategies

NPS has adopted a multi-strategic approach to achieve its vision, mission and goals. Strategies for health professionals encompass curriculum and training, education and evaluation, decision support and field support, topical information and information on new drugs and research. Strategies for consumers include both opportunities arising from the strategies for health professionals and dedicated interventions to encourage consumer QUM. The vision and mission of NPS are further progressed by the strategic application of corporate public affairs and marketing.

Interventions

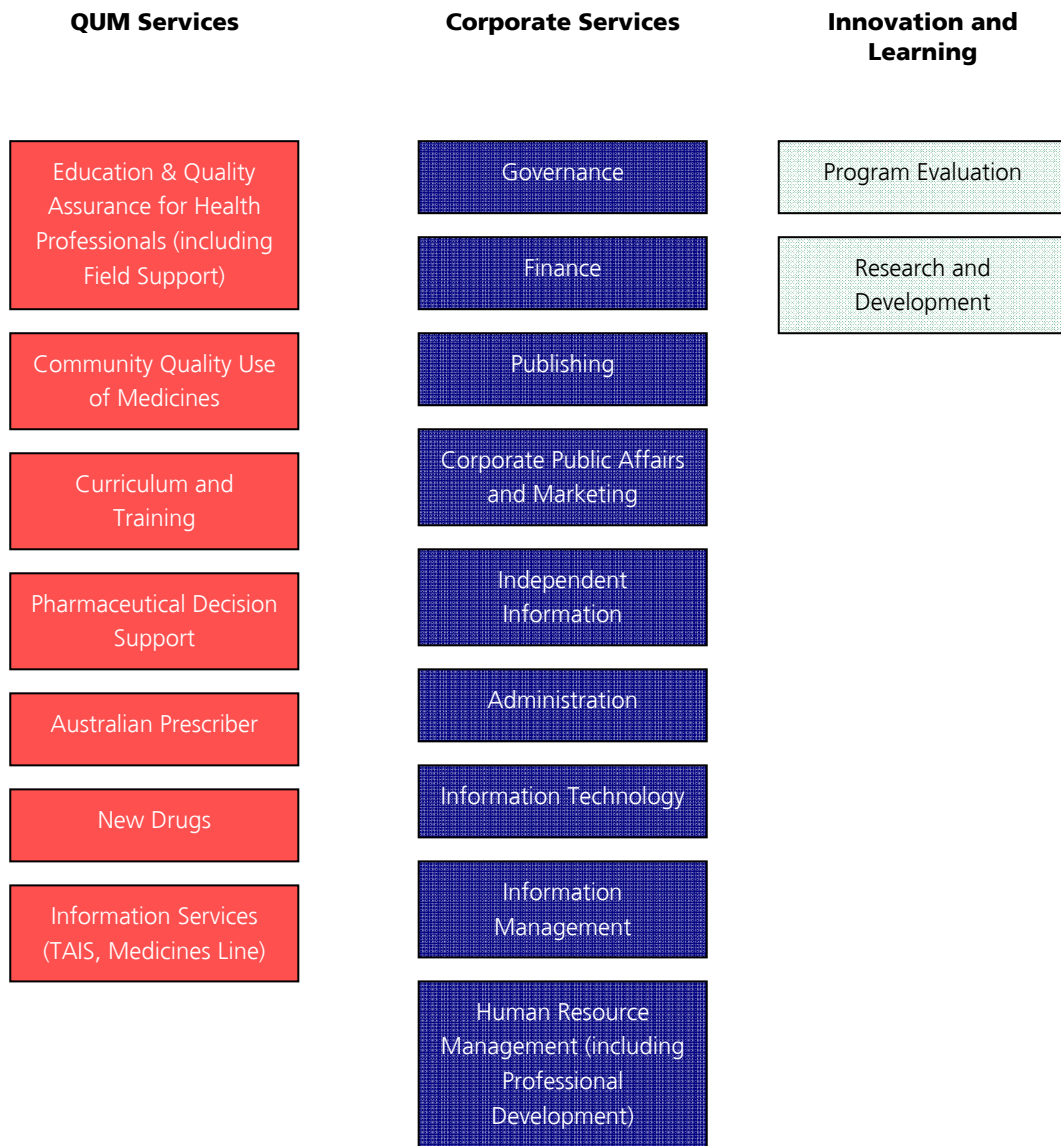
In implementing these strategies, NPS recognises that a great deal is already known about interventions that have been shown to change behaviour when implemented in a sustained fashion at a national or local level. NPS draws on this evidence in professional education, community development, social marketing and health promotion to develop and deliver a comprehensive range of interventions including websites, newsletters, unsolicited direct mail with prescriber feedback combined with specific educational messages, educational visiting (academic detailing), clinical audit with feedback, peer group meetings and hypothetical case scenarios that facilitate problem-based learning for individuals or groups. Opinion leaders are also used to deliver and endorse key messages when possible.

