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# GP management of erectile dysfunction

## The impact of clinical audit and guidelines

### Background

This study evaluated a clinical audit and evidence based practice guide designed to improve general practitioners' assessment and management of erectile dysfunction.

### Method

A self selected sample of 25 GPs audited their assessment and management of 1354 patients at risk of, or being treated for, erectile dysfunction.

### Results

General practitioners reported several significant improvements across the audit period:

- GP initiated discussions about erectile dysfunction with 'at risk' patients nearly doubled
- an 18% increase in psychological history taking with 'at risk' patients
- a 19% increase in assessment of current erectile dysfunction patients' needs and preferences for treatment
- decreased specialist referrals
- increased provision of phosphodiesterase inhibitor samples.

### Conclusion

This clinical audit and practice guide was developed specifically and uniquely for GPs in Australia. Findings provide some support for the combined use of the clinical audit and practice guide to elicit positive changes in erectile dysfunction assessment and management.

■ **Approximately one in 5 Australian men over 40 years of age experience erectile dysfunction (ED), yet this common condition often goes undetected and undertreated.<sup>1-2</sup> The Men in Australia Telephone Survey (MATEs) found that only 30% of men experiencing erectile difficulties had spoken to a health professional.<sup>1</sup> Of these men, only 58% received treatment. Furthermore, international data suggests that up to 70% of ED cases remain untreated.<sup>3</sup>**

Research indicates that general practitioners do not regularly ask about ED with male patients who are at risk for the condition (*Table 1*).<sup>4-5</sup> Reasons for this include lack of time and a belief that patients will initiate discussions about ED.<sup>5</sup>

Once detected, ED is often readily treatable in general practice (*Table 2*). The timely detection of ED has also become increasingly important in recent years, with growing recognition that ED is an early marker of cardiovascular disease.<sup>6</sup>

Disparities between the prevalence and treatment of ED highlight the need for GP continuing professional development (CPD) activities to improve ED diagnosis and treatment. In support, several Australian GP studies have emphasised the need for more education and training in men's sexual and reproductive health.<sup>7-9</sup>

An essential component of any CPD activity is the capacity to elicit evidence based practice changes. There is now considerable evidence to suggest that while short formal sessions involving didactic lectures increase knowledge, they do not necessarily change practice.<sup>10-14</sup> There is some evidence that clinical audits with individualised feedback can produce changes in GPs' clinical practice.<sup>10-14</sup> One particular benefit of the clinical audit as an educational intervention is its capacity to measure GP practice changes as a part of the learning process. However, several reviews have indicated variable effectiveness of clinical audit methodology, highlighting the need for further research.<sup>11-13</sup>

This article describes the outcomes of a clinical audit and practice guide developed for GPs in 2005. This was the first time for such a CPD program to be offered within Australia to promote evidence

based ED care. Two online education modules were also developed and offered to GPs in association with the clinical audit, these however, are not detailed in this article.

This program aimed to improve GP management of patients with, or at risk for, ED, and to evaluate the effectiveness of the clinical audit methodology in eliciting these changes in GP practice.

Table 1. Risk factors for erectile dysfunction<sup>15</sup>

<b>Psychogenic</b>	Performance anxiety Relationship problems Psychological stress Psychiatric disorders, including depression
<b>Neurogenic</b>	Stroke Alzheimer disease Spinal cord injury Radical pelvic surgery Diabetic neuropathy Pelvic injury
<b>Vascular</b>	Atherosclerosis Hypertension Diabetes mellitus Trauma (pelvic, perineal or penile)
<b>Drug induced</b>	Antihypertensive drugs Antidepressant drugs Antiandrogens Alcohol and drug abuse Cigarette smoking
<b>Hormonal</b>	Hypogonadism Hyperprolactinemia
<b>Fibrotic</b>	Peyronie disease
<b>Other causes</b>	Aging Diabetes mellitus Chronic renal failure Coronary heart disease

## Method

The clinical audit was advertised to GPs nationally via The Royal Australian College of General Practitioners (RACGP), divisions of general practice, Andrology Australia, and the GP men's health network, GPs4Men. The audit tool was based on a comprehensive review of guidelines and literature, and developed in consultation with a national working group of specialists and GPs to ensure accuracy and relevance to Australian GPs. The audit comprised five steps: pre-audit questionnaire; Part 1 audit sheets; reflection, education and practice change; Part 2 audit sheets; and final reflection and evaluation.

