



**Bayer HealthCare**  
Consumer Care

**Rescheduling Application  
for**

**Canesten<sup>®</sup>  
Clotrimazole  
Vaginal Products**

**January 2007**

## **INDEX**

	<b><u>Page</u></b>
<b>PART A</b>	2
<b>PART B</b>	19
Self-Diagnosis and the Risk of Underlying Disease	19
Labelling	28
Pharmacy Assistants	30
<b>APPENDICES</b>	36
<b>REFERENCES</b>	37

## **PART A**

This submission to the New Zealand Medicines Classification Committee seeks rescheduling of clotrimazole for vaginal use from the current classification of Pharmacist Only Medicine to Pharmacy Medicine.

### **A1. Name of the Medicine**

The International Non-Proprietary Name of the medicine is clotrimazole.

The proprietary or brand name is Canesten®. Canesten is an umbrella brand name that covers a number of antifungal products. This application is specifically related to Canesten Clotrimazole products for vaginal use. The registered trade names of the Canesten vaginal products are:-

Canesten Clotrimazole Thrush Treatment 6 Day Cream  
Canesten Clotrimazole Thrush Treatment 6 Day Pessary  
Canesten Clotrimazole Thrush Treatment 3 Day Cream  
Canesten Clotrimazole Thrush Treatment Once (vaginal cream)  
Canesten Clotrimazole Thrush Treatment Once (pessary)  
Canesten Clotrimazole Thrush Treatment Once Pessary + Cream

### **A2. Name of the Company**

This submission is made by:-

Bayer New Zealand Limited  
Consumer Care Business Group  
C. P. O. Box 2825  
Auckland

Ph: (09) 443-3093

Contact: Ms. Pia Phoa  
Brand Manager - Canesten

### **A3. Dose Forms, Strengths and Pack Sizes**

This rescheduling submission applies to two different dose forms of Canesten Clotrimazole Thrush Treatment – vaginal cream and vaginal pessaries.

Both of these dose forms are presented in different strengths:-

#### ***Vaginal Cream***

Available strengths are 10 mg/g (1% cream), 20 mg/g (2% cream) and 100 mg/g (10% cream).

#### ***Vaginal Pessaries***

Available strengths are 100 mg pessaries and 500 mg pessaries.

Additionally, a combination product of one 500 mg pessary and a 10 g tube of topical clotrimazole 1% cream is available, and this combination product would also be affected by the proposed classification change.

All of these products are marketed in pack sizes that represent one course of treatment. No products are marketed in pack sizes of more than one treatment, and there is no intention to develop such pack sizes.

In summary, the following Canesten products are proposed for reclassification:-

- Canesten Clotrimazole Thrush Treatment 6 Day Cream,***  
clotrimazole 10 mg/g vaginal cream, one tube of 35 g cream  
plus six applicators
- Canesten Clotrimazole Thrush Treatment 6 Day Pessary,***  
clotrimazole 100 mg pessary, six pessaries plus one applicator
- Canesten Clotrimazole Thrush Treatment 3 Day Cream,***  
clotrimazole 20 mg/g vaginal cream, one tube of 20 g cream  
plus 3 applicators
- Canesten Clotrimazole Thrush Treatment Once,***  
clotrimazole 100 mg/g vaginal cream, one tube of 5 g cream  
plus one applicator
- Canesten Clotrimazole Thrush Treatment Once,***  
clotrimazole 500 mg pessary, one pessary plus one applicator
- Canesten Clotrimazole Thrush Treatment Once Pessary + Cream,***  
clotrimazole 500 mg pessary plus clotrimazole 10 mg/g topical  
cream, one pessary and one applicator plus one tube of 10 g  
cream

## **A4. Indications**

All of the Canesten products proposed for reclassification have the same approved indication at the time of this submission – namely:-

“Canesten provides effective treatment of vaginal thrush infections.”

For the combination product, in which a topical cream product is also available, the approved indication is:-

“Canesten provides safe and effective treatment of candidal infections of the vagina and vulvovaginal, and sexual partner.”

As of January 2007, a Changed Medicine Application has been submitted to Medsafe to change the wording of the approved indication for these products to “to treat vaginal thrush”. This change is necessary to convert the labelling of the current Pharmacist Only Medicine products to performance-based labelling, further outlined in Part A, Section 7.

The only purpose of these vaginal products is treatment of vaginal thrush. For the proposed reclassification definition of the indication and definition of the administration route are effectively the same thing.

## **A5. Classification**

The current classification of clotrimazole, taken from the Medsafe Web site on 13 December 2006, is:-

Clotrimazole, except when specified elsewhere in this Schedule	Prescription
Clotrimazole; for vaginal use	Restricted
Clotrimazole; for dermal use except in medicines for tinea pedis only	Pharmacy Only
Clotrimazole; for dermal use in medicines for tinea pedis only	General Sale

The classification sought for clotrimazole is:-

<b>Clotrimazole, except when specified elsewhere in this Schedule</b>	<b>Prescription</b>
<b>Clotrimazole; for vaginal use, and dermal use except in medicines for tinea pedis only</b>	<b>Pharmacy Only</b>
<b>Clotrimazole; for dermal use in medicines for tinea pedis only</b>	<b>General Sale</b>

Clearly, the proposed change applies only to vaginal use of the medicine, and as previously discussed applies only to the treatment of vaginal and vulvovaginal thrush. The proposed change is a less restrictive classification for the medicines.

This change of classification has been proposed to MCC previously, and was considered at the MCC meeting of June 2006. At that time MCC recommended there be no change to the classification of these medicines (See Appendix 1 – Minutes of the 35<sup>th</sup> Meeting of the Medicines Classification Committee), primarily due to perceived issues relating to self-diagnosis, underlying disease and the ability of Pharmacy Assistants to appropriately manage customers for such products.

Note that a submission effectively proposing the same down-scheduling of clotrimazole in Australia was made to the NDPSC in October 2006 and is due to be considered at their February 2007 meeting. Bayer Australia Limited has received an evaluation report of the submission made to NDPSC, and has responded to the evaluation report. Copies of the NDPSC evaluation report and the company response are provided in Appendix 2.

#### **A5.1 Classification Status in Other Countries**

Clotrimazole vaginal preparations are available globally, mostly as OTC medicines. The range of OTC classifications ranges from being restricted to a pharmacist selling the products right through to the equivalent of a New Zealand General Sales classification. The table on the next page presents the legal classification of clotrimazole vaginal preparations in selected countries.