A service organisation

NPS provides a multifaceted approach to improving the health of Australians through QUM services for health professionals (GPs, pharmacists, specialists, students, and other health professionals) and consumers. Services are provided via seven core service arms (Figure 1): Education and Quality Assurance (including field support and training), Community QUM, Curriculum and Training, Pharmaceutical Decision Support, *Australian Prescriber*, New Drugs and Information Services (Therapeutic Advice and Information Service [TAIS] and Medicines Line). Most recently, a Research and Development Program has been established. Program evaluation, reporting directly to the CEO, is a core component integrated across all program delivery arms. Corporate and support services, including Corporate Public Affairs and Marketing, Publishing,

Finance and Administration also work with all program areas. An overview of the main activities within each of the service delivery areas together with major achievements over the last 12 months follows.

Figure 1 NPS organisational structure



Education and quality assurance for health professionals (including field support)

The aim of the Education and Quality Assurance Program (EQAP) is to improve the quality of prescribing and use of medicines by health professionals in target therapeutic areas where there are known problems, or dilemmas, with prescribing, likely to result in sub-optimal health outcomes and possibly increased costs. The aim is achieved by providing general practitioners, pharmacists, specialist medical practitioners, and hospital-based doctors with independent therapeutic information as well as the opportunity to review their own prescribing. The program incorporates adult education, social marketing and behaviour change strategies and operates at national and local levels, providing evidence-based information and using evidence-based strategies where possible.

The aim of field support and training is to ensure effective delivery of local NPS programs via the provision of skills training, professional development and operational support for field workers who provide for local delivery of program messages. Facilitator training is fully funded by the NPS program budget and includes educational visiting workshops; educational visiting 2 – an advanced course; group skills for running GP peer groups and case discussions; workshops on interpretation, use and analysis of drug utilisation data in educational settings; applying quality use of medicines in practice; and basic pharmacoepidemiology. Therapeutic briefings are held in each State for the major topics and each year a two-day conference is held for all facilitators. NPS facilitators employed by divisions of general practice have received regular support from NPS staff via divisional visits and monthly telephone meetings of small support networks. Advice and assistance with specific therapeutic topics have also been provided through topic specific teleconference sessions.

Community quality use of medicines

The aim of the Community Quality Use of Medicines Program (CQUM) is to promote better health by building awareness, knowledge and skills in the community that will lead to QUM by:

- promoting consumer and community understanding and awareness of choices between the use of medicines and other approaches to health problems
- raising and improving consumer and community awareness about both the benefits and risks of medicines
- providing consumers and the community with the opportunity to develop skills and knowledge to engage in decision making about medicines
- building on established communication channels at all levels to improve communication and cooperation between consumers and health professionals
- increasing consumers' awareness about the key role they play in their medicines management in partnership with their health professionals.

Priorities for the program are:

- Access to and interpretation of information about medicines
- Effective communication between consumers and health care providers about medicines
- The safe use of multiple medicines
- Management of common ailments: reducing the overuse of antibiotics for upper respiratory tract infections.

The Community QUM Program is managed and implemented in partnership with the Consumers' Health Forum and other consumer groups and organisations. The program delivers services at two broad levels. The first has a national perspective and will provide messages to consumers via a national awareness campaign. This national level intervention will be aligned to

national awareness raising, network development, policy development and feedback, systems enhancement, training and capacity development and resource development.

Beneath the national strategy sit strategies responsive to particular communities and behaviours. Activities at this community level focus on understanding local issues, working with existing consumer groups and community organisations, identifying key people within communities to act as leaders, and responding to specific community priorities. Targeted initiatives are provided for:

- Seniors (including those with chronic diseases) and their carers
- People from rural and remote communities
- People from culturally and linguistically diverse communities
- Parents and carers of young children
- People from Aboriginal and Torres Strait Islander communities.

Curriculum and training

In the consultation process conducted prior to the establishment of the NPS the highest priority for all stakeholders was educational support for students and young prescribers. To this end, a curriculum and training program was established that aimed to provide a grounding in QUM for professional practice through formal education and training.

Pharmaceutical decision support

The aim of the pharmaceutical decision support program is to improve the quality of prescribing and use of medicines by health professionals by providing reliable information and prompts when the information is most pertinent to decision-making. GPs are provided with methods for extracting prescribing data for quality assurance purposes such as practice-based drug use evaluations, peer group discussions and clinical audit. The pharmaceutical decision support program also develops software guides that promote the use of NPS patient materials or raise the GPs' awareness of the functionality of their software to support QUM in the electronic prescribing environment.

Australian Prescriber

Australian Prescriber is the leading therapeutics journal in Australia. Since January 2002, when NPS assumed responsibility of *Australian Prescriber*, six issues of the journal have been published each year. The aim of *Australian Prescriber* is to promote the quality use of medicines by providing, readable, reliable, educational information about drugs and therapeutics. The journal contains information and reviews on a variety of therapeutic topics of interest to its readership. Whenever possible, information about new drugs is published in the first issue following the release of a new chemical entity onto the Australian market, following TGA approval for marketing. This ensures that health professionals receive an independent assessment of a new product as soon as possible. Efforts are made to ensure the content of *Australian Prescriber* is compatible with information published by other independent providers such as the Australian Medicines Handbook and Therapeutic Guidelines.

