• Response to resiniferatoxin in women with refractory detrusor overactivity: Role of bacterial cystitis
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• Primary mono-symptomatic nocturnal enuresis: A review of management
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Do you need topic ideas? A variety of topics are possible and include, but are not limited to: outcome studies, aged care, paediatrics, pregnancy and childbirth, novel drug therapies, reviews of devices either surgical or non-surgical, assessment articles, literature reviews of continence-related topics, home and community care issues and successes, men's health, nursing management, physiotherapy management, support by other allied health disciplines (including occupational therapy and social workers), the psychological impact of living with incontinence, ethical issues, cultural issues and collaborative approaches to care.

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Editorial
Online guidelines

A discussion paper, perhaps described as a guideline about guidelines, published in the British Medical Journal in 1999 outlines potential benefits, limitations, and harms of clinical guidelines.

The potential benefits may occur for patients, by improving health outcomes both by promotion of interventions and other clinical activities (diagnosis and testing) and discouragement of ineffective interventions, at the levels of morbidity, mortality, and quality of life. Guidelines may also offer consistency of care, enable provision of information of conditions and treatments and so better inform patients, and finally guidelines may positively direct public policy. Potential benefits for health care professionals are provision of explicit recommendations where uncertainty about the best care exists, provision of information about best care, support of quality improvement activities, to highlight areas where research is needed and to carefully review the flaws in existing evidence, and to provide a basis for discussion with health care providers about care provision. For health care systems, guidelines may help with optimising value for money and provide a formal basis for trust that health care systems deliver consistent, fair, and high quality care. However, guidelines may be associated with harms. The recommendations in guidelines may be wrong, or wrong for an individual patient. There are many potential causes of this. There may be human considerations in those that develop guidelines, the scientific evidence may be unsound or lack generalisability. Recommendations for individual patients may not be optimal from other points of view or represent a fair distribution of resources. Guidelines may harm patients who do not fit the pattern of evidence. A particular point that may lead to particular harms for health care providers are that outdated or inappropriate guidelines may perpetuate or encourage poor practice and outmoded technologies.

With this background I was both encouraged and discouraged to read an updated online guideline about urinary incontinence produced by the European Association of Urology (EAU) in March 2013. The enormous encouragement is that this document is freely available for personal use from the EAU website. The guideline is produced by an expert panel and based on the previous guidelines produced by the EAU, in turn based on the International Consultation on Incontinence but emphasising assessment and diagnosis, conservative therapy, drug therapy, and surgical therapy. The panel used a ‘PICO’ approach: Population, Intervention, Comparison, and Outcome; for a large set of clinical questions. If extant systematic reviews and guidance documents were identified, the panel used the evidence from these as valid and the literature review as valid up to the date relevant for any particular review. A further search was carried on Medline and Embase in English from these dates to September 2012. Each ‘PICO’ question was reviewed by a single panel member but a consensus was reached for each question by the panel. The level of the evidence was based on the Oxford Centre for Evidence Based Medicine. In summary: Level 1 evidence is from meta-analysis or at least one randomised controlled trial (RCT); Level 2 evidence from studies without randomisation but some sort of control; Level 3 evidence from studies without randomisation or control; and Level 4 evidence from expert opinion. The strength of recommendation was given as ‘A’ if it was based on clinical studies of good quality and consistency and at least one RCT, ‘B’ on the basis of good-quality studies but no RCT, and grade ‘C’ if there were not directly applicable clinical studies of good quality. The review is extremely comprehensive.

A particular appendix of the material concerned the evidence for assessment and management of urinary incontinence for older adults. And so to the discouragement. There is still relatively little research to guide assessment and management specifically for older adults like those in real clinical practice. The best evidence and the most clinical trials are with regard to prompted voiding and related interventions, consisting

Prof Mark Weatherall
Editor, Australian and New Zealand Continence Journal,
President, NZCA
therefore of a form of catching strategy, and one for which most of the evidence is in residential care. In New Zealand only about 6.5% of the population aged over 65 live in residential care and although the prevalence of continence problems is very high in this setting, exceeding 50%, most older adults with urinary incontinence live in the community. There were a lot of negative, although possibly important, results of the review: don’t treat asymptomatic bacteriuria (although no discussion about asymptomatic bacteriuria for older adults with urinary incontinence), improved diabetes control doesn’t help continence, and that adjustment of diuretics has an absence of evidence to support improvement in continence outcomes. There was a large section, possibly reflecting pharmaceutical company-sponsored research, on the use of anticholinergic agents for urinary incontinence, which boiled down to that they are worth trying, but may worsen cognitive impairment.

Another discouragement about the presentation of this section was that the level of evidence and strength of recommendation did not include quantitative estimates of effectiveness; although in defence of the authors this is likely beyond the scope of this document, long as it is already at about 130 pages.

As a clinician am I any further ahead? I enjoyed the review and the effort that has gone into producing a readable and easily used collection of contemporary evidence; however, Caveat emptor.

References
Response to resiniferatoxin in women with refractory detrusor overactivity: Role of bacterial cystitis

Abstract

Intravesical resiniferatoxin has been used to treat both neuropathic detrusor overactivity and idiopathic detrusor overactivity. We aimed to administer resiniferatoxin to a large cohort of patients with idiopathic detrusor overactivity, refractory to treatment with >2 anti-muscarinic drugs for >12 months, and to characterise success in relation to predefined clinical subgroups. Females aged 25–90 years, with urodynamically proven refractory idiopathic detrusor overactivity (median duration 14 years) were administered resiniferatoxin (100 ml at 50 nM). Outcome measures (voids per day, nocturia, urgency episodes per day, leaks per day), the ICIQ, and quality of life tests (UDI, OABQ, IIQ), were performed at baseline, one and three months. Analysis (n=33) showed that resiniferatoxin conferred significant (p<0.05) benefit on leaks per day (from four (IQR 3–6) to three (IQR 1–5)), ICIQ and OABQ. Eleven patients were found to have an episode of bacterial cystitis without dysuria, at some stage during the study, and resiniferatoxin was without benefit in such women. When those with cystitis were excluded, resiniferatoxin showed heightened improvement in leaks per day (p=0.009), ICIQ (p=0.016), OABQ (p=0.002) and IIQ (p=0.003). Analysis of four clinical subgroups: congenital (for example, childhood day-wetting); post-bladder neck surgery; history of recurrent cystitis; and completely idiopathic, showed no clear effect of resiniferatoxin. Resiniferatoxin showed a modest improvement in leaks per day and quality of life symptoms in women with severe refractory idiopathic detrusor overactivity, who had no episodes of bacterial cystitis. In contrast, resiniferatoxin was ineffective in women with any cystitis during the trial. Because cystitis episodes were asymptomatic, detailed microbiological scrutiny of urine from women with refractory idiopathic detrusor overactivity appears warranted in future.

Keywords: Resiniferatoxin, refractory detrusor overactivity, bacterial cystitis, quality of life, urinary incontinence, women’s health.
The aim of the present study was to administer RTX to a substantial cohort of patients with urodynamically proven pure IDO, who were severely refractory to treatment with antimuscarinic drugs. In addition, we planned to characterise success in relation to their clinical subgroups, which were:

1. congenital (for example, childhood day-wetting);
2. post-surgical (previous bladder neck surgery);
3. history of recurrent cystitis; and
4. completely idiopathic (no discernible precipitating factors).

Furthermore, earlier studies did not employ quantitative tools such as standardised quality of life (QoL) tests, which we have used to more accurately define the outcomes. Since bacterial colonisation of the urothelium has recently emerged as a possible contributing factor in refractory IDO, we also investigated the impact of any episodes of bacterial cystitis during the course of the three-month study, upon the clinical response to RTX in refractory women.

Materials and methods

Study design

Eligible patients were female, aged 25–90 years, with urodynamically proven detrusor overactivity (DO), who were “refractory” to treatment, defined as no response to ≥2 antimuscarinic drugs over >12 months, with persistent disabling symptoms on frequency volume chart (FVC). All had had urge incontinence for more than four years. Any patients with urodynamic stress incontinence, outflow obstruction (defined as Qmax <15 ml/sec for a voided volume of >200 ml with residual volume <100 ml), or neurological disease, were excluded.

RTX is not registered for use in Australia or New Zealand in general. After gaining approval from the Therapeutic Goods Administration for use of RTX for the first time in Australia, local Ethical Committee approval (CTN004/43) was secured, including written informed consent from each patient. The trial was registered with our national clinical trials registry (CTR number: 2004/236). Data were collected at baseline, one month and three months as per previous authors. Our outcome measures comprised a one-day bladder diary (voids per day, nocturia, urgency episodes/day, leaks/24 h), the international consultation on incontinence questionnaire (ICIQ), and QoL tests (Urogenital Distress Inventory (UDI), Overactive Bladder Questionnaire (OABq) and Incontinence Impact Questionnaire (IIQ)).

The aetiological subsets analysed were characterised as follows:

1. congenital DO included women with childhood day-wetting and a lifelong history of urge incontinence;
2. post-surgical DO included women who had undergone bladder neck surgery for pure urodynamic stress incontinence with development of DO postoperatively;
3. previous history of recurrent bacterial cystitis at the onset of urge incontinence, with verification of the previous microbiology results; and
4. “completely idiopathic DO” (no discernible aetiological factors).