### Status of Clotrimazole in Vaginal Preparations in Selected Countries

Country	Current Classification	Year of Switch from Prescription
Australia	Schedule 3 (Pharmacist Only Medicine)	1994
New Zealand	Restricted Medicine (Pharmacist Only Medicine)	1992
USA	OTC for 1% cream and 200mg pessaries (equates to General Sales Medicine in New Zealand)	1990
Canada	Schedule III (equates to Pharmacy Only Medicine in New Zealand)	1994
Austria	OTC - up to 0.5g per dose	2003
Belgium	OTC	
Denmark	OTC	1996
Finland	OTC - up to 2% cream and pessary	1994
France	OTC - maximum dose 200mg, up to 1.2g per pack	
Germany	OTC	1994
Ireland	OTC - vaginal candidiasis only	
Portugal	OTC	1995
Sweden	OTC	1994
UK	OTC (equates to a Pharmacy Medicine in New Zealand). General Sale – 500 mg pessary + 2% cream for treatment of vulvovaginal candidiasis. General Sale – 10% vaginal cream + 2% external cream	1992 2004 2005(?)
Switzerland	OTC for recurrent therapy of vaginal fungal infections - 2% cream, 1 x 500 mg or 3 x 200 mg pessary	1998

Table adapted from AESGP/WSMI publications <http://www.aesgp.be> status 18 October 2004 and data on file.

In the United Kingdom, vaginal products generally are classified as pharmacy medicines, with the designation 'P'. However MHRA have recently approved the general sale (GSL) of two combination packs. The first was a combination of a single 500 mg dose pessary and 2% cream (marketed as Canesten Combi). More recently a second combination being a 10% internal cream and 2% external cream (marketed as Canesten Complete) was granted GSL status. These GSL products can be sold in supermarkets as well as pharmacies without a pharmacist being present.

In the United States of America a medicine can only be approved for OTC purchase if is appropriate for safe and effective use without the supervision of a healthcare provider (6). Since being reclassified in the USA in 1990, there have been some additional warnings required by the FDA for these products (6) – however, the overall impression is that the switch to OTC status has been a positive one and consumer's can successfully use these products without the input of a healthcare professional.

These figures demonstrate that since 1990 there has been a world-wide trend towards less restriction of clotrimazole treatments for vaginal thrush, and in many instances this trend has embraced classifications where the customer can self-select and purchase the product without the intervention of a healthcare professional. In comparison to major first world countries, apart from Australia, the degree of restriction to access for these products is now relatively high in New Zealand.



## **A6. Extent of Usage**

### **A6.1 Usage in New Zealand**

Sales volumes of the Canesten range of vaginal thrush products from 2003 onwards are:-

**Sales ex-Manufacturer  
(units)**

<b>Product</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
Canesten Once Cream 5g Canesten 3 Day Cream 20g Canesten 6 Day Cream 35g Canesten Once Pessary 500mg Canesten 6 Day Pessary 100mg Canesten Once Pessary + Cream	C	O	N	F
	I	D	E	N
	T	A	L	
<b>TOTAL</b>				

Each unit sold represents a complete thrush treatment. Thus, in 2005 and 2006 approximately xxxxx occurrences of vaginal thrush were treated with a Canesten product in New Zealand, and over the last 4 years approximately xxxxx occurrences were treated. New Zealand has considerable clinical experience with these products.

The total size of the New Zealand vaginal thrush market is thought to be about 450,000 treatments per annum, of which around 150,000 – 200,000 treatments are oral and the rest vaginal. While Bayer considers changing the classification of clotrimazole may have some effect on the relative usages of different thrush treatment products, the overall usage of vaginal thrush treatment is not expected to increase appreciably. The symptoms of thrush are distressing, cause considerable discomfort and can disrupt many aspects of women’s lives (6). In the majority of cases women experiencing symptoms will seek therapy for rapid relief. Thus, the incidence of untreated vaginal thrush is likely to be small, and the potential to increase the overall market size for vaginal thrush treatments limited.

## **A6.2 Usage World-Wide**

World-wide, estimated patient exposure to a Canesten clotrimazole product for the period September 2000 – August 2005 is almost 285 million patients (see Summary Bridging Report – Appendix 3). Clearly, Canesten is a very widely used product, and much of this usage would have derived from an over-the-counter purchase, with or without the involvement of a health professional.

## **A6.3 Regulatory Status**

Clotrimazole is an antifungal agent synthesised in 1967 by Bayer AG in a systematic investigation of imidazole compounds. In 1973 clotrimazole was brought on to the market initially in the United Kingdom and then in Germany.

Today clotrimazole is sold under the tradename Canesten in over 100 countries, in the United States of America under the tradename Mycelex<sup>®</sup> and in Japan as Empecid<sup>®</sup>.

## **A7. Labelling**

All of the Canesten Clotrimazole Thrush Treatment products that are the subject of this submission are currently available on the New Zealand and Australian markets. The products in each market are identical, and in all cases the labelling is Trans-Tasman i.e. the same label is used for both countries. Originally, Bayer planned that should the 2006 submission for rescheduling of the Canesten Clotrimazole Thrush Treatment products to Pharmacy Only Medicines be successful, the current labelling format would be changed to performance-based labelling.

Performance-based labelling has been accepted in both Australia and New Zealand as a superior medium to communicate the usage of, and precautions required for, medicines. It now represents the “gold standard” of labelling, and consequently the proposed upgrade of the Canesten vaginal thrush products’ labelling was expected to improve consumer’s comprehension of the labels, and subsequently maximise safe and effective use of these products. An important feature of the proposed performance based labelling was that the symptoms of vaginal thrush were included more prominently on the carton, allowing the consumer better self-assessment of their symptoms before purchasing the product.

Since the submission of 2006 the product labelling has been further refined based on the performance-based labelling template.

In order to test the company expectations for this further refined labelled, it was subjected to consumer research in Australia, conducted by CRIA (Consumer Research Institute of Australia). CRIA is led by Dr. David Sless, an information design specialist instrumental in the development of performance-based labelling. The labelling performed so well in this research (see Part B, Section 2 for further discussion) that Bayer has decided to convert the product labelling to this format, irrespective of the outcome of any rescheduling proposals. Thus, the labelling presented in this application is also the subject of a CMN submitted to Medsafe in January 2007 and planned for launch into the New Zealand market in the middle of 2007.

Mock-ups of the proposed product cartons follow on the next pages. Clearly, the classification statement on each label would need to be changed to PHARMACY MEDICINE should the proposed rescheduling be accepted, but no other changes to the labelling are envisaged. Bayer is of course open to suggestions from the Medicines Classification Committee, if the Committee feels that these labels could be further improved.