Australian Prescriber is an important part of the QUM intervention armamentarium available to NPS. It is the more comprehensive and academic medical journal that provides a firm foundation for other NPS publications such as *NPS News*. It is very highly regarded among groups such as hospital doctors and other opinion leaders who frequently publish articles in the journal. It also facilitates debate of complex, controversial or uncertain therapeutic areas.

New drugs

The aim of the new drugs program, which began operation in April 2003, is to provide timely and independent information to prescribers and consumers on new and revised listings to the PBS. As a consequence of this aim, it is anticipated this program will help achieve improved health outcomes for all Australians through appropriate and cost-effective prescribing of medicines.



Information services

NPS information services comprise a telephone advice line for health professionals, the therapeutic advice and information service (TAIS), and a similar service for the community, Medicines Line.

TAIS

TAIS is a national drug and therapeutics phone-in information service primarily targeted at community-based health professionals. A consortium of six expert drug information centres operates the service on behalf of NPS. The six sites are based in Melbourne, Adelaide, Brisbane (2), Perth and Newcastle. Enquiries to TAIS are lodged, Australia-wide, via a dedicated 1300 telephone line between 9 am and 7 pm (EST) Monday to Friday, or via email or fax 24 hours, seven days a week.



Medicines Line

Medicines Line is the consumer medicine information phone line that provides expert pharmacist responses to consumer questions. It is provided through a 1300 number for the cost of a local phone call. It is operated by a consortium formed by Mater Pharmacy Services, South Brisbane and the Pharmaceutical Society of Australia. The service has been operating since September 2002.

Research and development program

The aim of the Research and Development Program is to provide innovative models or methods for program implementation that deal with barriers to change and gaps in the evidence-base to achieve sustainable improvements in the use of medicines. Specific objectives for this program of work for 2004–05 include:

- To set up a program that assists NPS to achieve:
- Better understanding of the mix and timing of interventions that lead to sustainable behaviour change among health professionals and consumers
- Better understanding of the cost-effectiveness of interventions
- Development of new models of program delivery where existing implementation achieves inadequate reach, penetration or effect such as with particular geographical, socio-demographic or professional groups
- Development and/or assessment of new measures and methodologies for use in program evaluation, including measurement of patient-focused outcomes of and better methods for attributing financial and economic consequences to our programs.

Appendix 2. Program evaluation

The aim of NPS program evaluation is to apply rigorous evaluation methods to NPS programs to support the development and accountability requirements of the organisation and ultimately to inform and sustain the provision of a national QUM program. Specific objectives are:

- To provide evaluation support and feedback to individual NPS programs during development, implementation and review
- To monitor participation in NPS initiatives as well as how these activities are perceived by stakeholders
- To provide information on both the implementation and effect of NPS activities
- To aggregate evaluation information across all programs to assist with determining the effectiveness of the NPS program as a whole
- To provide advice and recommendations to the NPS Board regarding strategic implications for future NPS activity
- To summarise the impact of NPS initiatives on QUM in Australia.

NPS evaluation is integrated across the organisation. It informs organisational decisions by focussing evaluation questions at multiple levels, including strategy, program and corporate. It is responsive to change in content, complexity and scope of program delivery. The evaluation approach is broad ranging and comprehensive. Process or formative evaluation is incorporated to ask questions about how the programs are operating and identify whether they are being implemented as planned, including within anticipated timeframes. The process, scope and reach of programs are measured using classic process indicators such as distribution of materials and participation in education. Perceived value and quality of intervention resources and services is also measured. Impact or summative evaluation around specific objectives and goals is incorporated to establish whether strategies achieve what they intended in terms of changes in awareness, skills and behaviour amongst target groups. Collection of evaluation information is multistrategic. Both qualitative and quantitative data is collected as necessary. The evaluation examines national and local activities and focuses on all target audiences. Ultimately, the evaluation information will support development and accountability.

Appendix 3: Evaluation data and methods

NPS evaluation makes use of a range of existing datasets and where no other adequate sources of data exist undertakes data collection specific to the need. NPS has also established a comprehensive database of participation in NPS activities by individual healthcare practitioners and a summary database of NPS program activity in Divisions of General Practice.

Below are brief points to describe the routine data sources utilised by NPS evaluation to measure: the process, scope and reach of activities; changes in awareness, skills and behaviours towards QUM; changes in prescribing behaviour; changes in health outcomes; and changes in prescribing resulting from NPS programs. Where relevant, detail on the most recent use of these data sources is also provided.

Process, scope and reach

Stakeholder analyses

Consultation with stakeholders is undertaken regularly to determine the perceived acceptability of NPS activities, and to obtain input for future directions.

Consultation with stakeholders (March 2004)

In March 2004, NPS commissioned TNS consulting to undertake research to gain information that would assist NPS in planning for the future, improve relations with stakeholders and support an application for refunding. More specifically, the research sought to:

- Understand if stakeholders perceive NPS as having achieved their objectives.
- Assess the value placed on NPS activities by various stakeholders
- Gain feedback on the perceived impact of specific NPS activities
- Assess the perceived effectiveness and efficiency of existing arrangements in meeting the program objectives
- Consider process and implementation issues
- Understand the nature of the relationship between NPS and its stakeholders
- Identify ways in which the administration and operation of the existing arrangements may need to be improved
- Identify what functions other organisations may play in NPS functions in the future
- Understand what stakeholders see as the specific priorities for NPS in the future if refunding is successful.