RTX administration

After voiding in private, a urethral catheter was inserted. In patients who had not voided completely, a catheter specimen of any residual urine (CSU) was tested by urinalysis reagent strip and sent for culture. Bacterial cystitis was defined as 10⁸ CFU/l with pyuria >10 WBC/µl. Any patient who had dysuria, foul-smelling urine or positive urinalysis test was treated with antibiotics and the procedure was postponed for one month. Because it was not routine practice to administer preventative antibiotics after catheterisation in this unit (that is, after cystometry), antibiotic prophylaxis was not employed.

RTX (Sigma) stock solution (500 nM) was made up in ethanol and stored in sterile dark glass vials at –20°C. The RTX stock (10 ml) was diluted to 50 nM with 90 ml sterile saline. The 100 µl RTX solution was immediately instilled via urinary catheter, left in the bladder for 30 minutes then drained.

Data collection and analysis

Outcome measures were collected at one month and three months. At these visits, urine specimens were obtained and patients were questioned as to dysuria or foul-smelling urine, as per routine clinical practice in the unit.

Clinical outcome data were not normally distributed. Observations made at baseline were compared to the one-month and three-month outcomes using the Mann-Whitney test. The difference between results for patients with and without bacterial cystitis was compared using the Mann-Whitney test, both for overall outcomes at one and three months, and for the individual changes in outcomes at these time points.

Results

Overall clinical results

Participants comprised 33 women with urodynamically proven IDO, and no evidence of stress incontinence or outflow obstruction; Table 1 shows demographic and clinical data. The instillation of RTX was well tolerated; a mild burning sensation was felt briefly after the fluid was instilled. The fluid was retained for a minimum of 20 minutes in all cases. Most patients were postmenopausal and none were insulin-dependent diabetics. All were severely refractory to a wide variety of antimuscarinic drugs, and a range of other treatments. Their post-treatment refractory status was documented on FVC, showing disabling frequency/urgency/nocturia/urge incontinence for more than 12 months. The median duration of symptoms was 14 (IQR 6–20) years.
There was no association between effect of RTX and demographic data such as age, anti-muscarinic treatment, or other treatments.

In addition, patients with systolic DO during the filling phase, were no different from those in whom DO was provoked by the erect position in terms of therapeutic response (data not shown).

Data were also analysed according to the four clinical subgroups as outlined in Methods. No differences were seen with respect to “congenital DO”, “post-surgical DO”, “previous history of recurrent UTI” and “idiopathic”. Numbers total >33, because two patients had more than one aetiological factor.

Table 2 shows the main outcome parameters at baseline, and at one and three months after RTX. Compliance with the bladder diary declined, thus n values differ between columns. The median baseline ICIQ score was 17/21 and subjects leaked a median of four episodes per day, showing that this cohort of patients was severely affected by refractory IDO.

RTX had no effect on number of voids/day, nocturia episodes, or urges/day. A significant decrease in number of leaks/day was observed (Wilcoxon test, p=0.001 baseline versus one month); however, only 5/33 patients (15%) were improved by >50%. With respect to QoL outcomes, the ICIQ revealed significant benefit (Wilcoxon, p=0.001 baseline versus one month); however, no patients demonstrated >50% benefit on this parameter. A modest but significant improvement in OABq was also seen. No significant changes were observed for UDI or IIQ.

Clinical results in relation to bacterial cystitis episodes

After commencing the study, it was found that a proportion of women had developed acute bacterial cystitis at some point in the trial. Of the 33 participants, 10 had no residual urine upon catheterisation on the day of RTX installation. Of the 23 initial urine samples available, subsequent culture revealed that five (22%) had bacterial cystitis (as per Methods) at the first visit, although these patients did not complain of dysuria or foul-smelling urine and their urinalysis was negative.

Over the next three months, another six patients experienced cystitis (urine culture was positive), detected when their frequency/urgency/nocturia was exacerbated without dysuria or foul-smelling urine. Of the women who developed cystitis during the trial, only one entered the study with a history of recurrent urinary tract infection (UTI). In all cases of cystitis during the study period, a full course of antibiotic therapy was administered in accordance with sensitivity results.

The data were then re-analysed, comparing the 11 patients who had any cystitis, with the remaining 22 women who had no cystitis episodes during the study. Table 3 shows the results of these statistical comparisons at one month and at three months with differences seen for the parameters of leaks/24 hours, ICIQ, OABq and IIQ for p-value results at both time points. Figures 1 and 2 show individual patient responses. In Table 4, the intra-patient changes over time for all outcomes are shown.

Figure 1 (A, B) shows the effect of RTX on leaks per day. There was significant improvement in leakage episodes in non-cystitis subjects (Figure 1A) and 4/22 of these patients (18%) improved by >50%. However, RTX had no effect in cystitis subjects (Figure 1B).

With respect to IIQ scores, there was a significant improvement from baseline to three months post-treatment for participants without cystitis, but no change for those with any cystitis episodes (Figure 2 A, B). However, there were few patients that improved by >50%.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (median, IQR)</td>
<td>66 (60–77)</td>
</tr>
<tr>
<td>Parity (median, IQR)</td>
<td>3 (2–4)</td>
</tr>
<tr>
<td>Total number of patients</td>
<td>33</td>
</tr>
<tr>
<td>Clinical subgroups #</td>
<td></td>
</tr>
<tr>
<td>Congenital/day-wetting</td>
<td>5 (15%)</td>
</tr>
<tr>
<td>History of recurrent UTI</td>
<td>5 (15%)</td>
</tr>
<tr>
<td>De novo/postoperative</td>
<td>8 (24%)</td>
</tr>
<tr>
<td>Pure idiopathic DO</td>
<td>17 (52%)</td>
</tr>
<tr>
<td>Urodynamic findings</td>
<td></td>
</tr>
<tr>
<td>Systolic DO</td>
<td>23 (70%)</td>
</tr>
<tr>
<td>DP provoked in erect position</td>
<td>9 (27%)</td>
</tr>
<tr>
<td>Menopausal status</td>
<td></td>
</tr>
<tr>
<td>Premenopausal</td>
<td>2 (6%)</td>
</tr>
<tr>
<td>Perimenopausal</td>
<td>2 (6%)</td>
</tr>
<tr>
<td>Postmenopausal</td>
<td>29 (88%)</td>
</tr>
<tr>
<td>Hormone therapy</td>
<td></td>
</tr>
<tr>
<td>Systemic</td>
<td>10 (30%)</td>
</tr>
<tr>
<td>Topical</td>
<td>21 (64%)</td>
</tr>
<tr>
<td>Nil</td>
<td>2 (6%)</td>
</tr>
<tr>
<td>Previous anticholinergics</td>
<td></td>
</tr>
<tr>
<td>Two agents</td>
<td>9 (27%)</td>
</tr>
<tr>
<td>Three agents</td>
<td>15 (45%)</td>
</tr>
<tr>
<td>Four agents</td>
<td>7 (21%)</td>
</tr>
<tr>
<td>Five agents</td>
<td>2 (6%)</td>
</tr>
<tr>
<td>Previous other treatments (e.g. SANS, TENS, cystodistension)</td>
<td></td>
</tr>
<tr>
<td>Nil</td>
<td>12 (38%)</td>
</tr>
<tr>
<td>One</td>
<td>8 (26%)</td>
</tr>
<tr>
<td>Two</td>
<td>8 (26%)</td>
</tr>
<tr>
<td>Three</td>
<td>3 (10%)</td>
</tr>
</tbody>
</table>

# Two patients had both recurrent cystitis and either congenital or postop status.
Discussion

At the time of commencing this study, the prospect of treating IDO with RTX appeared attractive, because of the results shown in the studies by Silva and colleagues\(^5\) and Palma and colleagues\(^6\). Since the prolonged recruitment of our study was finally completed and analysed, several further authors\(^3,7,21\) have reported significant benefit for RTX\(^5\). However, the RCT by Rios and colleagues\(^8\) in patients who had OAB symptoms for six months showed no significant benefit of RTX over placebo, in keeping with the RCT reported by Kuo et al.\(^7\).

The present study differs from previous publications, because our participants had longstanding severely refractory IDO. When our cohort of proven refractory IDO women is viewed as a whole (Table 2), there was a modest but statistically significant benefit of RTX on several outcome measures: leaks/day, severity of leak on ICIQ, and OABQ.