**Canesten Clotrimazole Thrush Treatment 6 Day Cream Proposed  
Carton**

**Canesten Clotrimazole Thrush Treatment 6 Day Pessary Proposed  
Carton**

**Canesten Clotrimazole Thrush Treatment 3 Day Cream Proposed  
Carton**

**Canesten Clotrimazole Thrush Treatment Once Cream Proposed  
Carton**

**Canesten Clotrimazole Thrush Treatment Once Pessary Proposed  
Carton**



**Canesten Clotrimazole Thrush Treatment Once Pessary + Cream  
Proposed Carton**

## **A8. Proposed Warnings**

Should the proposed classification be accepted in both New Zealand and Australia, Bayer proposes to maintain Trans-Tasman labelling. Thus any labels with the new classification must satisfy both countries' requirements

All applicable warning statements or wording with similar intent as required by RASML and Appendix F of the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) for Australia will be included on both the outer carton labels and the pack inserts. These are:

- seek medical advice before first course of treatment
- see a doctor if you are pregnant or diabetic
- see a doctor if no better after 4 days
- see a doctor if problem returns

Additionally, when clotrimazole was first rescheduled to a Pharmacist Only Medicine in 1992, it was a condition of this (then) new classification that the product would only be presented in pack sizes of one course of treatment. This condition has been maintained, even though it is no longer part of the schedule, and Bayer plans to maintain it on through the proposed reclassification to Pharmacy Medicine.

Currently, the various Canesten vaginal products' pack inserts are replicas of the product Consumer Medicine Information published on the Medsafe Web site. As part of the proposal to reschedule these products to Pharmacy Medicines, Bayer intends to update the current Consumer Medicine Information and pack inserts, tailoring them to further facilitate the purchaser's safe and effective use of the products.

In addition to the required SUSDP warnings listed above, the current CMI/pack insert also contains the following safety information:-

- a list of symptoms that are not normally signs of thrush (to facilitate the purchaser's differential diagnosis)
- a warning regarding prior allergies
- a warning if the patient is under 18 years of age
- a warning if the patient is breast-feeding
- a warning if there is a local reaction to the treatment
- a warning regarding reduction of effectiveness of latex products

The updated CMI/pack inserts will maintain all of this safety information, and further information will be added as considered necessary. For example, further symptoms not usually signs of thrush were recently added to the current Consumer Medicine Information – namely pain when passing urine, fever or chills and foul smelling and/or unusual coloured discharge.

A draft of the current pack insert for Canesten Clotrimazole Thrush Treatment 6 Day Cream is provided in Appendix 4 to this submission as a typical example of the pack inserts for the range. Also in Appendix 4 is a draft updated CMI for Canesten Clotrimazole Thrush Treatment 6 Day Cream with suggested additional information for situations which can increase susceptibility to vaginal thrush, for diabetes and for sexually transmitted diseases. The additional information has been clearly marked.

## **A9. Other Products**

In addition to the Canesten range of products that are the subject of this submission, there are a number of other clotrimazole products for vaginal administration currently sold in the New Zealand market. These are:-

<b>Brand Name</b>	<b>Strength and Pack Size</b>	<b>Sponsor Company</b>
Clocreme	Vaginal cream 1% 35g	Pacific
Clotrimaderm	Vaginal cream 1% 45g Vaginal cream 2% 25g	AFT
Clomazol	Vaginal cream 1%	Multichem
Clotrihexal	Vaginal tablet 100mg Vaginal tablet 200mg Vaginal tablet 500mg	Hexal

## **PART B**

The Minutes of the 35<sup>th</sup> Meeting of the Medicines Classification Committee noted that “the safety profile of clotrimazole was considered to be acceptable for sale at pharmacy-only level”. As such, this rescheduling application is written as a response to the concerns expressed by the MCC from the last application and issues apparently resolved such as the safety profile of clotrimazole, interactions, therapeutic index, potential for abuse, etc are not further addressed. For full information on clotrimazole, this rescheduling application should be read in conjunction with that submitted in January 2006.

The following discussion is limited to areas that were of concern to the Medicines Classification Committee when last reviewing the proposal to reschedule or where new information is available. Three main categories are covered:-

- self-diagnosis and the risk of underlying disease
- labelling
- Pharmacy Assistant’s ability to manage customers for vaginal thrush products, and training to support this process

### ***1. Self-Diagnosis and the Risk of Underlying Disease***

#### **1.1 Self-Diagnosis by Potential Thrush Treatment Users**

In the minutes of the 35<sup>th</sup> meeting of the Medicines Classification Committee concern was expressed regarding the ability of people who are not health professionals (i.e. consumers) to diagnose vaginal thrush for the purposes of self-treatment. Two main areas need to be considered in addressing this concern – can vaginal thrush be accurately diagnosed by consumers, and in the event that vaginal thrush is accurately diagnosed can the consumer recognise other influencing factors that should direct her to a doctor rather than self-treating?

### **1.1.1 Accurate Diagnosis**

Conditions that cause vulvovaginal symptoms include infections such as vaginal thrush, bacterial vaginosis, trichomonas, herpes simplex and sexually transmitted diseases such as Chlamydia, gonorrhoea and genital warts (human papilloma virus) (1,2).

Vulval symptoms can also be caused by non-infective conditions such as dermatitis, psoriasis, lichen sclerosis and atrophic vaginitis (1). For these non-infective conditions, symptoms usually present as a chronic vulval itch, sometimes with burning (3). Many of these patients have a characteristic rash (1), as opposed to inflammation, and a complete absence of vaginal discharge that suggests the symptoms are not due to vaginal thrush. Patients can often have a long history, with vaginal thrush sometimes diagnosed in the early stages both by patients and General Practitioners (3). While initially inappropriate use of a vaginal thrush treatment may occasionally occur (not only due to self-diagnosis), such patients would be excluded from further therapy on the basis of treatment failure and the presence of on-going symptoms.

Lastly, vaginal discharge can also be caused by foreign objects, the two most common in adults being retained tampons and burst condoms (12). In these cases the discharge is always offensive (12), sometimes extremely so, and thus is unlikely to be confused with a vaginal thrush infection.