The research utilised a qualitative methodology with a program of face-to-face in-depth interviews being undertaken with member organisations and stakeholders (n=42), divisions of general practice (n=5), GPs and pharmacists (n=24). The in-depth interviews were semi-structured and allowed interviewees to provide comments appropriate to their specific organisation and position.

All interviews were conducted by senior TNS researchers and lasted for approximately one hour. Where possible, interviews with representatives of member organisations, other stakeholders and with health professionals were conducted face-to-face, with those for whom this was not feasible being conducted by phone. All interviews involving division staff were completed face-to-face at the specific division.

In brief: The results from the consultation with stakeholders undertaken in early 2004 demonstrated that:

- The NPS is envisioned by the majority of its stakeholders to be charged with the objective of promoting quality prescribing to ensure the effective and affordable use of medicines
- NPS is widely credited with having strongly contributed to the increased awareness and importance that is attached to QUM principles throughout the health sector
- Some felt that NPS has been too heavily focused on 'affordable and cost-effective use' rather than quality
- NPS' role as a provider of unbiased and factual information is considered to be an essential resource within the health community at large. As is the educational function NPS fulfils at both the continuing accreditation and student stages of professional development
- NPS fostered respectful, productive relationships with member organisations and other stakeholders characterised by both high levels of professionalism and approachability.
- Opportunity for stakeholder relationships to be improved was pinpointed, with suggestions that NPS needs to adopt a more collaborative and inclusive approach in its dealings with members, particularly in the early stages of any project.
- While all participants advocated for the need for NPS to continue providing its current functions, there were none the less two opposing views regarding the suggested future direction. One was for NPS to broaden its focus by including activities directed at other health professionals, increasing the number of activities etc and bolstering efforts to reach specialists, pharmacists, practice nurses and consumers. The alternate view was that NPS should concentrate on core business and look for ways to build on the successes already had.

Division operations analyses

Division operations analyses (October 2000 and October 2004), involving interviews with facilitators and other key staff members or affiliates (including QUM Program Managers, QUM GP Advisers and Chief Executive Officers) were undertaken in select divisions to explore how NPS was working 'on the ground'.

The aim of these analyses has been to identify the different models being used to deliver the NPS program, their strengths and weaknesses and the factors that facilitate or act as barriers to implementation. They have also sought to explore the influence of these models on Division performance and to develop strategies to assist Divisions in addressing the barriers they face and promote enabling factors.

The Divisions that were selected for inclusion in each case study activity (six in October 2000 and eleven in October 2004) were matched where possible on: length of time with NPS contract, rural/urban status, size of Division (geographical scatter), model of NPS program delivery, organisational structure and overlap with other QUM programs.

Data collection encompassed site visits undertaken with each of the Divisions, during which quantitative and qualitative data was collected during semi-structured one-on-one interviews. The data collected included information on: divisional characteristics, staffing and infrastructure, context within which NPS and QUM fit, role and activities of the facilitator, NPS activities

undertaken and mode of delivery, perceived barriers and enablers to program delivery, perceived success of NPS activities and whether the division considers NPS to be 'value for money'. Other data sources included division of general practice strategic plans, business plans, 12 monthly reports and NPS program records.

In 2004, supplementary to the divisions participating in the case study activity, all divisions implementing the NPS Program were invited to contribute their experiences with program delivery by providing feedback through a web-based questionnaire on the barriers and enablers to program implementation.

In brief: The results from the division operations analysis undertaken in October 2004 demonstrated that:

- Each model of delivery has unique factors which may act as an enabler or a barrier to program implementation. Some of the factors for success include:
 - Formation of multi-professional local QUM advisory groups to provide guidance and support to local QUM programs
 - Integration of NPS Program with other divisional programs
 - Organisational structure within division 'program focused', as opposed to 'management focused'
 - NPS Program incorporated into division's strategic plan
 - Educational visiting is primary activity
 - Strong relationships between division and NPS, at both management and program staff levels
 - Feedback and support from NPS to division, and vice versa
 - Supportive divisional board which values NPS Program
- These findings will provide the opportunity to identify division models that maximise participation in NPS activities and optimise appropriate changes in prescribing. This information will assist NPS to build capacity for change in QUM, at a local level.

Activities database (and 6-month report database)

The activities database, maintained by NPS, is a record of participation by divisions of general practice in NPS activities. Data is sourced from divisional facilitators and submitted at the completion of divisional activities. The 6-month reports summarise all activities over the last 6 months. Primarily, the activities database is used to provide routine summaries of divisional participation in NPS activities for monitoring purposes as well as direct feedback to the NPS facilitators.

Participation database

The participation database, maintained by NPS, is a record of individual participation in NPS activities. Data is also sourced from divisional facilitators and submitted via monthly reporting to NPS. The participation database is primarily used to record participation in activities that are eligible for inclusion in point allocation made under the Royal Australian College of General Practice's professional development programs and the Quality Prescribing Initiative (QPI) of the Commonwealth Government's Practice Incentive Program (PIP). The participation database is also used to provide data summaries for NPS board and management that can be completed at an individual participant (de-identified) level or aggregated to a divisional level.