Most previous authors (Table 5) employed a loose term of “non-response”, to a variety of treatment, for varying durations of

<p>| Table 2: Clinical results of RTX treatment for all patients (medians, interquartile range); comparison by the Mann-Whitney signed rank test |</p>
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Baseline</th>
<th>1 month post-RTX</th>
<th>3 months post-RTX</th>
<th>1 month vs baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voids/day</td>
<td>9 (7–11)</td>
<td>9 (7–11)</td>
<td>9 (7–11)</td>
<td>0.071</td>
</tr>
<tr>
<td>Nocturia</td>
<td>2 (1–3)</td>
<td>1 (1–3)</td>
<td>1 (1–3)</td>
<td>0.803</td>
</tr>
<tr>
<td>Urges/24h</td>
<td>6 (2–9.5)</td>
<td>5 (0–8)</td>
<td>3 (0–9)</td>
<td>0.130</td>
</tr>
<tr>
<td>Leaks/24h</td>
<td>4 (3–6)</td>
<td>3 (1–5)</td>
<td>3 (1–5)</td>
<td>0.001</td>
</tr>
<tr>
<td>ICIQ</td>
<td>17 (13–20)</td>
<td>15 (10–18)</td>
<td>15 (11–17)</td>
<td>0.001</td>
</tr>
<tr>
<td>UDI</td>
<td>50 (39–58)</td>
<td>44 (33–56)</td>
<td>33 (19–61)</td>
<td>0.029</td>
</tr>
<tr>
<td>OABQ syst</td>
<td>65 (48–85)</td>
<td>51 (43–70)</td>
<td>55 (27–79)</td>
<td>0.005</td>
</tr>
<tr>
<td>IIQ</td>
<td>71 (36–83)</td>
<td>62 (26–79)</td>
<td>38 (18–80)</td>
<td>0.056</td>
</tr>
</tbody>
</table>
Table 3: Statistical analysis (p-values) of outcome measures for patients with and without bacterial cystitis

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Baseline vs 1 month (p-value)</th>
<th>Baseline vs 3 months (p-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cystitis</td>
<td>No cystitis</td>
</tr>
<tr>
<td>Voids/day</td>
<td>1</td>
<td>0.141</td>
</tr>
<tr>
<td>Nocturia</td>
<td>1</td>
<td>0.704</td>
</tr>
<tr>
<td>Urges/24h</td>
<td>0.097</td>
<td>0.194</td>
</tr>
<tr>
<td>Leaks/24h</td>
<td>0.138</td>
<td>0.006</td>
</tr>
<tr>
<td>ICIQ</td>
<td>0.433</td>
<td>0.002</td>
</tr>
<tr>
<td>UDI</td>
<td>0.611</td>
<td>0.522</td>
</tr>
<tr>
<td>OABQ syst</td>
<td>0.725</td>
<td>0.008</td>
</tr>
<tr>
<td>IIQ</td>
<td>0.865</td>
<td>0.017</td>
</tr>
</tbody>
</table>

Data were analysed using the Mann-Whitney test

time, as opposed to the term “refractory”. Since the early 1990s, we have defined “refractory” as:

1. IDO of >15 cm pressure rise during medium fill cystometry or provocation, without evidence of voiding difficulty on uroflowmetry.
2. Duration of symptoms >4 years.
3. Failure to respond to at least two anti-muscarinic drugs coupled with bladder training for more than one year.
4. Persistent disabling symptoms of frequency/urgency/urge leak documented on an FVC.

This is similar to the definition used by Brubaker and colleagues, “inadequate symptom control after at least two first line therapies, which must include two anti-muscarinic medications and at least one of supervised therapy, physical therapy or biofeedback”. The definition of refractory IDO is assuming greater importance as more invasive therapies become available.

In this group of refractory patients, our analysis of the aetiological subsets of these patients failed to reveal any clinical subgroup that benefited more substantially from the treatment. However, we were surprised to find that 11 of the 33 participants had experienced an unsuspected episode of bacterial cystitis during our trial, either upon arrival on the treatment day (n=5), or at some stage during surveillance over the three months (n=6). It should be emphasised that none of these patients complained of dysuria or foul-smelling urine, and the nurse who performed the catheterisation did not report malodorous urine, else their enrolment into the study would have been postponed by one month after appropriate antibiotic therapy. In keeping with Palma and colleagues, prophylactic antibiotics were not used. When the cystitis subset was removed from the whole group, the uninfected women showed a significant improvement after three months in leaks per day, ICIQ and IIQ. In contrast, participants in the cystitis

Table 4: Comparison of patients with and without cystitis using the differences between one/three month data and baseline; data analysed using Mann-Whitney test

<table>
<thead>
<tr>
<th>Parameter</th>
<th>1 month minus baseline</th>
<th>3 month minus baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Differences</td>
<td>P-value (cystitis vs non-cystitis)</td>
</tr>
<tr>
<td></td>
<td>Cystitis</td>
<td>Non-cystitis</td>
</tr>
<tr>
<td>Voids/day</td>
<td>0</td>
<td>−0.5</td>
</tr>
<tr>
<td>Nocturia</td>
<td>0</td>
<td>−0.5</td>
</tr>
<tr>
<td>Urges/24h</td>
<td>−1</td>
<td>−0.5</td>
</tr>
<tr>
<td>Leaks/24h</td>
<td>0</td>
<td>−1</td>
</tr>
<tr>
<td>ICIQ</td>
<td>−0.5</td>
<td>−2</td>
</tr>
<tr>
<td>UDI</td>
<td>−5.4</td>
<td>−2.75</td>
</tr>
<tr>
<td>OABQ syst</td>
<td>2.5</td>
<td>−10</td>
</tr>
<tr>
<td>IIQ</td>
<td>0</td>
<td>−5.15</td>
</tr>
</tbody>
</table>
Table 5: Summary of previous studies of RTX in IDO

<table>
<thead>
<tr>
<th>Author</th>
<th>N</th>
<th>Definition of “Refractory”</th>
<th>Baseline UTI</th>
<th>UTI after RTX</th>
<th>Outcomes</th>
<th>Cure/improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silva (2002),</td>
<td>13</td>
<td>Patients not refractory, only with:</td>
<td>Baseline MSU negative</td>
<td>Not noted.</td>
<td>3 day bladder diary VAS, No QoL, cystometry</td>
<td>91% had improved continence. In 50%, average leaks/day decreased by &gt;50%. Mean leaks/day decreased after 1 (p=0.001) and 3 months (p=0.009)</td>
</tr>
<tr>
<td>Portugal</td>
<td></td>
<td>· Urodynamically proven IDO</td>
<td></td>
<td>Prophylactic AB given.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>· ≥1 year of LUTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Stress leak excluded</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kuo (2003),</td>
<td>13</td>
<td>Lack of ‘clinical benefit’ from &gt; 6 months of anticholinergics</td>
<td>Not noted</td>
<td>UA done, % of UTI not noted.</td>
<td>Self-reported symptoms, General patient satisfaction Bladder diary</td>
<td>38% (5/13) of patients had &gt;50% reduction in incontinence episodes.</td>
</tr>
<tr>
<td>Taiwan out of 4t</td>
<td></td>
<td>· Urodynamically proven DO</td>
<td></td>
<td>Prophylactic AB given.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Palma (2004),</td>
<td>30</td>
<td>Not “refractory”, only with:</td>
<td>Baseline MSU negative</td>
<td>Not noted.</td>
<td>Frequency, urgency, urge leak. No QoL, cystometry</td>
<td>One month after RTX, frequency improved in 3/30, urge episodes decreased from 90% to 60% (p=0.0077) and urge incontinence decreased from 83% to 50%.</td>
</tr>
<tr>
<td>Brazil</td>
<td></td>
<td>· Urodynamically proven IDO for ≥6 months</td>
<td></td>
<td>Prophylactic AB not given.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>· ≥40 days of unsuccessful anticholinergics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Stress leak not excluded</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yokoyama (2004),</td>
<td>10</td>
<td>Not “refractory”, 8 patients non-responders to unspecified duration of anticholinergics</td>
<td>Not noted</td>
<td>Prophylactic AB given.</td>
<td>3-day bladder diary I-QoL, VAS, cystometry</td>
<td>50% had ≥50% decrease in incontinence episodes. Mean leaks/day (p=0.018) and frequency (p=0.008) decreased. I-QoL increased after 1 week (p=0.005).</td>
</tr>
<tr>
<td>Japan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kuo (2005),</td>
<td>19</td>
<td>Lack of ‘clinical benefit’ from ≥6 months of 2 anticholinergics</td>
<td>Baseline MSU negative in all but 8%</td>
<td>RTX stopped for UTI (8%).</td>
<td>Self-reported symptoms, General satisfaction, Voiding diary, IPSS, QoL</td>
<td>58% (11/19) improved (decrease of &gt;50% of incontinence episodes). QoL (p=0.001)</td>
</tr>
<tr>
<td>Taiwan</td>
<td></td>
<td>· Urodynamically proven DO</td>
<td></td>
<td>Prophylactic AB given.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>· All patients had 3 RTX doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kuo (2006),</td>
<td>19</td>
<td>Urgency/urge incontinence, non-responsive to anticholinergics for ≥3 months</td>
<td>Baseline MSU negative</td>
<td>UTTI excluded (% not noted).</td>
<td>IPSS, 3-day bladder diary, incontinence grade &amp; general satisfaction</td>
<td>IPSS and leaks/day decreased after 3 months (p=0.05). No specific result for pure IDO</td>
</tr>
<tr>
<td>Taiwan RCT</td>
<td></td>
<td>· IDO, NDO and obstructed DO grouped</td>
<td></td>
<td>Prophylactic AB given.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>· ≥12 months of OAB symptoms (≥7 urge episodes per week)</td>
<td>Positive baseline MSU excluded (% not noted).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silva (2007),</td>
<td>17</td>
<td>· NDO (6) and IDO (17) grouped together</td>
<td>Not noted</td>
<td>Prophylactic AB given.</td>
<td>Self-reported outcome, No QoL, Willingness-to-repeat RTX, Bladder diaries</td>
<td>Voids/wk decreased by 25% at 1 (p=0.02) and 3 months (p=0.03). 39% had 25% reduction in urge episodes/wk decreased at 1 (p=0.002) and 3 months (p=0.02)</td>
</tr>
<tr>
<td>Portugal</td>
<td>(of 25)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rios (2007),</td>
<td>34</td>
<td>Not refractory. Included:</td>
<td>Positive baseline MSU excluded (1.7%)</td>
<td>Not noted.</td>
<td>48-hour bladder diary IPSS, Kings College Health QoL</td>
<td>No benefit of RTX over placebo on any measure at one month</td>
</tr>
<tr>
<td>Brazil</td>
<td></td>
<td>· Frequency, urgency, urge incontinence ± nocturia for ≥6 months, involuntary detrusor contractions</td>
<td></td>
<td>Prophylactic AB given x 1 dose.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Stress leak not excluded</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
subset had a clear worsening of their voids per day after RTX, and no benefit in leaks per day or QoL.