General practitioners completed a brief pre-audit questionnaire about their professional learning needs before commencing the Part 1 audit. General practitioners were instructed to search and select 25 patients seen over the past 6 months from their medical database, comprising: five patients currently using phosphodiesterase (PDE5) inhibitors (sildenafil, tadalafil, vardenafil), and 20 men aged 50 years and over who had displayed risk factors for ED. These patients are referred to as 'PDE5' and 'at risk' patients respectively. General practitioners completed a Part 1 audit sheet for each patient, based on their medical records. This included a patient's risk factors for ED, whether ED had been discussed and/or identified, and methods used to assess, treat and follow up with the patient.

General practitioners submitted their data by mail and received an individualised summary report of their audit results and a four

Table 2. Erectile dysfunction treatment options<sup>16</sup>

<b>First line</b>	<b>Second line</b>	<b>Third line: Consider referral</b>	<b>Fourth line: Urology referral</b>
<b>Alter modifiable risk factors</b> <ul style="list-style-type: none"> <li>• Lifestyle changes               <ul style="list-style-type: none"> <li>– smoking and drug cessation</li> <li>– reduced alcohol</li> <li>– improved diet and exercise</li> <li>– stress reduction</li> </ul> </li> <li>• Compliance with diabetes and cardiovascular medications</li> <li>• Modify medication regimen</li> <li>• Address psychosocial issues</li> <li>• Discuss sexual misinformation</li> <li>• Manage androgen deficiency</li> </ul>	<b>Oral medication*</b> <ul style="list-style-type: none"> <li>• Tadalafil</li> <li>• Vardenafil</li> <li>• Sildenafil</li> </ul> <b>Counselling and education</b> <ul style="list-style-type: none"> <li>• Brief in practice support and information</li> <li>• Referral for patient/couple counselling to address more complex issues</li> </ul> <b>Vacuum devices and rings</b>	<b>Intracavernous vasoactive drug injection**</b> Alprostadil used in isolation, or combined with other vasoactive drugs to increase efficacy or reduce side effects	<b>Surgery</b> <ul style="list-style-type: none"> <li>• Penile prosthesis</li> <li>• Vascular surgery</li> </ul>

\* Contraindicated in patients who take long and short acting nitrates, nitrate containing medications, or recreational nitrates (amyl nitrate). Exercise caution when considering PDE5 inhibitors for patients with active coronary ischaemia, congestive heart failure and borderline low blood pressure, borderline low cardiac volume status, a complicated multidrug antihypertensive program or drug therapy that can prolong the half life of PDE5 inhibitors

\*\* Contraindicated in men with history of hypersensitivity to drug or risk of priapism

page summary guide 'Erectile dysfunction: a GP summary guide for assessment and management', developed by our research team and a national ED working group. This guide was based on a comprehensive review of the latest literature and international clinical guidelines, providing GPs with a digested reference tool. General practitioners were also provided with a brief reflection survey requiring them to compare their audit results to recommendations in the summary guide, and identify areas for their own practice improvement.

During the intervening 5 months between audit Parts 1 and 2, GPs were encouraged to modify their practice in accordance with the summary guide recommendations. They were provided with the option of completing online ED learning modules; however this was not a compulsory component of the audit. They then completed the Part 2 audit sheets, which were identical to the Part 1 sheets. They then received a final summary report of their audit results, a second reflection survey and a postaudit questionnaire that addressed their experience of the clinical audit.

The audit data were analysed using SPSS Version 14. Given the unequal number of patients across audit Parts 1 and 2, percentages were calculated to compare the proportion of cases in which GPs undertook each management practice. Audit Parts 1 and 2 data were compared using one tailed paired sample tests, unless specified otherwise.

Ethics approval was approved before commencement by the Monash University Standing Committee on Ethics in Research involving Humans.

## Results

Twenty-five GPs completed the full clinical audit process. These GPs provided audit data for 1354 patients, including 'PDE5' patients (Part 1 n=148, Part 2 n=125) and 'at risk' patients (Part 1 n=582, Part 2 n=499). Patient numbers were not equivalent across the audits, as GPs were permitted to report on fewer patients if necessary.

### GP patient discussions about ED

General practitioners reported a significant 11% overall increase in the discussion of ED with 'at risk' patients from audit Part 1 (56%) to Part 2 (67%) ( $p=0.01$ ). The data were further analysed to examine who had initiated these discussions. General practitioner initiation of discussions with 'at risk' patients (*Figure 1*) nearly doubled across the audit period ( $p=0.002$ ).