Readership survey (*Australian Prescriber* and *NPS News*)

Between the months of September to November 2002 NPS explored the role of *Australian Prescriber* and *NPS News* in communicating independent and expert information about quality use of medicines. The evaluation was conducted in three stages. Stage 1 was a survey of the Australian Prescriber website. Stage 2, the qualitative research, involved a series of 5 focus groups (total of 44 participants) and 9 in-depth interviews with readers and non-readers. Focus groups/interviews were held in metropolitan and regional/rural areas with pharmacists, GPs and other medical specialists. Stage 3, a quantitative mail survey of readership and attitudes, was mailed to 2 000 readers of these publications.

Readership survey (*NPS RADAR*)

In August, NPS conducted an online readership survey of those who had registered to receive *NPS RADAR* electronically. The survey comprised 20 open and closed-ended questions was housed on the *NPS RADAR* website from 29 July to 31 August 2004. An email was sent to all registrants inviting them to provide their feedback. The direct web-link for the survey was provided within the body of the email. Approximately two-and-a-half weeks later, all registrants received a second email reminding them to provide their feedback. The survey was hidden on the *NPS RADAR* website such that this web-link was the only method available to access the survey, ensuring that only registrants of *NPS RADAR* were able to provide their feedback.

Of the 10 739 emails successfully delivered, the overall response rate to the survey was 1791 (16.7%); all responses were eligible to be included in the analysis. In terms of occupation, country of residence and statewide distribution within Australia, the survey cohort was approximately representative of the total *NPS RADAR* registered population.

Changes in awareness, skills and behaviours

National surveys of general practitioners

NPS has commissioned national paper-based mail surveys of general practitioners (GPs) in March 1999 (n=1 310), April 2000 (n=941), April 2002 (n=963) and April 2004 (n=815). These surveys are designed to collect data on: GP awareness and participation in NPS divisional activities; the value of NPS to GPs; GP perceptions about the trustworthiness and completeness of NPS prescribing and feedback information; GP knowledge of evidence on some prescribing options; information sources used by GPs; and GP perceptions regarding the best options for keeping up-to-date with advances and changes in the use of medicines.

The fourth national survey of GPs was undertaken by NPS in April 2004. The research participants were randomly selected from AMPCo Direct's Medical Masterfile database. AMPCo Direct is a subsidiary of the Australasian Medical Publishing Company Proprietary Limited (AMPCo) which itself is a subsidiary of the Australian Medical Association. The database comprises a total of approximately 58 000 Australian medical practitioners of whom 22 359 are classified as general practitioners. For the purpose of this study, the sample of GPs was stratified by state and by Rural Remote and Metropolitan classification.

Postcards informing GPs that they were randomly selected to participate in the study were initially mailed by AMPCo. One week later the survey and project letter and an NPS reply paid envelope were sent to all GPs in the study sample. Three weeks later a second survey and first reminder letter together with an NPS reply paid envelope were sent to GPs who had not responded to the first mail out. A further three weeks later a second and final reminder letter together with a copy of the survey and an NPS reply paid envelope was re-sent to GPs who had not returned their survey. All mail-outs were done by the mailing house and NPS did not have access at any time to the GPs' names and addresses.

The survey responses were coded by Harbour Data Document Imaging Service Pty. Ltd. Categorical responses were scanned with “*FormStorm*” software while text responses were manually entered with ambiguous or unclear text being flagged for inspection by NPS.

Quantitative data was analysed using the SAS System for Windows, version 8.02. Descriptive statistics were calculated for all variables. Summary statistics (mean and standard deviation) were produced for continuous variables. Analyses of associations between categorical responses were conducted using chi-square tests. Trends across ordered categorical variables were carried out using the Mantel Haenszel trend test. This test was also used when comparing trends over time with previous NPS GP surveys.

Qualitative responses were transcribed verbatim and independently reviewed by two researchers and then analysed using a structured analysis process in which key phrases and concepts were identified, the data categorised, and recurring themes and issues recorded. Key phrases that reflect the major themes are reported where possible. Confidentiality and anonymity have been preserved by avoiding direct attribution of any comments.

Of the 2 080 surveys mailed, a total of 921 (44.3%) surveys were returned. Of these, 815 (40.0%) were included in the analysis.

Male GPs accounted for 61.4% of the respondents with a mean age of 49.1 years (\pm 10.4 years) for the total sample. The age of respondents ranged from 26 to 85 years. The average time in general practice ranged from one to 62 years (mean 19.1 \pm 10.6 years). Three quarters (73.5%) of respondents had undertaken their undergraduate training in Australia. The majority (72.4%) of GPs were from practices with 3 or more GPs, with only 15.0% being solo practitioners. GPs in the survey reported that they saw an average of 122 patients per week with a minimum number of 10 patients and a maximum of 400.