This finding of relatively asymptomatic bacterial cystitis in refractory IDO had not previously been reported as an issue. However, recent publications strongly support the notion that subclinical infection may alter the pathophysiology in approximately one-third of these refractory patients. In previous RTX studies, the presence of significant bacteriuria (that is, >10^5 cfu/ml with >10 WBC/µl pyuria) either on previous history, on the day of recruitment or after catheterisation and RTX instillation, has been poorly defined (Table 5). Most authors provided prophylactic antibiotics but exact details of such therapy (that is, single dose or full course) were not reported uniformly.

Although RTX did confer significant benefit for leaks/24 hours, ICIQ and OABQ, the lack of a placebo comparison group is a weakness of the study. Furthermore, the sample size is smaller than anticipated but enrolment for a study involving catheterisation and intravesical therapy proved much more difficult than anticipated. Performance of statistical testing upon eight variables may have facilitated the emergence of significant results that could have arisen by chance.

**Conclusion**

Our study showed that RTX achieves modest objective benefit in a group of severely refractory patients, so long as their urine is sterile upon entry to the study, and they do not contract a new episode of bacterial cystitis in the follow-up phase of treatment.

The importance of relatively asymptomatic bacterial cystitis in these women with chronic frequency/urgency/nocturia is achieving greater prominence in the current literature. As we move towards a variety of more invasive therapies for refractory DO (such as Botulinum toxin A injection and sacral neuromodulation), clinicians should be warned that vigilance in the detection of relatively asymptomatic bacterial cystitis must be carefully undertaken, to ensure that any new treatment is evaluated against a background of sterile urine, no matter how asymptomatic of infection these patients may appear to be.

**Acknowledgements**

This study was financially supported by the Pelvic Floor Research Trust Fund. We thank Hayley Leek for assistance with patient cystometry and Tim Cowan for assistance with data analysis and manuscript preparation.

**References**


![Figure 1](image-url)  
Figure 1: Effect of RTX upon (A, B) leaks/day in 22 women with no cystitis (A) and in 9 women with cystitis episodes and complete data (B). RTX caused a significant improvement in leaks/day in non-cystitis subjects (p=0.006, Mann-Whitney), whereas RTX had no effect (p=0.138) in cystitis subjects (B) at one month. Similar trends were seen at three months.


Hypothesis

Do topical creams damage urinary catheters?

Abstract

The aim of this study was to determine if some topical creams, used to treat skin excoriation, damage urinary catheters. A review of the literature revealed no published studies describing the effects of topical creams on indwelling urinary catheters. Three catheters, two made of silicone and one made of coated latex, were exposed to six different commercially available topical creams. After three months the catheters were visually inspected and stretch-tested using a basic stretch technique. Only a coated latex catheter showed signs of damage with visible warping and weakness when stretched. Neither of the silicone catheters showed sign of damage. We found that silicone urinary catheters were not obviously damaged by the topical creams tested.

Keywords: Urinary catheter, topical cream, tensile strength.

Introduction

This study was prompted by a management question about a patient living in long-term care with significant skin irritation at the cutaneous exit site of an indwelling supra pubic-catheter. We advised the application of a topical emollient to protect the skin but were concerned about possible damage to the catheter that might lead to weakness and subsequent untimely dislodgement of the catheter.

It is widely accepted that oil-based lubricants should not be used in conjunction with latex products. This is advice based on a study that showed as little as 60 seconds of exposure of commercial latex condoms to mineral oil found in some lubricants and lotions, causes approximately 90% decrease in the strength of latex condoms1. We were concerned that the same effect may occur with the use of oil-based creams with latex catheters. A literature search found no published papers about catheter damage by topical creams. However, there was some published work about the use of creams to prevent urinary tract infection associated with indwelling catheters.

The aim of this study was to examine the effect of topical emollients on urinary catheter appearance and strength.

Method

Six creams commercially available in Australia were tested (Figure 1.1):
- Lucas’ Papaw ointment (Lucas’ Papaw Remedies, Brisbane): contains petroleum jelly.
- Sudocrem® (Forest Tosara Ltd., Dublin): contains lanolin, paraffin wax and liquid paraffin.
- Barrier (Coloplast, Mt Waverley): contains mineral oil and petrolatum.
- Vaseline® white petroleum jelly (Unilever, Epping): contains petroleum.
- Bepanthen® antiseptic cream (Bayer, Pymble): contains paraffin and wool fat.
- Bepanthen® fragrance-free and preservative-free ointment (Bayer, Pymble): contains lanolin, petrolatum and liquid paraffin.

Figure 1.1. Creams used during study

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Competing interest statement

The authors have declared they have no relevant relationships or circumstances that present potential conflicts of interest.
All preparations are available over-the-counter in Australian pharmacies and are recommended by the manufacturer, as per the tube or packaging, for treatment of skin irritation.

A sample of each of the creams was expressed from the packaging into individual specimen jars to a depth of at least two centimetres. A seventh specimen jar was left empty.

Three different brands of 16 FG catheters were cut into 4.5 cm lengths with sterile scissors. The segments of catheters that included the balloon, drainage port or balloon port valve were not used. We felt these segments would have minimal contact with the catheter exit site, the location where cream would be applied to treat irritation, and would be irrelevant to our purpose.

The three catheters used were Supracath, silicone (Yushin Medical Co. Ltd., Bucheon-Shi.); Biocath®, coated latex (Bard, North Ryde); and Releen, silicone (Coloplast, Mt Waverley).

Each catheter segment was taped to the inside of the jars so that they would be immersed in the cream. The seventh control jar had the catheter segments placed in it with no cream.

All jars were left open to air for three months (Figure 1.2). This study did not include animal or human contact.

After three months the catheters were wiped clean and inspected for signs of perishing and damage.

To test tensile strength, each catheter segment was stretched to either limit of stretch which was the measurement gained from the control sample, or breaking point (Figure 1.3). This stretch was done manually by grasping each end with artery forceps and stretching the catheter segment over a ruler. This manual stretch was done by only one of the investigators.
Finally, the end exposed to the cream was then cut transversely so that we could inspect the catheter wall for damage.

**Results**

When inspected after the creams were first wiped away, only two catheter segments were visibly weakened or damaged. These catheter segments were both from the Biocath® catheter. The two associated preparation exposures were with Sudocrem® and with Barrier. Both damaged segments were swollen and warped. All the other catheter segments were visibly unaffected.

When the catheter segments were stretched, only one catheter segment broke. This was the Biocath® catheter segment that was in contact with Barrier (Figure 1.4). All other catheter segments were able to be stretched without breaking and all stretched to the same length as the control catheter segments.

**Discussion**

The only catheter segment that demonstrated any evidence of damage by topical creams was the Biocath®, which was the only coated latex catheter studied. They were the only catheter segments that when in contact with Sudocrem® and Barrier were affected, the former only on inspection, and the latter on inspection and stretching.

The two silicone catheters tested showed no damage either on visual inspection or on stretching.

Our initial hypothesis that oil-based emollients might weaken latex catheters was not borne out. While it was the coated latex catheter that was the only one to be affected, it was not weakened by preparations such as Vaseline®.

This study has many limitations. One is that it does not consider the effect of patient contact with catheters and creams. Catheters were not exposed to the daily soap and water hygiene ritual, and creams were not washed off, or reapplied during the three months as they may be in real-life activities of daily living situations and as recommended by catheter care guidelines. They were not exposed to other chemical transfer from clothing and additional hygiene products. The catheters in our study were not exposed to the temperature, moisture and humidity levels experienced in skin folds.

A further limitation relates to the placement of three catheter segments in the same jar. It is conceivable that chemical contents of the catheter segments might dissolve or leach into the cream affecting its properties and subsequently its effect on the other catheters in the same jar, possibly altering the final observations and outcomes.

Finally, our observations on catheter damage and, in particular elasticity and breaking point, were not done in a standardised fashion. The use of a universal testing machine would offer accuracy and standardisation that our crude method does not.

Considering the limitations of the study, primarily we recommend that the combination of a Biocath® catheter and Barrier by Coloplast be avoided in a clinical application to prevent catheter weakness and damage, when treating irritated skin at exit sites.

After exposure to a variety of commonly available commercial creams, the silicone catheters used in this study were visibly unchanged and unaffected by our stretch test, and these appear to be safe when used in combination based on the results of our study.