In cases when ED was discussed with 'at risk' patients, 75% of patients were identified as having ED. (Note: the remainder of results presented on 'at risk' patients are those 75% identified as having ED.)

Part 1 audit data indicated that GPs initiated a low proportion (10%) of discussions about ED with 'PDE5' patients (*Figure 2*). However, this increased significantly by the time of audit Part 2 ( $p=0.013$ ).

### GP assessment and investigation of ED

General practitioners took medical histories in over 80% of patient cases, but less frequently took sexual and psychological histories

Figure 1. Mean percentage of ED discussions initiated by GPs, patients and partners – at risk patients

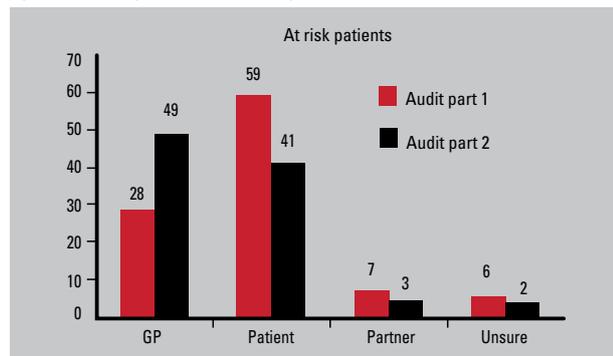
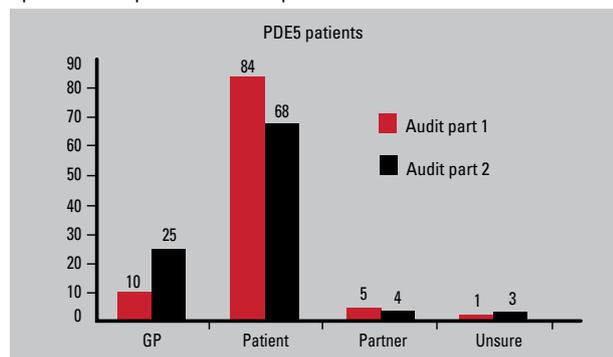


Figure 2. Mean percentage of ED discussions initiated by GPs, patients and partners – PDE5 patients



(*Table 3*). General practitioners showed a significant 18% increase in psychological history taking from 'at risk' patients from audit Part 1 to 2 ( $p=0.017$ ). The data also revealed a significant 14% increase in laboratory investigations with 'at risk' patients ( $p=0.026$ ).

Data on 'PDE5' patients revealed a different pattern of practice change. General practitioners showed a significant 19% increase in discussion of patient needs and preferences ( $p=0.026$ ). Analyses also indicated borderline significant increases in psychological history taking ( $p=0.058$ ) and physical examinations ( $p=0.054$ ).

### GP management of ED

Lifestyle modification was the most frequently recommended treatment strategy for both 'at risk' and 'PDE5' patients (*Table 4*). Brief counselling and education were implemented with fewer than half of patients.

General practitioners reported a significant increase in provision of tadalafil samples to 'at risk' patients ( $p=0.014$ ), and a borderline significant increase in vardenafil prescriptions ( $p=0.054$ ). General practitioners recorded a significant 11% decrease in referrals of 'at risk' patients to specialists over the audit period ( $p=0.041$ ). The audit data also revealed several moderate but nonsignificant increases in use of evidence based treatment approaches with 'at risk' patients, including patient lifestyle changes (10%), brief counselling (9%), and changes to medication that may cause ED (8%).

For 'PDE5' patients, GPs prescription of penile injections more than halved from audit Part 1 to 2 ( $p=0.04$ ). Correspondingly, moderate but non-significant increases were identified in patient education (12%) and recommendations for lifestyle modifications (9%).