- In brief, the results from the fourth national survey of GPs as well as the comparative analysis between the three previous surveys demonstrated that many GPs consider NPS to be a valuable, essential, highly professional service that provides unbiased advice.
- Almost all, 98%, of the surveyed GPs had heard of NPS.
- Awareness of NPS activities undertaken by local divisions of general practice was also relatively high, with 69% being aware. Comparison with previous surveys revealed that awareness of divisional activities has tripled since the inception of NPS in 1999.
- Encouragingly, the majority of GPs (84%) rated NPS to be either great or moderate value. The value of NPS to GPs has grown significantly over the years. In 2000, 14% of surveyed GPs considered the NPS to be great value, by 2002 this figure had improved to 20% and again in 2004 to 23%.
- The most recognised and used of the NPS sources of therapeutic information was *Australian Prescriber* with 86% of GPs aware and 90% of those sometimes or frequently reading it. Two-thirds of those who read it, rated it as good or very good.
- Other NPS information resources were less well recognised, only 28% were aware of the Therapeutic Advice and Information Service (TAIS) which has decreased from 30% in 2002.
- Awareness of TAIS varied by state, the highest being Tasmania (46%) and the lowest New South Wales (26%). Despite the decrease in awareness of TAIS, there has been a significant increase in its use amongst those aware, from 40% in 2002 to 55% now.
- The awareness of *NPS RADAR* at 45% is encouraging as it has been available for only just under a year.
- GPs continue to prefer the more traditional forms of education with continuing education events and paper/computer journals being ranked highest when GPs were asked what were their favoured options for keeping up to date with changes and advances in medicines. GPs ranked visits from NPS facilitators in sixth place out of a possible 10 options.
- The MIMs annual, the PBS book and *Therapeutic Guidelines* were reported to be the most used sources of information in the past four weeks.
- The 'Common Colds Need Common Sense' campaign was the NPS consumer program most recognised by GPs (79%). More importantly, 83% of the GPs felt that the campaign was helpful in promoting the message to patients that antibiotics were inappropriate for common colds.

National survey of pharmacists

NPS has undertaken national paper-based mail surveys of pharmacists in August 2002 (n=712) and April 2004 (n=1017). The principal aim of these surveys was to provide data on: pharmacist knowledge and behaviour around the activities of NPS; pharmacist perceptions about the value of NPS and the completeness and trustworthiness of information provided by NPS; pharmacist knowledge of evidence-based prescribing practices; and use of different types of information sources for keeping up to date with changes in medical and pharmacy practice.

The second national survey of pharmacists (GPs) was undertaken by NPS in April 2004. The sample of 2,500 Pharmacists was randomly selected from NPS database of registered pharmacists constructed from Pharmacy Boards' records in 2001. The sample was stratified by participation status, where participants (n=1 250, 50% of total sample) were pharmacists who had participated in at least one NPS activity for pharmacists; and pharmacists (n=1 250, 50% of total sample) who had participated in no activities. The survey included both quantitative and qualitative data collection.

The initial step in the survey procedure involved sending postcards informing pharmacists that they were randomly selected to participate in the study. One week following this notice, the survey, project letter and a reply paid envelope were distributed. Up to two reminder letters together with additional copies of the survey and reply paid envelopes were mailed three and six weeks following the initial mail out.

Qualitative responses were transcribed verbatim and then analysed using a structured analysis process in which key phrases and concepts were identified, the data categorised, and recurring themes and issues recorded. The emphasis in analysing these sections of the survey was qualitative rather than quantitative; however, where appropriate, quantitative estimates of some responses were provided to indicate overall salience. Hence, terms such as 'almost all' to report near universal agreement, 'most' to indicate a majority, 'some' to indicate a notable minority, and 'few' to indicate less than 10 respondents are used. Key phrases that reflect the major themes are reported where possible. Confidentiality and anonymity were preserved by avoiding direct attribution of any comments.

Of the 2 500 surveys mailed, a total of 1 233 (51% of eligible mailed sample) surveys were returned. Of these, 1 017 (42% of eligible mailed sample) were included in the analysis.

The majority of respondents were female (60.4%). For the total sample, just over one quarter (28.7%) were aged between 40–49 years, while a further 22.5% were aged between 30–39 years, and 20.7% were aged between 50–59 years. Most respondents had undertaken their undergraduate pharmacy training in Australia (89.8%). Just over two-thirds of the respondents were participants (69.9%), that is, they had participated in an NPS activity.

- In brief, the results from the second national survey of pharmacists as well as the comparative analysis between the previous survey revealed that the majority of pharmacists are aware of NPS and its current campaigns, with a high proportion also aware of NPS divisional activities. The Pharmacy Program is perceived to provide valuable, high-quality, independent, evidence-based material and prescribing information appropriate to the needs of community pharmacists and which supports QUM, helps improve OTC prescribing, and integrates with other NPS programs. As a result of NPS activities and products, pharmacists feel better equipped to answer consumer enquiries.
- Up to 95% of respondents in the first survey of pharmacists in 2002 rated NPS to be either of great or moderate value to them. This increased to 97% of pharmacists in the second survey in 2004. Significantly more pharmacists who had participated in NPS activities viewed NPS to be of great value (67%) compared to only 46% of those who had not participated in any NPS activities.
- There has been a significant increase between the first and second survey of pharmacists in the proportion of pharmacists that believe NPS information is independent, evidence-based and appropriate to their needs (71% to 80% for independence, 77% to 85% for evidence-based and 72% to 78% for appropriateness to their needs.
- Participants in NPS activities were more likely to perceive NPS information to be independent ($\chi^2_1 = 13.377$ $p < 0.0001$) evidence-based ($\chi^2_1 = 17.577$; $p < 0.0001$) and appropriate to their needs ($\chi^2_1 = 31.233$; $p < 0.0001$) in comparison to non-participants.
- Overall, 86% of pharmacists surveyed in 2004 believed NPS activities support the enhancement of QUM and also help improve over-the-counter prescribing (89%).