**References**

Comfort Shield
Incontinence Care Washcloth

All-in-one barrier cream cloths with 3% dimethicone for incontinent patients

- 3% dimethicone barrier seals out wetness to treat and prevent perineal dermatitis
- Breathable, transparent barrier allows easy skin assessment.
- All-in-one cloth saves time and maximises compliance.

Day 1: 72-year-old patient with severely excoriated blistered skin and extreme pain from incontinence.

Day 4: After 3 days using Shield® Barrier Cloths, patient's skin vastly improved; no discomfort.

Reference: Sluser S, Consistency is the key for treating severe perineal dermatitis due to incontinence. Poster presented at the Clinical Symposium on Advances in Skin and Wound care (ASWC), Las Vegas, NV 2005 Oct.
Primary mono-symptomatic nocturnal enuresis:
A review of management

Abstract
Nocturnal enuresis is a common childhood sleep disorder affecting 6% of children aged 5–12 years in Australia. It has a multi-factorial aetiology and most children with this condition can be successfully managed by a simple approach that includes counselling, an enuresis alarm, and pharmacotherapy. This article describes a review of the literature of the evaluation and management of this common paediatric condition.

Keywords: Urological diseases, nocturnal enuresis, paediatrics.

Introduction
Nocturnal enuresis (NE) is a prevalent childhood sleep disorder that presents to general practitioners (GPs) and continence professionals. It is defined as the involuntary voiding of urine on at least two nights per week for at least three consecutive weeks beyond the age of five years without a secondary cause of enuresis.

NE can result in considerable anxiety within families and may also interfere with normal psychosocial development of children. As long as reversible medical causes of enuresis are not present, psycho-behavioural or pharmacological interventions are useful. A structured management plan will result in successful treatment of most children with this condition.

Methods
Our review is based on our knowledge of the paediatric literature, international guidelines, and our personal literature collections. We supplemented this with an online search of the Medline database (date of review from September to October 2012). The keywords used were: nocturnal enuresis, paediatrics and management. Identified articles were then manually reviewed by the authors. Non-English articles and articles on secondary nocturnal enuresis or enuresis in adults were excluded from our review. The additional identified literature, which included international guidelines, was categorised as relating to: epidemiology and definitions; pathophysiology; history and examination; further investigations; and evidence-based management strategies.

Epidemiology and definitions
Primary enuresis, where children do not become dry, is between 75% and 80% of NE, and secondary enuresis, where children become dry and then wet again, the remainder. Mono-symptomatic NE refers to children without daytime symptoms.
Daytime symptoms can be associated with other disorders of the lower urinary tract such as overactive bladder. This review focuses on children with primary mono-symptomatic NE, which we designate as NE. Table 1 summarises definitions currently in use.

International prevalence data is inconsistent likely due to variations in definitions used in epidemiological surveys. An Australian survey conducted by Bower and colleagues in 1996 estimated the overall prevalence of NE to be 6% in 5- to 12-year-olds. The age-specific prevalence of NE decreases with older age by approximately 15% per year. At age 15 years, 1–2% children have NE.

Pathophysiology
The pathophysiology of primary enuresis is multi-factorial. NE occurs when there is a disparity between bladder capacity and nocturnal urine production in conjunction with inadequate arousal in response to the sensation of full bladder. Particular factors important for primary NE are genetic and familial factors and altered physiology of the anti-diuretic hormone, vasopressin.

Genetic factors and familial factors are well described in the identified literature. A strong association is discussed in a review paper showing autosomal dominant mode of transmission with high penetrance in 90% of case groups with family history of NE. An Australian population survey also found a significant increase in the incidence of a positive family history in children who have enuresis compared to children who are dry (p=0.001). Twin studies further support a genetic association of NE.

Vasopressin (anti-diuretic hormone: ADH), is a hormone released from the posterior pituitary gland that promotes water reabsorption from glomerular filtrate at the level of the collecting ducts of the nephron. There is a normal circadian rhythm of urine production that is associated with higher nocturnal plasma levels of vasopressin. The rate of urine production at night is approximately 50% of daytime production. Some children with NE void large quantities of dilute urine at night secondary to lack of normal circadian variation in plasma vasopressin levels. This concept provides the rationale for the use of desmopressin, a synthetic form of vasopressin that can be administered as a nasal spray or tablet, replacement therapy in children with NE. Animal studies show that the locus coeruleus, in the brain stem, plays a critical role in initiating cortical arousal to stimuli including bladder distension. The locus coeruleus also controls a noradrenaline releasing mechanism that regulates vasopressin secretion from the posterior pituitary via the hypothalamus.

Our literature search identified that an association exists between psychological problems and NE, although the direction of cause and effect is unclear. The associated problems can range from reactive responses like social withdrawal and lower self-esteem to clinical psychiatric disorders. Children with behavioural problems such as attention deficit hyperactive disorders and conduct disorders have 1.3 to 4.5 times higher relative risk of having NE. Psychosocial stress is associated with NE, and our identified literature shows greater prevalence of NE among lower socio-economic groups, in large, overcrowded families, and in children living in institutions.

History and examination
Clinical assessment, history and examination aim to identify secondary causes of NE such as structural lower urinary tract pathology, infection, and symptoms consistent with an overactive bladder.

Particular features of the history are shown in Table 2. The presence of daytime symptoms suggests a secondary cause of NE. Other health conditions, such as neurological disease or diabetes mellitus, are also consistent with a secondary cause.

Physical examination should include general assessment of development, an abdominal and urogenital examination and, where appropriate, a directed neurological examination. Abdominal palpation aims to detect a distended bladder or bowel. Inspection of the lower back is important to detect evidence of occult spinal dysraphism (spina bifida) such as a sacral dimple, hair tuft, haemangioma, or lipoma. Urogenital exam focuses on detection of congenital penile, vaginal, and
urethral abnormalities. This includes evidence consistent with hypospadias, in boys, and urethral fistulae, in girls. Rectal examination is not routinely needed.

Further investigations
A voided volume record, or bladder diary, is useful to document episodes of NE and any related voiding events. A record of fluid intake along with urine output may identify patterns of intake that may contribute to the symptoms. The International Children’s Continence Society recommends the use of a seven-day frequency-volume chart and seven-day bladder/bowel diary as a tool for parents to fill out as an assessment of the severity and pattern of NE. The forms are available from: http://i-c-c-s.org/pdfs/standardisation-documents/Monosympt-Enuresis-Appendices.pdf (retrieved 20 June 2013).

Urinalysis and urine culture should be done in all children with NE. This should identify diabetes mellitus and urinary tract infection. Further investigations are rarely required. However, ultrasound of the urinary tract may be considered for children with persistent NE who do not respond to initial therapy, or who have apparent congenital malformations. It may also be used to exclude anatomical abnormalities and confirm bladder emptying. Uroflowmetry, voiding cystourethrogram, abdominal x-ray and magnetic resonance imaging are investigations seldom required even at a specialist level of consultation.

In primary care and first-line continence professional contact, an important decision to make is whether more specialist assessment is needed and in general this should occur if there is evidence of a secondary cause of NE or failure of first-line therapy.

Evidence-based management strategy
In primary care NE can generally be managed by use of a simple algorithm shown in Figure 1. The key components of the early management are education about the condition and reassurance of the child and parents that, firstly, this is a very common condition, and, secondly, that it is almost never a sign of more serious disease.

Simple behavioural and motivational management should usually precede the use of enuresis alarms or drug treatment and these are outlined in the figure. Behavioural management is more effective when it is combined with frequent support, education and appropriate follow-up. Even the simple behavioural and motivational management may be better when used in a multidisciplinary setting which can include specialist nurses. These simple strategies may result in cure of about 18% of NE children achieving dryness after eight weeks.

Table 2. Relevant history in NE

<table>
<thead>
<tr>
<th>Relevant history in children with NE</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Onset of NE</td>
</tr>
<tr>
<td>· Length of dry period</td>
</tr>
<tr>
<td>· Number and time of episodes</td>
</tr>
<tr>
<td>· Evening fluid intake</td>
</tr>
<tr>
<td>· Symptoms of lower urinary tract symptoms</td>
</tr>
<tr>
<td>· frequency</td>
</tr>
<tr>
<td>· urgency</td>
</tr>
<tr>
<td>· interrupted micturition</td>
</tr>
<tr>
<td>· weak stream</td>
</tr>
<tr>
<td>· the need to use the abdominal pressure to pass urine</td>
</tr>
<tr>
<td>· sleeping habits</td>
</tr>
<tr>
<td>· bowel movements</td>
</tr>
<tr>
<td>· psychosocial situation of the child and family</td>
</tr>
<tr>
<td>· past history of urinary tract infections (UTI)</td>
</tr>
<tr>
<td>· other significant medical conditions</td>
</tr>
<tr>
<td>· family history of NE</td>
</tr>
<tr>
<td>· obstetrical and developmental history of the child</td>
</tr>
<tr>
<td>· holding manoeuvres</td>
</tr>
<tr>
<td>· standing on tiptoe</td>
</tr>
<tr>
<td>· pressing the heel into the perineum</td>
</tr>
</tbody>
</table>

Enuresis alarms should generally be used before drug treatment is tried. Battery-operated enuresis alarms are devices that activate when a child with NE voids. Devices currently used in Australia generally have the ‘wet’ sensor contained within the child’s underwear, although older devices had sensors incorporated in bedding. The alarm is generally a loud auditory signal that is likely to wake the child and possibly interrupt the nocturnal void. The cure rate for NE is about 63% after six months of use. The treatment should be continued until at least 14 consecutive dry nights are achieved. To confirm cure a fluid challenge of 400–600 ml before bed can be used, attempting to achieve a further 14 consecutive dry nights in the presence of this fluid challenge. This process of overlearning prevents relapse. Enuresis alarms are not suitable for all children and all situations. Alarms may not be as useful when children are not motivated to become dry, if there is inadequate supervision, the alarm is used inconsistently, there are family issues which mean the alarm won’t be used as planned, the child fails to wake in response to the alarm, or housing conditions are unsatisfactory.