#### *1.1.1.1 Infective Diseases*

For the vaginal infections mentioned above, current recommendations for ideal diagnosis in premenopausal women involve a vaginal examination and microscopy (4), orientated towards the detection of vaginal candidiasis, bacterial vaginosis and trichomoniasis (the three most common infections). However, this approach has a number of drawbacks:-

- a visit to a General Practitioner is required, meaning that women must forgo the benefits of convenience, ease of access and timely initiation of treatment that might otherwise be realised (6)
- in 30% of cases a diagnosis may not be possible even after a complete evaluation using techniques more comprehensive than those normally available (4,14)

- vaginal pathogens identified by the current diagnostic approach can be found in asymptomatic women or may form part of the normal vaginal flora (4)
- many General Practitioners do not have the skills, time or equipment to use these tests (5)

Because of these limitations, it is apparent that many practitioners treat vaginal infections based on symptoms alone, and treatment failure itself is used as a further diagnostic tool (5). Practitioner's diagnosis of vaginal candidiasis from patient history and symptoms is only 61% accurate (6). Previous rescheduling of vaginal thrush treatments from Prescription Medicines to Pharmacist Only Medicines is likely a reflection of this situation, demonstrating confidence that Pharmacists could assess a woman's history and clinical symptoms from verbal description as well as doctors could, and determine with acceptable accuracy if treatment or further assessment was appropriate.

Given the current situation includes the absence of microscopy, how well can symptom assessment determine the type of disease present? Anderson et al. (4) undertook a literature review and combined results from suitable articles to evaluate the usefulness of symptoms and other criteria to identify disease. For patients assessing their own symptoms, the likelihood of vaginal candidiasis was increased if there was a "cheesy" discharge, itching, erythema (redness) and absence of odour. Women that identified "having another yeast infection" were more likely to have candidiasis. Similarly, a watery discharge, lack of itching, absence of erythema and presence of an odour all decreased the likelihood of a candidal infection. Complaints of malodour were strongly associated with bacterial vaginosis, and absence of malodour could almost rule out this disease.

These results suggest that for women who have had a previous thrush infection, assessment of current symptoms is likely to provide a reasonable diagnosis of vaginal candidiasis (or not). Furthermore, the symptoms listed above are easily identifiable and do not require any particular medical knowledge in order to assess their presence or absence. Thus, consumers and Pharmacy Assistants are not disadvantaged by their lack of specific medical knowledge in assessing the presence or absence of such symptoms, and should be able to make an evaluation no less accurate than that of a pharmacist providing they know which symptoms they should be assessing.

Bayer considers the proposed labelling for the Canesten vaginal thrush range of products addresses all of these symptoms, providing the consumer with a complete checklist of symptoms to look for (itching, burning, lack of odour, white discharge) and the criterion of having had a previous infection. Furthermore, the pack insert also mentions indicators of the infection being something other than

vaginal candidiasis, including the key indicator for bacterial vaginosis - a foul-smelling discharge.

The ability to purchase vaginal thrush treatments over-the-counter is recognised as offering women convenience, ease of access and timely initiation of treatment as well as economic savings and patient empowerment (6). In order to access these advantages, knowledge about vaginal conditions is needed for self-diagnosis of vaginal thrush (6), as discussed above. Evidence indicates that incomplete knowledge is a contributing factor to inappropriate self-treatment (6), and it is logical that improving knowledge would lead to better diagnosis and reduced inappropriate self-treatment. Indeed, this is the case – when aided by an instruction sheet, women with past experience of vaginal thrush had a diagnostic accuracy of 82% (6). Under another scenario, 89.6% of women’s self-diagnoses were as accurate as a nurse practitioner’s (6). Many authors refer to Ferris et al. (2002) to demonstrate women’s poor ability to self-diagnose – the methodological flaws inherent in this study have already been discussed in the last submission to the Medicines Classification Committee. Bayer believes that Theroux’s more recent report (6) provides a more balanced view of the actual situation.

While by no means perfect, it is apparent that, given the appropriate tools and information, consumers can self-diagnose vaginal thrush on the basis of their history and symptoms with a considerable degree of accuracy. Pharmacy Assistants could be effectively trained (see Part B Section 3) to improve their knowledge and given access to diagnostic instruction sheets, and their experience in this area would quickly develop if given more responsibility. In this case, it would be expected that Pharmacy Assistants would perform at least as well, and most likely better, than would average consumers.

In particular, the Medicines Classification Committee expressed concern about the consumer’s ability to distinguish between bacterial vaginosis and vaginal thrush. However, it is clear from the discussion above that there is one outstanding differentiating factor – namely, the presence or absence of a foul-smelling discharge. Additionally, it has been shown that consumer’s can self-diagnose vaginal thrush with a reasonable degree of accuracy provided they have previous experience with the condition. These factors are already incorporated into the product labelling and pack insert, and so appropriate information is available to consumers in order that they can self-diagnose. Furthermore, Bayer has demonstrated (see part B Section 2) that consumers can find, understand and act appropriately on this labelling information.

### 1.1.1.2 Sexually Transmitted Diseases

#### **Chlamydia**

Women presenting with vaginal complaints are often tested for gonorrhoea or Chlamydia (4). Concern regarding Chlamydia as an underlying infection was expressed by the Medicines Classification Committee in considering the previous submission for rescheduling of clotrimazole vaginal preparations (Appendix 1). However, the association between gonorrhoea, Chlamydia and vaginal discharge is uncertain (4).

As noted by the Medicines Classification Committee, Chlamydia is prevalent in New Zealand. In 2005, Chlamydia infection was the most commonly diagnosed sexually transmitted disease in New Zealand (7). However, 75% of these cases were aged less than 25 years (7), and more than half may be under 20 years (8) – as vaginal thrush treatments are not recommended for patients aged less than 18 years without first seeing a doctor, intersection between these two patient groups is limited. A total of 197 females were diagnosed with pelvic inflammatory disease in 2005 (7), a serious consequence of untreated chlamydial disease. This represents 2.4% of the confirmed and probable diagnosed cases.

The true number of Chlamydia infections is likely to be much higher than those reported above due to the undiagnosed, unreported patient population. Urine testing suggests that approximately 2% of Years 12 and 13 students may be infected (8). Opportunistic screening can identify these cases, but there are no national screening guidelines for New Zealand at present (7).

A large undiagnosed, unreported reservoir of Chlamydia patients exists within the community because many infected patients are asymptomatic – 70% of infected females will not experience any symptoms of disease (7). When present, symptoms are vaginal discharge, dysuria (difficult or painful urination), lower abdominal pain and abnormal bleeding if endometritis is present. If present, the vaginal discharge is purulent (containing pus) (9) – thus, three of the four symptoms would specifically rule against a diagnosis of vaginal thrush. Inappropriate diagnosis of vaginal thrush in the symptomatic Chlamydia infected patient is considered unlikely.

#### **Gonorrhoea**

Gonorrhoea is less prevalent than Chlamydia, with 940 confirmed or probable cases reported in 2005 (7). Overall population rates may be around 0.08%.



However, like Chlamydia it is a disease of young adults with 64% of cases being 15 - 24 years age group.