National surveys of consumers

NPS has commissioned national telephone surveys of consumers in August 1999 (n=1 614), 2000 (n=1 603), 2001 (n=1 800), 2002 (n=1 200) and 2004 (n=1 200). These surveys obtained national, randomised samples of the Australian population aged 15 years and over, stratified by age, gender and region and used Computer Assisted Telephone Interview (CATI) technology for data collection. Phone numbers were obtained from the electronic white pages. Results were post weighted for age and gender using relevant ABS census data.

The main purpose of the survey in 1999, 2000 and 2001 was to identify:

- sources of information used by consumers about prescription medicine
- attitudes towards the use of antibiotics for coughs, colds and flu-like symptoms.

In 2003, the survey was expanded to include questions that would inform and evaluate the newly established Community QUM Program for consumers, particularly to identify:

- current health and well-being of consumers
- their use of and management of prescription and non-prescription medicine
- attitudes to medicine use and alternatives to medicine use
- awareness and use of information sources provided by and promoted by NPS
- attitudes towards sources of information about medicine.

- In summary, the series of national consumer surveys conducted over five years indicates that most Australians (79%) feel able to get enough information to decide what medicines to use for common health problems.
- In seeking medicines information, most are likely to ask a doctor (87%) or a pharmacist (78%), while some consumers report asking family or friends (46%), using the internet (41%) or consulting medical books (39%). Telephoning an advice line, such as Medicines Line, remains an infrequent option (16%).
- Over the five years of surveys, there has been a gradual increase in the percent of consumers asking their doctor (48% to 58%) or pharmacist (16% to 30%) questions when last prescribed a new medicine.
- Both GPs (82%) and pharmacists (77%) have consistently been perceived as providing medicines information that is trustworthy (83% and 85%) and complete (74% and 80%) by Australians.
- Consumer awareness of NPS is relatively low (22% in 2004), but among those that are aware, consumer confidence in NPS has improved regarding provision of trustworthy (47% to 56%) and complete (39% to 50%) medicines information.

National omnibus/pulse surveys of consumers: Common colds need common sense campaigns

As part of monitoring the impact of the NPS *common colds need common sense* campaigns, NPS has included questions in the NewsPoll omnibus surveys pre the 2002 campaign (May 2002), post the campaign in 2003 and then again pre and post the campaign in 2004 (May and August). Each national random sample consisted of 1 200 people aged 18 years or over, stratified by postcode area and age. Interviews were conducted by telephone (CATI). A call back and appointment system was used to include people not often at home. Results were post-weighted to ABS statistics on age, gender, highest level of schooling and area. Questions focused on knowledge and attitudes about the best way to treat colds and flu, awareness of the national advertising campaign and messages, and behaviour when last suffered from a cold or flu.

- In summary, awareness of the 'Common colds need common sense' campaign amongst consumers increased to 22% in August 2004, up from 7% in the 2001 and 13% in 2003.
- A specific campaign target group, parents of children under 15 years, showed the greatest increase in awareness of the campaign in 2004, from 22% to 33%.
- The Newspoll Omnibus surveys have demonstrated that an increasing proportion of the community endorses symptomatic management of colds or flu rather than the use of antibiotics. That is, the majority of consumers indicated that when they last suffered from a cold or flu, the actions taken were consistent with the campaign messages such as drinking extra fluids (79%), getting rest (75%) and taking non-prescription medicine (73%).
- In contrast, the proportion of consumers who reported to take an antibiotic the last time they suffered from a cold or flu has steadily decreased with time, from 11% in 1999 to 7% in 2004.
- Consumer attitudes about the appropriateness of antibiotics for colds and flu have changed, falling over the past five years from 29% of the population in 2001 perceiving antibiotics to be appropriate to 22% in 2004.

National omnibus/pulse surveys of consumers: Community QUM program national awareness campaigns

As part of monitoring the advertising effectiveness of the Community QUM national awareness campaigns implemented in 2004, NPS included questions in regular weekly surveys conducted by Roy Morgan Research. These surveys provided the pre-campaign baseline (January 2004, n=1 245) and two post-campaign measurements of awareness, one immediately after the first round of television advertising (March 2004, n=1 242) and another after the second round (October 2004, n=1 222). Each survey was completed over two consecutive waves of Roy Morgan Research's Catibus, a national telephone omnibus (CATI), in which 600 randomly selected Australians, aged 14 and over, are interviewed each week. Samples were stratified by age, gender and region. Phone numbers were obtained from the Electronic White Pages. Results were weighted using relevant ABS census data.