Follow-up after initiation of enuresis alarms should occur after a fortnight or three weeks to identify implementation problems.
and encourage further use. In general, if there has been no positive response after two to three months the treatment should be stopped and tried again when motivation is increased or family circumstances change.

Medication for NE is used less often in Australia than other countries. The rate of prescription related to NE treatment in Australia is 4.7% compared to the United States of America (USA) (28%), Ireland (28%) and New Zealand (48%)11. Table 3 outlines the medications that can be used together with doses, precautions, and prescribing restrictions in Australia28. Prescribing restrictions may apply in other countries and jurisdictions.

Desmopressin is an analogue of vasopressin able to be administered by mouth, sublingually, or as intra-nasal spray. It is typically used at bedtime and recommended for use only for children aged six years or over29. It can be used if a trial of an enuresis alarm has failed or is inappropriate but it can also be used when short-term dryness is of benefit, for example on school trips. It is an effective agent, halving the number of wet nights30,31; however, concerns about hyponatraemia with its use are likely responsible for a reduction of its use in Australia.

Children prescribed desmopressin require close follow-up, at most within three months of prescription.

Tricyclic antidepressants, in particular imipramine, are used often after a trial of desmopressin fails. The mechanism of action is not understood but may be by reduction in detrusor activity and an increase in bladder capacity32. It is also possible, as explored in a 2003 Cochrane Review, that an antidepressant action and alteration of sleep mechanism and arousal patterns is a factor33. An older USA study (1995)26 found one-third of children using imipramine became dry but there was a high rate of relapse after the agent was stopped. Imipramine is potentially toxic, with possible cardiac effects including cardiac arrhythmias, particularly in overdose. It may also cause behavioural disturbance14. Generally prescription of this agent should be in conjunction with specialist assessment.

Anticholinergic agents such as oxybutynin and tolterodine are medicines used to treat adults with detrusor overactivity and overactive bladder. They may act by increasing bladder capacity and reducing the frequency and intensity of detrusor contraction. Although the evidence supporting the use in children is weak35; these agents may be useful where there

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is concomitant small bladder capacity or for treatment of therapy-resistant enuresis\textsuperscript{36,37}. These agents can cause ineffective bladder emptying and urinary retention. Like imipramine they should probably be used in the setting of specialist assessment.

**Conclusion**

NE is a common disorder. Assessment should rule out secondary causes of enuresis. Treatment includes simple behavioural modification techniques which can be augmented by enuresis alarms and drug treatment. The motivation and compliance of the child and parents and support from health professionals are key points in NE management.

**References**

Table 3. Pharmacotherapy for NE (adapted from MIMS)28

<table>
<thead>
<tr>
<th>Active agent</th>
<th>Brand</th>
<th>Delivery</th>
<th>Dose as per MIMS listing</th>
<th>Notes</th>
<th>Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st line</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desmopressin38</td>
<td>Minirin</td>
<td>Oral</td>
<td>200–400 mcg @ bedtime</td>
<td>Precaution with excessive fluid intake leading to dilutional hyponatraemia (limit fluid intake 1 hr before to 8 hrs after admin)</td>
<td>(S4) Required (can only be prescribed for children aged 6 years and over)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sublingual</td>
<td>120–240 mcg @ bedtime</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intranasal spray*</td>
<td>20–40 mcg @ bedtime</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd line</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Imipramine39</td>
<td>Tofranil, Tolerade</td>
<td>Oral</td>
<td>20-30mg (6-8 year) 25-30mg (9-12 years) 25-75mg (aged 12 years and over) Maximum daily dose 2.5mg/kg for children @ bedtime</td>
<td>cardiotoxicity prolonged QT interval</td>
<td>(S4) Not required (can only be prescribed for children aged 6 years and over)</td>
</tr>
<tr>
<td>3rd line</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxybutynin40</td>
<td>Ditropan</td>
<td>Oral</td>
<td>5–10 mg (&gt;7 yrs) @ bedtime</td>
<td>May develop dry mouth, dry eyes, constipation, upper GI reflux and vertigo Exclude post-void residual urine and dysfunctional voiding Treat constipation</td>
<td>Restricted benefit</td>
</tr>
</tbody>
</table>


Fifteen contributors from disciplines involved in continence care have written this concise, but comprehensive, handbook intended as a resource for all health care professionals looking after patients with urinary incontinence.

After an introduction, the book is set out in seven chapter topics. The first two topics introduce the reader to practical anatomy and physiology, and clinical assessment of patients with urinary incontinence. Four further chapters deal with particular conditions relevant to the female patient, the male patient, the older patient and patients whose condition is complicated by neurological problems. A final chapter deals with patients presenting with symptoms of faecal incontinence. Each chapter has contact details for the main contributor, inviting communication for contribution or critique.

This handbook does very well in what it sets out to achieve: a well-presented, clear resource of current assessment and management of urinary incontinence. Its key feature is the direct clinical relevance of its layout of the topic chapters which are informative, easy to read and extremely well illustrated.

Each subject area has typical scenarios and clinical tips, which not only cover a core syllabus of knowledge but give direct clinical relevance to the trainee. This book would be an ideal examination guide to inform trainees and trainers alike in what to expect from a rotational attachment. Each chapter has a limited but adequate key reference list with inclusion of web resources.

Although there is no input from a gynaecological specialist, the book does not disappoint. Perhaps this will change at some time in the future, as I suspect the book will get better and better with subsequent editions and fill that gap for a handbook ‘bible’ for every department or medical practice to consider purchasing.

The Cochrane Continence Group has published three new intervention reviews.

In June, the group published a new intervention review of the use of non-implantable electrodes to treat urinary incontinence in men. [1] The group reviewed five full papers describing randomised control trials (RCTs) and one abstract, a total cohort of 544 men, with 305 receiving electrical stimulation (ES) and 239 as controls or receiving other treatment.

The authors could not conclude that ES alone was of any use to treat urinary incontinence post radical prostatectomy. When used in combination with pelvic floor muscle training (PFMT), it was found that there was a short-term effect that ES enhanced PFMT but this did not last beyond six months. They also concluded that there was no consistency in current treatment regimens and could not recommend an optimal ES treatment protocol. More rigorous trials and outcome studies are required.

To investigate the optimal surgical treatment for severe pelvic organ prolapse (POP) in the light of a variety of surgical treatments available, the Cochrane Incontinence Group undertook an intervention review published in April 2013. [2] Its aim was to determine the impact of surgery including: symptoms, complications, cost and bladder, bowel and sexual function. This review is one of three intervention reviews for POP.

It is noted that; “Unfortunately much of the data presented in this review fails to allay concerns outlined in the 2011 FDA transvaginal polypropylene mesh report.” Therefore, main conclusions of the review was the need for more RCTs as current data was not sufficient to guide practice on types of surgery or the use of mesh or grafts. However, there was some evidence of the benefit of continence surgery at the same time as prolapse surgery as it was found 20% of women developed de novo SUI following prolapse surgery alone.

Faecal incontinence, or the involuntary leaking of solid or liquid stool, affects around one in 10 adults in the community, reducing quality of life and social participation. The aim of the current intervention review, a second update, by the Cochrane Incontinence Group [3] was to compare and determine the best oral or topical medicine options for faecal incontinence and to compare medicines versus other treatment options. The
World Continence Week 2013

The Continence Foundation of Australia (CFA) celebrated World Continence Week (WCW) 24–30 June, with a breakfast event in Melbourne. CFA Patron, Beth Wilson, launched WCW with an entertaining introduction and guest speaker, Pino Migliorino, Chair of the Federation of Ethnic Communities’ Councils of Australia (FECCA) Executive Committee, enlightened the audience with his insight into the importance of communicating health issues to culturally and linguistically diverse communities.

The CFA then launched the exciting new initiative to support its national awareness campaign, Talk about Incontinence: A problem in anyone’s language. The Foundation has developed new language-specific web pages for non-English speaking communities and health professionals working with those communities.

Continence information is now available in 20 languages including Cantonese, Mandarin, Vietnamese, Arabic, Greek and Italian. The language pages provide links to 17 bilingual fact sheets on topics such as bedwetting, pregnancy, pelvic floor muscles, prostate issues and incontinence products. There are audio translations of all fact sheets and videos encouraging people to seek help.

Copies of the bilingual fact sheets can be ordered from the National Continence Helpline on 1800 33 00 66.