Table 3. Changes in ED related assessments and investigations performed by GPs

Assessment/investigation	At risk patients mean %		PDE5 patients mean %	
	Audit 1	Audit 2	Audit 1	Audit 2
Medical history (including lifestyle, BMI, comorbid conditions, medications, previous treatments)	80.3	87.3	82.9	83.0
Sexual history (including ED onset, duration, severity)	62.9	75.0	69.92	79.2
Psychological history (including depression, anxiety, stress, relationship difficulties)	51.4	69.8*	59.1	73.4
Patient needs/preferences for ED treatment	45.6	63.7	48.8	67.4*
Physical examination (genito-urinary, cardiovascular)	54.1	63.6	52.3	67.4
Laboratory tests (including glucose, lipids, testosterone)	48.0	62.2**	54.5	56.8
Unsure/not recorded	0.7	0.3	6.7	2.6

\*  $p<0.05$

Table 4. GP management of 'at risk' and 'PDE5' patients

Management	At risk patients mean %		PDE5 patients mean %	
	Audit part 1	Audit part 2	Audit part 1	Audit part 2
Lifestyle modifications	53.0	63.0	44.8	54.0
Tadalafil sample	15.6	24.8*	19.6	23.4
Tadalafil prescription	9.6	18.8	29.4	30.0
Sildenafil sample	18.7	23.3	30.0	30.2
Sildenafil prescription	28.4	24.9	41.3	36.4
Vardenafil sample	7.1	6.4	9.6	10.0
Vardenafil prescription	0.8	3.3	7.7	10.6
Penile injections	5.	9.5	8.8	4.0*
External device (eg. vacuum)	1.8	2.2	0.8	0.8
Hormone replacement therapy	1.5	1.4	1.6	0.8
Patient education/materials	24.	27.5	23.4	35.8
Counselling in consultation	34.5	43.5	43.0	42.4
Referral to specialist/therapist	18.6	7.7*	10.8	10.2
Medication change	10.3	17.9	10.0	13.0
Other	4.0	3.7	2.4	4.0

\*  $p<0.05$

## Noncompleting GPs

General practitioners who registered to find out about, but did not complete, the audit were contacted via email to ascertain reasons for nonparticipation. Out of 128 GPs, 28 GPs responded, indicating: they did not believe they see enough patients with ED ( $n=15$ ); they did not believe they see enough patients with risk factors for ED ( $n=7$ ); a lack of time ( $n=7$ ); or the audit topic was too specific for their practice ( $n=4$ ).

## Discussion

A salient outcome of the clinical audit was the increase in GP-patient discussions about ED. General practitioners became much more proactive in initiating discussions about ED with 'at risk' patients – a highly positive step towards improved identification and management of ED. There were also several evidence based changes in GP assessment of ED. General practitioners began to take more psychological histories from 'at risk' patients, demonstrating an increased awareness of psychological issues associated with ED. They also reported increased laboratory testing, suggesting greater confidence in the investigation of ED.

The increase in GPs' assessment of 'PDE5' patients' preferences and needs was another positive finding, suggesting that GPs had become more aware of the importance of individual preferences for treatment, and consideration of other treatment options to complement patient medication use.

The low GP uptake of the audit was a key limitation of this study. One of the preventive factors to participation was that GPs did not believe they saw enough patients with ED, or ED risk factors. By contrast, GPs who completed the audit were motivated primarily by a wish to update their knowledge, and/or an existing professional interest in ED.

This feedback highlights two predominant difficulties in ED education. First, many GPs do not perceive a strong demand for ED treatment, despite statistics indicating that ED is highly prevalent and undertreated. Second, GPs with a pre-established interest and/or experience in men's sexual health are the ones seeking out further education.

This may in effect create a self sustaining dichotomy between those GPs who remain up-to-date and skilled at detecting, discussing and managing ED within their practice, and as a result see it reasonably frequently; and a perhaps much larger population of GPs who are less inclined to undertake further learning, and similarly less likely to investigate and identify ED within consultations.

This strongly highlights the need for broadly accessible education strategies that raise professional awareness about ED prevalence, and the importance of timely diagnosis and management. Incorporation of ED within broader men's health education activities may be one such way to increase awareness about the importance of healthy sexual functioning, and the links between ED and other common health conditions including cardiovascular disease and diabetes.

## Conclusion

Following a 6 month process of self auditing, reflection and practice change, GPs reported several improvements to their assessment and management of ED. While the results should be interpreted in light of the small sample size, they provide initial encouraging support for the use of clinical audits in conjunction with brief evidence based practice guides tailored specifically to general practice.

## Implications for general practice

- Erectile dysfunction is highly prevalent yet undertreated. General practitioners are faced with the challenge of unearthing this largely hidden men's health problem.
- The guideline driven self auditing process can be a useful educational tool for health topics pertaining specifically to GPs' areas of interest and perceived need.
- Preliminary data suggests that the use of guidelines and clinical audit can assist GPs to improve some aspects of their ED care, particularly pertaining to discussions, psychological history taking and assessment of patients' treatment preferences.

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