- In summary, awareness of the TV advertisement 'medicines without the mix ups' amongst consumers increased from 5% at baseline to a high of 57% in March 2004, dropping back to 44% in October 2004. The decline in awareness after the second burst of TV advertising was consistent with the reduced intensity of advertising.
- Awareness of magazine advertisements was limited (12%), showing no increase over baseline.
- Consumer awareness of *Medimate*, a major campaign resource promoted by the TV advertising, increased from 5% at baseline to 11% in March 2004, dropping back to 8% in October 2004.
- In terms of behaviour, only 3–4% of the consumers surveyed had read *Medimate* and 2% had picked up a copy and taken it home.
- Of those who were aware of *Medimate*, 68% were able to provide a relevant QUM message promoted in the brochure.

Changes in prescribing behaviour

Drug utilisation data from the Health Insurance Commission

NPS currently has seven financial years of data from HIC for the period July 1996 to June 2003. This contains data from both the Pharmaceutical Benefit Scheme (PBS) and the Medicare Benefit Scheme (MBS). PBS data includes all prescriptions dispensed nationally for which the Australian Government pays a subsidy. This data provides the total number of (subsidised) prescriptions dispensed (both original and repeats) with a breakdown by patient entitlement levels. Gross price and net benefit of scripts by item code are included, as is the number of individuals and households with safety net cards. MBS statistics are based on the items (e.g., standard GP consultation) and groups (e.g., professional attendances, pathology services) in the Medicare Benefits Schedule. These statistics are reported by patient gender and age group and by scrambled provider number.

Data from the HIC is used primarily by NPS to track changes in prescribing which may be attributed to NPS activities. This is used for various reporting purposes, and for the evaluation of NPS activities. This data has also been used for economic modelling of NPS programs. It has the capacity to allow us to examine differences and effects of NPS programs by geographical (including rural/urban and divisions of general practice) areas and some provider characteristics.

Drug utilisation data from the Drug Utilisation Sub-Committee

To overcome the omission of 'under co-payment' data (relating to scripts for which no government subsidy is paid) within the HIC dataset, an ongoing survey of a representative sample of community pharmacies is undertaken annually by the Pharmacy Guild for the Drug Utilisation Sub-Committee (DUSC), a sub-committee of the Pharmaceutical Benefits Advisory Committee (PBAC). The database maintained by DUSC contains data from two sources: HIC, and the Annual Survey of Community Pharmacies. By combining these two sources of data an overall estimate of community prescription drug usage in Australia can be obtained. Drug utilisation data from this database is publicly available and provided free of charge. DUSC data is requested by NPS on an ad-hoc basis.

Computerised GP prescribing data from users of Medical Director via Health Communication Network

The General Practice Research Network (GPRN) is a randomly selected sample of approximately 300 Australian GPs established in August 2000 by Health Communication Network, which owns Medical Director, Australia's most utilised patient management software in general practice. GPRN aims to provide de-identified longitudinal patient data both to evaluate the use of electronic patient management systems and to investigate the capabilities of primary source data for pharmacoepidemiology and population health monitoring. GPRN data has been provided to NPS on a regular basis since October 2002.

Data from the Bettering the Evaluation and Care of Health (BEACH)

The BEACH dataset is derived from having a random sample of GPs nationwide (approximately 1 000 per annum) complete standard information forms describing 100 consecutive patient encounters. The information routinely recorded about encounters includes the patient's stated reason for attending, the diagnoses and problems reported as managed by the practitioner, as well as medicines prescribed. BEACH data is useful where knowledge and consideration of patients' diagnoses and/or presentation are required to enable interpretation of prescribing data. BEACH data is requested by NPS on an ad-hoc basis

Changes in health outcomes

It remains a priority for NPS evaluation to investigate methods for linking changes in prescribing with improved health outcomes. The focus is on linking evidence from previous studies to support expected changes in health outcomes as a result of NPS activities.

Changes in expenditure on the PBS

The initial funding agreement with the Australian Government required NPS activities to achieve savings to the PBS of \$45.616 million over 4 years: \$2.851 million in the first year and \$14.255 million in each of the three subsequent years. Three-quarters of the way through the initial funding period, NPS clearly satisfied these requirements by achieving savings of just under \$49 million. The current agreement with the Australian Government requires that with a four-year funding of \$45.76million, NPS must deliver savings of \$111 million to the PBS: \$28.5 million in the first year and \$27.5 million in each subsequent year.

Savings in the initial funding agreement were calculated as the difference in the rate of growth of PBS prescription costs between an intervention group and a quasi-control group. The intervention group had access to NPS News, prescriber feedback (PPRs), clinical audits, case studies and in some cases also practice visits via an NPS facilitator employed by a local division of general practice. The control group of 1 068 GPs from five divisions of general practice received NPS News but no other interventions or NPS programs.

External review of the initial savings estimates suggested the need to develop and refine new methods for the future as a control group would not be sustainable. The revised methodology includes a mix of actual versus forecasted PBS spending as well as time-series and regression modelling per program linking utilisation and expenditure with implementation and GP participation in NPS educational activities.