For more information go to www.continence.org.au/other-languages

Three new guidelines on working with interpreters were also launched:

• Guidelines for conducting presentations with an interpreter
• Guidelines for health professionals — working with an interpreter in a continence assessment
• Guidelines for interpreters — what to expect in a continence assessment

These guidelines are available to download from the Resources section of the CFA website under the Professionals topic continence.org.au/resources

The language pages are being widely promoted, including an ethnic radio campaign in all 20 languages, which commenced last week.

A pilot study with three Victorian hospitals will be undertaken from July to October to assess the ease of use and access by consumers and health professionals.

The CFA greatly appreciates your support in helping to promote the new language pages to your professional network or any community groups you are currently engaged with.

You are able to order copies of a promotional brochure or request a thumbnail link to the new language pages by contacting Blair Neale on 03 9347 2522 or email b.neale@continence.org.au

22nd National Conference on Incontinence

The full program is available at www.continence.org.au. Early bird registrations close on 31 August.

We remind you that accommodation in Perth can, at times, be limited and even expensive if not booked well in advance. So if you are considering attending the conference, we encourage you to book early to ensure your requirements are met.

Visit www.tourismwa.gov.au for ideas on places to visit in Western Australia.

Australian Institute of Health and Welfare’s report Incontinence in Australia

The former Minister for Mental Health and Ageing’s release of the Australian Institute of Health and Welfare’s report Incontinence in Australia at the WCW launch highlights the social, emotional and financial cost of severe incontinence on our community.

There were 316,500 Australians with severe incontinence in 2008–09, costing the aged and health care systems an estimated $1.6 billion. (Residential aged care $1.3 billion, hospitals $145.5 million, the Stoma Appliance Scheme $67.6 million and the Continence Aids Payments Scheme $31.6 million.)

Only about a quarter of people with severe incontinence (aged 15 to 64) participated in the workforce, compared to 56 per cent of those without severe incontinence. There were 72,900 primary carers of severely incontinent people in 2008–09, the
The majority of whom were female, the majority spending more than 40 hours per week caring.

The report revealed carers were more likely to report strained relationships with those they cared for, had twice as many incidents of interrupted sleep, needed more respite care, and reported lower labour force participation than other carers.

Ask the Expert
Ask the Expert is a new feature on the ACE health professional forum. Every three months there will be a new forum topic where an expert will answer your questions on a continence health subject. All you have to do is register to the forum, click on the Ask the Expert topic and ask your question. The first topic was on children with bladder and bowel disorders with Professor Wendy Bower. This topic is now closed, but you can still read the questions. Keep an eye out for a new topic in August.

Pelvic Floor First app
We are excited to let you know that we are currently in the process of developing a smartphone app for Pelvic Floor First. The app will allow users to participate in a pelvic floor safe workout accompanied by instructional videos and also learn about the function of the pelvic floor and guidance on how to perform pelvic floor muscle exercises. We hope to launch the app in September.

CFA now on social media
The Continence Foundation of Australia is now on social media! Follow us on Twitter @AusContinence and like us on Facebook facebook.com/AusContinence

Paediatric Continence Education — Melbourne
The Continence Foundation of Australia is pleased to promote another Paediatric Continence Education workshop. The theme for this workshop is Nocturnal Enuresis and it is being held at Rydges on Swanston in Melbourne on Friday 13 September 2013. This one-day workshop is free and aims to up-skill and support the paediatric continence workforce. Presentations will be delivered by specialists with expertise in the field of paediatric incontinence. This workshop is suitable for any health professionals who have an interest in paediatric incontinence.

Registration is essential as places are limited. To register or for further information visit www.continence.org.au/events or call Blair Neale on (03) 9347 2522.

Every Body’s Business health professional forums
The next Every Body’s Business forum will be held in Port Augusta, South Australia on Friday 13 September. Focusing on the theme “Getting back to basics”, this multidisciplinary forum will feature presentations from experts in the field of continence and local practitioners. To register, please go to www.continence.org.au/events. The final Every Body’s Business for 2013 will be held in Brisbane, Queensland. Keep an eye on the website for more information or email education@continence.org.au

Certificate II in Continence Promotion and Care
The Continence Foundation of Australia offers fully funded positions for health professionals to complete a nationally accredited course in continence promotion and care. This one-day course is available to practice nurses, community nurses, residential aged care workers and Aboriginal and Torres Strait Islander health workers. Separate courses are run for each specialty as course content is tailored to the specific needs of that specialty. The course aims to assist health professionals to identify, screen, manage and refer people affected by incontinence. The courses are held across metropolitan, regional, rural and remote Australia for groups of 20–24 people. Courses are currently delivered face to face; however, a self-directed learning method is currently being developed and will be available soon.

For further information contact Blair Neale at b.neale@continence.org.au or on (03) 9347 2522.

Online Membership Renewal System
Last year the Continence Foundation of Australia introduced an online renewal system. So far this year 50.6% of renewing members have used the new online system. All unpaid memberships have now lapsed and are due for cancellation on 30 September.

Remember that to obtain the membership rate at the conference you must be a current financial member of the CFA. If you have any queries about your membership, please call Maria Sardea our membership officer on (03) 9347 2522 or email membership@continence.org.au

Carer of the Year Award
Applications are now open for the 2013 Continence Carer of the Year, which is proudly sponsored this year by Hartmann. The Continence Carer of the Year Award acknowledges the important work done by at-home carers, who deal with the complex role of caring for someone with incontinence.

If you are interested in making a nomination for this year’s award and for full details of the award, go to www.continence.org.au/pages/carer-of-the-year.html

Barry Cahill, CFA CEO
New Zealand news

We have just finished World Continence Week and we are very happy with the outcome. As usual it was a very hectic time but the response has been excellent.

Physiotherapy New Zealand (Physiotherapy NZ) joined with the New Zealand Continence Association (NZCA) in promoting continence as that organisation’s annual awareness topic. In advance of this, the NZCA ran Pelvic Floor workshops in Auckland, Wellington and Christchurch to increase awareness of pelvic floor assessment and treatment among general physiotherapists. These were well attended and we had to turn some away from Christchurch due to high demand. If there is sufficient interest we could run these again next year.

We ran articles in a number of publications including Readers Digest and Pharmacy Today. We were offered an amazing opportunity (at a fraction of usual cost) to advertise with over 122 radio stations nationwide with 1700 30-second advertisements in total. It was great travelling in the car and hearing our advertisement broadcast. It was a great opportunity to promote general community awareness of continence.

Over the last few years we have noticed that our phone calls have diminished, generally receiving calls from the elderly who don’t have access to the internet and people with complex continence issues. However, there has been an increasing use of our website which we promote well. Over the last 12 months we have had 36,580 unique visitors use our website. That does not include those people returning to our site. This compares with 19,430 users for the same time last year. It is amazing to think that our traffic has doubled in one year alone.

Jan Zander, NZCA CEO
Calendar of events 2013–2014

21–23 August
ANZCoS — Australian and New Zealand Spinal Cord Society
2013 Annual Scientific Meeting
Sydney Convention Centre, Sydney, NSW, Australia

22–23 August
9th Annual National Conference: CDM: Innovation, Adaptation & Evolution
Australian Disease Management Association
InterContinental Sydney, NSW, Australia
Web www.adma.org.au

26–30 August
ICS 2013: Annual Meeting of the International Continence Society
Barcelona, Spain

3–6 September
12th Australian Palliative Care Conference
National Convention Centre, Canberra, ACT, Australia
Web www.palliativecare.org.au

8–11 September
RANZCOG 2013 Evidence in O&G Food for thought or recipe for disaster
Royal Australian and New Zealand College of Obstetricians and Gynaecologists
Sydney Convention and Exhibition Centre, Sydney, NSW
Web www.ranzcog.edu.au

13 September
Every Body’s Business Forum
Continence Foundation of Australia
Port Augusta, SA, Australia
Web www.continence.org.au

13 September
Nocturnal Enuresis Workshop
Continence Foundation of Australia
Melbourne, VIC, Australia
Bookings online at www.continence.org.au or contact Blair Neale on 03 9347 2522 or b.neale@continence.org.au

24–27 September
8th Conference of the Australian College of Nurse Practitioners
Hotel Grand Chancellor, Hobart, TAS, Australia
Web www.acnp.org.au

6–9 October
23 World Congress on Ultrasound in Obstetrics and Gynaecology (includes ASUM Annual Scientific Meeting)
Sydney, NSW
Web www.isuog.org/WorldCongress/2013

10–13 October
International Society for Pelviperineology Annual Conference
Sydney, NSW, Australia
Web www.pelviperineology.com/

17–19 October
CAG2013: Aging … from Cells to Society
42nd Annual Scientific and Educational Meeting
Canadian Association on Gerontology
Nova Scotia, Canada
Web www.cagacg.ca/CAG2013

23–26 October
CFA 22nd National Conference on Incontinence
Crown Conference Centre, Perth, WA, Australia
Web www.continence.org.au

10–13 November
2013 ACSA National Conference
Melbourne Convention and Exhibition Centre, VIC, Australia
Web www.agedservices.asn.au

20–22 November
New Zealand Society of Gastroenterology & NZNO Gastroenterology Nurses Section Annual Scientific Meeting 2013
Wellington, New Zealand
Web www.gatro2013.co.nz

25–27 November
The 2013 National Indigenous Health Conference
Pullmans Cairns International Hotel, Cairns, QLD, Australia
Web www.indigenoushealth.net

27–29 November
Grey Expectations: Ageing in the 21st Century
46th Australian Association of Gerontology National Conference
SMC Conference & Function Centre, Sydney, NSW, Australia
Web www.aag.asn.au

28–29 March 2014
Urogynaecological Society of Australasia (UGSA) Annual Scientific and General Meeting
Hilton on the Park, Melbourne, Vic
Web www.ugsa.oeg.au
Nominations sought for Peer-Review Panel

Experts from the disciplines involved in continence treatment, management and promotion and those who are expert in research methods and statistical analysis are invited to nominate to join the *Australian and New Zealand Continence Journal* Peer-Review Panel.