Similar to Chlamydia, gonorrhoea is asymptomatic in up to 50% of females (7). When present, the usual symptoms are dysuria, vaginal discharge and lower abdominal pain (8). The vaginal discharge is yellow or bloody, and clearly distinguishable from a vaginal thrush discharge (10). This, combined with the lower abdominal pain, rules against vaginal thrush and confusion of diagnosis between vaginal thrush and gonorrhoea is considered unlikely.

In summary, Chlamydia and gonorrhoea are largely asymptomatic diseases that occur in young adults. The extent of patient overlap with vaginal thrush is relatively small. When symptoms are present, they are clearly distinguishable from those of vaginal thrush and misdiagnosis would seem unlikely. While Bayer acknowledges that testing for these diseases in the target population could be desirable if they presented with vaginal thrush, this is not possible when a patient presents to a pharmacy, whether the customer is dealt with by a Pharmacist or a Pharmacy Assistant. There are more appropriate occasions to opportunistically test for sexually transmitted diseases, such as when a patient presents for contraception, pregnancy termination or obstetric/ gynaecological care (8). As such, sexually transmitted diseases are not considered a barrier to the possible reclassification of clotrimazole vaginal thrush treatments to Pharmacy Medicines.

In the United States of America, the FDA requires that package inserts for vaginal thrush treatments direct women to see a doctor if symptoms persist or are recurrent (as is the case in New Zealand) and to provide warnings about the similarity of symptoms between yeast infections and sexually transmitted diseases (6). Whilst Bayer is not convinced of the necessity for this second set of warnings, no harm is perceived from adding them to the proposed pack insert. As such, Bayer would add such warnings to the proposed pack inserts as a condition of reclassification of the clotrimazole vaginal thrush treatments to Pharmacy Medicine should the Medicines Classification Committee request them. See Appendix 4 for the proposed wording of the pack insert.

### ***Trichomoniasis***

Unlike thrush and bacterial vaginosis, trichomoniasis is always sexually transmitted (12). The disease can range from asymptomatic through to an acute case with pruritis, dyspareunia, dysuria, vulvar erythema and vaginal discharge. The discharge is yellow-green, frothy and with a foetid odour (12). The presence of a foul odour and coloured discharge are clear indicators that vaginal thrush is an incorrect diagnosis, and so acute trichomoniasis is considered unlikely to be confused with vaginal thrush.

### 1.1.1.3 Malignancies

Bayer searched extensively for information relating to diagnosis of vaginal thrush versus potential malignancies, including searches of the CINAHL (Cumulative Index to Nursing and Allied Health), MEDLINE, EMBASE and Australasian Medical Index databases. All searches were conducted by experienced staff at the Philson Library, Auckland Medical School. No references could be found that provided information on this topic.

Given the paucity of information on this topic, it is difficult for Bayer to respond to the Medicine Classification Committee's concerns regarding self-diagnosis of vaginal thrush by consumers masking the diagnosis of a malignancy. However, logic dictates that if a woman does have a malignancy causing thrush-like symptoms, these are unlikely to be the only symptoms and so the product information and/or interaction in the pharmacy should alert her to the necessity for a doctor's advice. If she does treat inappropriately, treatment is certain to fail - subsequent presentation would be identified as treatment failure or recurrent disease and the patient referred to a doctor. Bayer has demonstrated that even Pharmacy Assistants are already well-aware that recurrent disease and treatment failure suggest the patient should be referred to a doctor (see Part B, Section 3).

### 1.1.2 Other Influencing Factors

Having correctly diagnosed an occurrence of vaginal thrush, there are a number of other factors women should consider before deciding the self-treat. All of these factors are relatively easy to identify and are listed on the proposed product labelling – they are:-

- Are they pregnant?
- Are they under 18 years of age?
- Have they had vaginal thrush before?
- Have they had 3 or more thrush infections in the last 6 months?

In all cases, patients should see a doctor before treatment. None of these factors is difficult to identify, the primary difficulty being in remembering to take each one into account. Bayer considers the proposed improvements to the Canesten vaginal thrush range labelling, the proposed Pharmacy Assistant training and the proposed implementation of the Thrush Recommendation Tree as an aid to decision-making adequately deal with these issues. They provide a level of comfort that these factors will be taken into account when consumers and

Pharmacy Assistants are considering the appropriateness of initiating vaginal thrush treatment.

Of these additional influencing factors, the issue of recurrent infection may pose some challenges for Pharmacy Assistants (as it does now for Pharmacists?). Symptoms of vaginal thrush make women miserable, uncomfortable, embarrassed and frightened (6) – they cause physical and psychological distress. Because of these factors, some women are reluctant to reveal that they suffer regular episodes of the disease and may actively avoid doing so. Such behaviours can be difficult to deal with, although careful questioning and empathy with the customer may be of assistance. Pharmacy Assistants are well aware that recurrent disease requires referral to a doctor (see Section 3) and some also claim that customers feel more comfortable talking to a Pharmacy Assistant than to a Pharmacist – this may be due to issues of the sex of the Pharmacist versus a female Pharmacy Assistant, the amount of time a Pharmacist has available and the relatively maturity of Pharmacy Assistants. For these reluctant or difficult customers dealing with a health professional might be considered challenging or even intimidating, whereas interaction with a Pharmacy Assistant may well represent a safer, more reassuring and more relaxed situation in which they feel they can reveal all the facts of their disease. Women need to feel comfortable discussing personal issues – trust and a lack of judgement are essential to provide such comfort (6). Provided they have sufficient tools available to help them (such as the Thrush Recommendation Tree) Pharmacy Assistants are well-placed to create a positive environment for helping women deal appropriately with their vaginal symptoms, whether this be treatment, referral to a Pharmacist or referral to a General Practitioner. While clearly a Pharmacist needs to be available if required, Bayer proposes that a Pharmacist does not need to be involved in every sale of a vaginal thrush product, and these products are suitable for reclassification to Pharmacy Medicines.

## **1.2 The Risk of Underlying Disease**

In addition to accurate diagnosis of symptoms and taking account of other influencing factors, the risk of other underlying diseases must be considered. Three areas need to be considered – the diabetic patient, the immunocompromised patient and the patient with mixed infections.

### **1.2.1 Diabetes**

There appears to be some uncertainty regarding the association between diabetes and recurrent vaginal thrush. While it is generally thought that women with undiagnosed or poorly controlled diabetes may be more susceptible to vaginal thrush (13), there is some thought that very few cases of recurrent vaginal thrush can be attributed to this disease (2). Bayer agrees with the Medicines Classification Committee that “As diabetes presented with a number of other symptoms, masking of the condition was not considered to be a major risk”.