The Journal is proud to promote Australian and New Zealand scholarship in the area of continence.

For details regarding the Peer-Review Panel, please email Jacinta Miller jacmil@bigpond.com

Electronic submission of manuscripts to the journal

_The Australian and New Zealand Continence Journal now offers authors the ability to submit articles via a web-based system._

**Steps to submission and publication**

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- Login.
- Create an account if you are using the system for the first time.
- This will be retained for future enquiries and submissions.
- Enter your personal details: all fields must be completed.
- Confirm your details.

**Submitting an article**

- Step 1. Type the title, type of paper and abstract. Select publication — *Australian and New Zealand Continence Journal*.
- Step 2. Confirm author. Add co-author details (all fields) if applicable.
- Step 3. Upload files. Please ensure your document contains the required information and is formatted according to the author guidelines. **PLEASE NOTE THAT AUTHOR DETAILS SHOULD BE ON A SEPARATE COVER PAGE, DO NOT INCLUDE AUTHOR(S) NAME(S) IN THE BODY OF THE ARTICLE.**
- Step 4. Add any comments for the editor.
- Step 5. Review your information then click submit.

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The Helpline is funded under the Australian Government’s National Continence Program and managed by the Continence Foundation of Australia.
Information for authors

The Editors and the Editorial Board of the *Australian and New Zealand Continence Journal* have specified guidelines for prospective authors to follow when compiling an article they wish to submit to the journal.

**Terms of submission**

The editors accept submissions in the form of research findings, clinical papers, case studies, reports, review articles, letters and product appraisals. Each submission is evaluated on its timeliness, relevance, accuracy, clarity and applicability to the journal. Submissions will be accepted from any country but must be written in English. Submissions to the journal must be original and unpublished. Submissions must not be under consideration elsewhere. The ANZCJ Editorial Office will check each submission using plagiarism detection software to verify content is original and not previously published. Accompanying each submission must be a competing interest statement (see form on CFA website and Cambridge Media website). Once a paper is accepted for publication, all authors must sign the author statement and copyright assignment form which will be provided by the production editor. Once it is published, the article and its illustrations become the property of the Journal, unless rights are reserved before publication.

All work is sub-edited to journal style. The editors reserve the right to modify the style and length of any article submitted, so that it conforms to journal format. Major changes to an article will be referred to the author for approval prior to publication. The *Australian and New Zealand Continence Journal* provides assistance to first time authors and may be contacted by email.

**Authorship**

All listed authors should have made a substantial contribution to the manuscript and may be required to indicate their contribution. Participation solely in the acquisition of funding, the collection of data or supervision of such does not justify authorship and such contributions should be listed in acknowledgements which will be printed under the author details. All participating authors must be acknowledged as such; proof of authorship may be requested. The first-named author is responsible for ensuring that any other authors have seen and approved the manuscript and are fully conversant with its contents. It is the responsibility of the author to obtain written permission from a copyright holder to reproduce copyrighted work; a copy of that permission must be provided to the journal prior to publication and a full citation of the source must be provided.

**Conflict of interest:** It is the responsibility of the submitting author to disclose to the Editor any significant financial or other interests they may have pertaining to their manuscript. Conflicts of interest should be disclosed using the *Australian and New Zealand Continence Journal* author competing interests form. If an interest exists, publication of that interest is at the Editor’s discretion.

**Ethics**

Investigations in human and animal subjects must conform to accepted ethical standards. Authors must provide a statement within the text that the research protocol was approved by a suitably constituted ethics committee of the institution within which the work was carried out and that it conforms to the Statement on Human Experimentation or the Statement on Animal Experimentation by the NH&MRC.

**Manuscript type**

The *Australian and New Zealand Continence Journal* welcomes original research articles for peer review and general articles regarding the achievements of people working in the disciplines pertaining to the management of incontinence, clinical issue updates, book reviews and general project information.

**Discussion:** Presentation of information from more than one viewpoint (for example, for and against) and usually ending with a recommendation or opinion based on the evidence presented.

**Literature review:** Narrative — describes and evaluates the current knowledge of a subject, identifies gaps or inconsistencies and includes critical evaluation with recommendations for future research. Systematic — describes planned analysis and evaluation of all available research studies on a particular clinical issue, conducted in accordance with scientific principles and may include recommendations for future research.

**Research report:** Presentation of study results in an ordered fashion, based on common practice. Research reports are expected to follow the Uniform requirements for manuscripts submitted to biomedical journals, as published by the International Council of Science Journal Editors www.icmje.org.

**Case study:** Combination of recount (retelling of events as they occurred) and information report (classification and description of something). Can be presented in different ways to give a cohesive account.

**Exposition (including letter to the Editor):** Putting forward of a particular viewpoint, justification of a particular argument.

**Narrative:** An informative account of a meeting or conference, or a review of a book, journal article or relevant website.

**Preparation of manuscripts**

Manuscripts are to be no more than 4000 words and include an abstract of no more than 250 words. Manuscripts should be created in a Word document using minimal formatting and typed double spaced in 12 point Times Roman font. Include total word count and up to five keywords. Include title of work on the abstract page and first page of introduction. In the introduction, include key points on what is already known on the topic and what your manuscript contributes. Define abbreviations and acronyms on first mention in the text.
Tables are to be presented on separate pages, one per page. Tables should be clearly typed, showing columns and lines. Number tables consecutively using Arabic numerals in the order of their first citation in the text and supply a brief title for each. Place explanatory matter in a legend under the table, not in the heading. Explain in the legend all non-standard abbreviations used in each table.

Photographs and figures may be included in the submission and should be supplied in a graphic format such as jpeg at a resolution of 300 dpi. Illustrations and figures must be clear, well-drawn and large enough to be legible when reproduced. The title and legend for figures should be on a separate page after the references. Each figure must include its place, its number and the orientation of figure. Patients or other individual subjects should not be identifiable from photos unless they have given written consent for their identity to be disclosed; this must be supplied.

Referencing guidelines
The referencing format is based on the Vancouver style, the main feature of which is the use of numbers at the point of reference so as not to interfere with the flow of words. Each number corresponds to a single reference provided in the reference list at the end and, once assigned a number, a reference retains that number throughout the text, even if cited more than once. If more than one work is quoted in a reference, each work must be assigned a number. At any point in the text, the reference may be one or several numbers. Following are some examples of references from different sources:

Journal: A complete journal reference includes: name(s) of author(s), title of article, journal name, year of publication, volume and edition number and inclusive page numbers.


Book: A complete reference to a book includes name(s) of author(s) or editor(s), book title, edition number, name of publisher, place of publication, year of publication, specific page numbers and internet reference if applicable.


Websites and electronic references:


It is the author’s responsibility to ensure that all references are correct. Please double check all citations with an electronic database to ensure accuracy in the reference list. Manuscripts submitted with multiple errors will be returned for correction before being accepted for peer review.

Submission of manuscripts
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• Create and account if first time using the system — this will be retained for future enquiries and submissions
• Enter your personal details — ANZCJ requires all fields to be completed
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• Step 4. Add any comments for the editor.
• Step 5. Review your information then click submit.

Once submitted, the manuscript is reviewed by the editor and, if acceptable, sent for peer review. You will be notified by email once your manuscript has been selected for peer review.

Peer-review process
All manuscripts are initially reviewed by the Editorial committee and those deemed unsuitable (insufficient originality, serious scientific or methodological flaws, or a message that is too specialised or of limited interest to the journal readership) are returned to the author(s), usually within four weeks. If the manuscript does not conform to the submission guidelines, the author will be asked to amend it prior to peer review.

All manuscripts are reviewed by content and writing peers for relevance, construction, flow, style and grammar. This process can take eight weeks. Reviewers spend considerable time in reviewing the manuscripts and providing feedback to the authors. The length of time of the publication process may vary and depends on the quality of the work submitted. Several revisions may be required to bring the manuscript to a standard acceptable for publication. The Editorial team undertake the final review and may have different questions for the author/s to consider. Proofs of articles about to be published will be sent in PDF format to the corresponding author for review. The final decision about publication is made by the Editor.
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Optimising Skin Integrity Outcomes

Menalind® professional Skin Care products are uniquely formulated to meet the cleansing, protecting and caring needs of elderly or compromised skin. All Menalind professional products are dermatologically tested and the cleansing products are pH 5.5 balanced to preserve the natural acid protection mantle of the skin. Menalind professional cares for skin which has been compromised by incontinence. It is suitable for use with continence pads without affecting their absorbency, keeping skin dry and preventing damage to the stratum corneum.

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- Uniquely formulated Menalind® professional skin care range
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