Because there is the possibility that recurrent thrush might be a symptom of diabetes, a specific warning about diabetes has been added to the proposed product labelling (see Part A). Additionally, for those patients with poorly controlled diabetes, Bayer plans to modify the wording of the current pack insert to further explain this possibility and the clear need to see a doctor in the case of recurrent thrush in diabetic women. Please see Appendix 4 for the proposed pack insert – the changes compared to the current pack insert are clearly marked.

### **1.2.2 Immunocompromised Patients**

Patient’s immune systems can be affected by disease (e.g. HIV/AIDS) or medication (e.g. chemotherapy, radiation therapy). These patients become more susceptible to recurrent thrush (11,13).

While it would be expected that such patients are already receiving regular care from a health professional, the pack inserts of the Canesten vaginal thrush products will be changed to mention this possibility (see Appendix 4) and the appropriate course of action.

### **1.2.3 Mixed Infections**

Even for general practitioners, mixed infections (say vaginal thrush with bacterial vaginosis) can be difficult to positively identify and treat. However, mixed vaginal infections would not respond to single therapy, and the patient will present as having recurrent disease and should at that stage be referred to a doctor for further diagnosis. Bayer has shown that Pharmacy Assistants are already aware of recurrent disease as a trigger for referral to a Pharmacist or General Practitioner (see Section 3.1), and the proposed training module would greatly increase this awareness.

While there are many scenarios where the occurrence of vaginal thrush may indicate the existence of underlying problems, the incidence of these other problems is relatively small (2, 7) compared to the incidence of women suffering from uncomplicated vaginal thrush (11). Furthermore, for diabetes and immunocompromise, very few of these patients will have their underlying problems expressed solely as occurrence of recurrent vaginal thrush. While retention of the current classification of Pharmacist Only Medicine has potential to identify these patients, by no means would all of them be identified. This potential benefit for a relatively small number of patients must be weighed against the benefit available for the vast majority of women experiencing uncomplicated vaginal thrush that the reclassification to Pharmacy Medicine offers – convenience, ease of access to product information through having the products' on shelf, ability to survey the range of products available, ability to evaluate products according to their own criteria (e.g. cost comparison), and in some cases avoidance of embarrassment, privacy, feeling in control of their treatment and empathy with the person they are dealing with (6). While from a purely clinical perspective these factors may seem trivial, for the consumer they can be of major importance, and much improved outcomes can result if these factors are “right”.

In general, women want to preserve their ability to function using minimal procedures and personal resources (6), and reclassification of clotrimazole vaginal thrush products to Pharmacy Medicine would represent a move towards meeting these desires while retaining an appropriate level of supervision through Pharmacy Assistants in all cases, and Pharmacists as required.

Additionally, women are already aware of many of the factors that need to be considered when contemplating self-treatment for vaginal thrush. Two of the primary influences on women's self-treatment decision-making process are symptom characteristics and prior experience with self-treatment (6) - these are the same two primary characteristics that a health professional would be expected to consider.

## **2. Labelling**

In August 2006, consumer testing of the new labelling format proposed in Part A was carried out by the Communication Research Institute of Australia (CRIA) in Australia. The CRIA methodology is such that it assesses whether consumers can identify relevant information and, more importantly, having identified it

assesses whether consumers can assimilate the information and act appropriately in order to use the product correctly.

In order to determine whether consumers understood the labelling and could accurately determine whether the product was suitable for use and what action was needed, Bayer commissioned CRIA to carry out testing on the Canesten vaginal product proposed labels and CMI with both consumers and pharmacy assistants using a one-to-one interview process. Interviews took between 30 and 45 minutes each. A complete copy of both research reports can be found in Appendices 5 and 6 respectively.

The benchmark aimed for in label testing is that anyone using the labels should be able to find at least 90% of what they are looking for, and then appropriately act on (i.e. understand) 90% of what they find. This gives a rating of 81% as a benchmark (i.e. 90% x 90% = 81%).

A summary of the performance results from the testing carried out on the revised Canesten labels (see below) shows that the labels had an overall benchmark performance of 90% - well above the 81% benchmark aimed for. This means that consumers were able to find 95% of what they were looking for and then understand 94% of what they found (95% x 94% = 90%). They were able to find things easily 87% of the time.

**Table 3: Summary of Label Test Results**

	<b>% Find</b>	<b>% Find Easily</b>	<b>% Find Difficulty</b>	<b>% Correct</b>	<b>% Find x Correct</b>	<b>Above Benchmark</b>
<b>Consumer</b>	95%	87%	13%	94%	90%	8/10
<b>Pharmacy Assistants</b>	95%	92%	8%	95%	90%	4/5

Individual scores for consumers ranged from 71% to 100%. Eight of a possible ten consumers and four out of five pharmacy assistants that participated in the testing were able to use the labels to perform the tasks asked of them at or above benchmark.

Both pharmacy assistants and consumers were positive about the labels, with the few negative comments relating to the prominence given to the generic name



'clotrimazole' and the use of the word 'pessary' which many consumers were unfamiliar with. However, the patient information leaflet gives clear instructions, including pictorial information, on the insertion of the pessary and application of the cream (including instructions that the products are not to be taken by mouth) which should address any unfamiliarity with the term 'pessary'.

As well as testing the labels for usability, a range of questioning techniques were applied to determine if the labels could be used for the task of differentiation between formats within the brand. Some recommendations were made following the testing about the cream products to clearly state they are designed for internal use and to highlight that a pessary is something that is 'inserted'. Highlighting of certain statements on the pack to make them stand out more was also suggested. However, CRIA disagreed with one comment to make the 'seek medical advice' section stand out more, because the test results indicated this was not a problem and that most people tested were able to identify this part.

The task of finding and understanding the warnings regarding the use of the product in the event of three or more infections in a 6 month period was performed with a 100% success rate by consumers and pharmacy assistants. This suggests that where a consumer had been successfully using clotrimazole to treat the symptoms of vaginal candidiasis, but had recurring episodes because of a serious underlying condition such as diabetes, they would seek professional advice. This should allay concerns expressed by MCC about continued episodes of vaginal thrush occurring as a result of an underlying serious problem such as Chlamydia or diabetes.

At the end of testing, CRIA confirmed that the new labels performed well in testing with an overall benchmark of 90% achieved with both consumers and pharmacy assistants.

### **3. Pharmacy Assistants**

#### **3.1 Current Status**

In the Minutes of the 35<sup>th</sup> Meeting of the Medicines Classification Committee, a number of assertions were made regarding the current situation for dispensing vaginal thrush products in pharmacy. Comments made were that a reasonable number of consumers currently seeking treatment for thrush in pharmacies were being referred to their doctor, a significant number of sales were declined,

pharmacy assistants are keen for greater involvement in the sale of medicines and younger pharmacy assistants might not have the necessary experience to deal with insistent or reticent customers (see Appendix 1).

Bayer wished to test and quantify these concepts, and assess the current suitability and readiness of Pharmacy Assistants to take a greater role in managing customers for vaginal thrush products. To meet this objective, in December 2006 a New Zealand-wide telephone survey of 200 pharmacy assistants was undertaken, all of whom had at least 2 years experience and were responsible for the sale of OTC medicines. As an aside to this research, the number of Pharmacy Assistants with less than 2 years experience was assessed and was found to be approximately 10% of all Pharmacy Assistants – thus, a relatively small number of Pharmacy Assistants would be considered “inexperienced”. All Pharmacy Assistants were female, and they tended to be a relatively mature group, with 69% being over 30 years of age, and a further 28% being 21 – 29 years. Three-quarters of the sample (75%) had 5 or more years experience. A picture emerges of Pharmacy Assistants as being mature females, experienced in their work.

### **3.1.1 Referral to Doctors**

Just over one quarter (26%) of Pharmacy Assistants had experience of a Pharmacist declining a customer a vaginal thrush treatment product in the last 6 months, the dominant reasons being suspected incorrect diagnosis, recurrent problem, first episode of vaginal thrush, under 18 years of age and pregnancy. On a weighted average basis this appears to occur about once a month across all pharmacies.

Thus, within Pharmacy Assistant’s experience, refusal to supply a treatment and/or referral to a doctor is a relatively uncommon but still familiar outcome for customers. This knowledge is important to Pharmacy Assistants, as it provides a precedent for them to initiate the same outcome.

### **3.1.2 Current Behaviour and Knowledge**

Pharmacy Assistants already have considerable knowledge of the symptoms of vaginal thrush, with most identifying itching (95% unprompted, 100% prompted), a thick white curd-like discharge (54% unprompted, 92% prompted), redness/swelling of the vagina (10% unprompted, 85% prompted) and a burning sensation (22% unprompted, 79% prompted) as likely symptoms. Skills for differential diagnosis are not so well-established, with Pharmacy Assistants also associating with vaginal thrush a bad-smelling discharge (27% unprompted, 79% prompted), a thin creamy-white or grey discharge (0% unprompted but 71%



prompted), a discharge with a fishy odour (0% unprompted but 63% prompted) and a lot of yellow discharge (10% unprompted but 54% prompted). When listing the symptoms they identified with vaginal thrush, Pharmacy Assistants were largely accurate – however, they were confused by prompting for inappropriate symptoms, demonstrating a lack of certainty and allowing themselves to be led by the interviewer. While it is somewhat disappointing that this confusion currently exists amongst Pharmacy Assistants, it must be remembered that at the moment Pharmacy Assistants are not responsible for this therapeutic area and so gaps in their knowledge could be expected. Additionally, the knowledge of this key deficiency provides an excellent focus for training to boost confidence and encourage Pharmacy Assistants to differentiate between vaginal thrush and other diseases that cause vaginal symptoms.

Over three quarters (76%) of Pharmacy Assistants already have some involvement in “screening” customers, asking the customer questions about their condition when approached about vaginal thrush. The most frequently asked questions (unprompted) were about symptoms experienced (58% of those that ask questions), length of time they have had the symptoms (41%), frequency of vaginal thrush infections (40%), other medications (40%), is it the first time the customer has had vaginal thrush (33%) and what has been used before to treat vaginal thrush (23%). Other questions were also asked, but by fewer of the respondents – all were appropriate for the condition. When questioned about why they were making these enquiries, almost half (44%) of these Pharmacy Assistants stated spontaneously that symptoms could mean other conditions similar to vaginal thrush. Clearly, Pharmacy Assistants understand the issues pertaining to vaginal thrush and the types of questions that should be asked.

More than half (59%) of the Pharmacy Assistants spoken to already suggest treatment products to customers.

When asked the circumstances under which referral to a doctor would be suggested, Pharmacy Assistants gave appropriate answers such as recurrent thrush (50% unprompted, 99% prompted), first episode of thrush (25% unprompted, 61% prompted), lack of response to treatment (21% unprompted, 95% prompted), pregnancy (16% unprompted, 88% prompted), inappropriate symptoms (12% unprompted, 95% prompted) and discharge with strong odour (12% unprompted, 80% prompted). Other circumstances mentioned on prompting were ulcers or blisters on the vulva or vagina (95%), sick or have fever (95%), painful intercourse (91%), previous adverse effects (91%) and poorly controlled diabetes (87%).

These results demonstrate that currently Pharmacy Assistants have an excellent base of knowledge about vaginal thrush, and are well-positioned to take on additional responsibilities in this area provided they are given appropriate training and support. Furthermore, Pharmacy Assistants are aware that the Pharmacist

is present to support their activities and where uncertainty exists the Pharmacist can be referred to (see next section).

### **3.1.3 Training**

A relatively small group of assistants (17%) had received training on vaginal thrush in the last 12 months. This is consistent with Bayer's knowledge of training in the market place over this period, which is that Bayer were undertaking limited training and no other companies were conducting training during that time.

Training made a significant impact on Pharmacy Assistants. Those that had training in the last 6 months rated their current knowledge of vaginal thrush at 8.41 on average (where 1 is very poor and 10 is excellent) compared to 6.92 for all Pharmacy Assistants. They rated their current confidence counselling a customer about vaginal thrush at 7.71 compared to 6.05 for all Pharmacy Assistants, and rated their confidence in recommending a vaginal thrush treatment at 8.81 compared to 6.31 for all Pharmacy Assistants.

Eighty percent (80%) of Pharmacy Assistants were willing to be more involved in selling vaginal thrush treatments, and only 6% were unwilling. Almost one third (31%) spontaneously stated that they would need more training in order to become more involved, demonstrating a high level of receptiveness and perceived benefits from training. Other unprompted reasons given were that the respondents felt they have the experience and confidence to sell the products (19%), customers are more comfortable with an assistant/woman (14%), it would allow them to save the Pharmacist time and reduce pressure on the Pharmacist (12%) and they can always refer to the Pharmacist if there is any uncertainty (11%).

Training is perceived by Pharmacy Assistants as having considerable impact on their skill levels. While only 40% of assistants felt comfortable dealing with customers who insist on a certain product and 84% were comfortable dealing with customers who were shy or did not want to talk about their condition, these figures improved to 66% and 87% respectively on the condition that the respondents receive training.

Overall, the survey demonstrated that there is a high level of readiness amongst Pharmacy Assistants to take on further responsibilities in the area of vaginal thrush. This readiness is supported by good levels of knowledge about the disease, most of which is accurate and appropriate. While some areas of knowledge could be improved, these have been identified and training can attend to the deficiencies. Pharmacy Assistants perceive that they could help both the customer and the Pharmacist by taking on additional responsibilities in this area.

## 3.2 Pharmacy Education

A key part of the successful consumer selection of clotrimazole, in addition to effective labelling, would be the information available to and knowledge of Pharmacy Assistants and their ability to ensure the consumer has selected the product appropriately, or alternatively identify that more specialised advice is required and refer to the Pharmacist.

Bayer has developed a range of educational materials to help pharmacy staff assist the customer in their product decision-making and selection (see Appendices 7 and 8). These materials have been endorsed by the Pharmaceutical Society of Australia and the Pharmacy Guild of Australia. Prior to the June 2007 meeting of the Medicines Classification Committee, Bayer plans to modify these materials slightly to make them specific for New Zealand and then present them to the relevant New Zealand pharmacy representative bodies (The Pharmacy Guild, The Pharmaceutical Society and the Pharmaceutical Council) with the aim of gaining similar support in this country.

The materials presented will be used for both face-to-face presentation training and remote access training through electronic media such as audio-visual presentation and the Internet. Of the approximately 980 pharmacies in New Zealand, Bayer plans to conduct face-to-face training with the largest 600 pharmacies, and provide remote access training to the other 380. All training, including remote access, would be monitored through the return, post-training, of the vaginal thrush management programme quiz (See Appendix 8).

### ***Initiative 1 – Vaginal Thrush Management Programme***

This module is a Pharmacy Self Care recognised education and training activity and covers topics such as identifying what vaginal thrush is, what causes it, relevant risk factors, what are the main symptoms, common myths about the disorder and how to treat thrush. It uses the Pharmaceutical Society of Australia's CARER protocol (i.e. check, assess, respond, explain, record) and provides ways to assist customers make an appropriate treatment choice for vaginal thrush. The module includes several typical and atypical case studies to help the Pharmacy Assistant identify where thrush treatment might be appropriate.

A copy of the training module is provided in Appendix 7. It can be seen that the focus of the training is on vaginal thrush and its treatment rather than specifically on Canesten – this allows the information to be used for all vaginal thrush products regardless of branding.

## **Initiative 2 – Thrush Recommendation Tree**

The training includes a Thrush Recommendation Tree (see Appendix 8). This is produced as a ‘leave behind’ item for on-going use by the Pharmacy Assistant.

The tree is an easy-to-follow algorithm format which firstly asks if the customer is under 18 or over 60. A ‘Yes’ response prompts the assistant to refer the customer to their doctor. Subsequent questions ask:-

Has the customer had thrush before?

- if No, refer to a doctor
- if Yes, was previous treatment successful?
  - If No, refer to a doctor
  - If Yes, what symptoms is the customer is experiencing?
    - Some responses will prompt a referral to a doctor i.e. odour, yellow/green discharge, abnormal bleeding, blisters, lower abdominal pain, fever and chills
    - If symptoms are descriptive of thrush (itching, soreness, white cheesy odourless discharge), how often the customer has experienced thrush in the past 6 months?
      - If three or more times refer to a doctor
      - If less than 3 times ask the customer about any medications they are on or their diabetic status and whether they are pregnant or breastfeeding

The tree advises that referral to a Pharmacist is necessary if the Pharmacy Assistant is in any doubt as to the application of the tree, or for dispensing any Pharmacist Only Medicine oral treatments for vaginal thrush. The training also includes a leave behind booklet for reference by the Pharmacy Assistant if required (see Appendix 8 for proposed text).

As has been previously discussed, diagnostic accuracy for vaginal thrush can be greatly improved by providing women (consumers and Pharmacy Assistants) with information to increase their knowledge about vaginal symptoms and educating them that other possible diagnoses exist (6) and assistance from a health professional should be sought in these instances. The Thrush Decision Tree is designed as an integral part of this process, as it assists women to assess the seriousness of their symptoms and differentiate between those that can be self-treated and those that require the input of a health professional.

## **APPENDICES**

### **Appendix 1**

Minutes of the 35<sup>th</sup> Meeting of the Medicines Classification Committee

### **Appendix 2**

NDPSC Evaluation Report 2006 and Bayer company response

### **Appendix 3**

Clotrimazole – Summary Bridging Report

### **Appendix 4**

Draft Proposed Pack Inserts

### **Appendix 5**

Report – Benchmark Testing of Bayer Canesten Labels, CRIA 2006

### **Appendix 6**

Report – Benchmark Testing of Bayer Canesten Consumer Medicine Information, CRIA 2006

### **Appendix 7**

Pharmacy Assistant's Training Programme – the Vaginal Thrush Management Program

### **Appendix 8**

Thrush Recommendation Tree and other training aids

## **REFERENCES**

1. Fischer G. Treatment of Vaginitis and Vulvitis. *Aust. Prescriber*, 2001; **24(3)**: 59-61
2. Dennerstein G. The Treatment of Candida Vaginitis and Vulvitis. *Aust. Prescriber*, 2001; **24(3)**: 62-64
3. Welsh B et al. Vulval Itch. *Aust Fam Phys* 2004; **33(7)**: 505-510
4. Andersen MR et al. Evaluation of Vaginal Complaints. *JAMA* 2004 **291(11)**: 1368-79
5. Reviews of the Andersen article above by Doust J, *J Fam Pract* 2004 **53** No.6 448-9, and Arroll B 2005 *NZFP* **32(1)**: 61
6. Theroux R. Factors Influencing Women's Decisions to Self-Treat Vaginal Symptoms. *J Am Ac NP* 2005; **17**:156-162
7. Sexually Transmitted Infections in New Zealand Annual Surveillance Report, April 2006
8. Perkins N, Roberts A. Management of Chlamydia and Gonorrhoea in Primary Care *NZFP* 2004 **31(6)**: 402-8
9. Diagnosis of Chlamydia from [www.hpa.org.uk](http://www.hpa.org.uk), 2006
10. General Information - Gonorrhoea from [www.hpa.org.uk](http://www.hpa.org.uk)
11. McGuire T. Thrush *Aust Pharmacist* 2005 **24(8)** 610-1
12. Sparrow MJ Abnormal Vaginal Discharge *NZFP Issues* April 2001
13. Hieronymus L Humphries K Vaginitis *Diabetes Self-Management* 2002 **19(6)**: 131-7
14. Owen MK Clenney TL Management of Vaginitis *Am Fam Phys* 2004 **70(11)**: 2125-32