4. RESULTS AND DISCUSSION

4.1. Doctors Case-Load

On average, GPs had more than 3 times as many patients compared to the Specialists (950 vs 285 patients) in an average month (Figure 1). Mean scores and standard errors are presented in Appendix 2. However, Specialists saw more BPH patients than GPs. On average Specialists managed 82 patients compared to 10 by GPs (Figure 2, Appendix 3).

Of all the BPH patients reported, nearly a third were newly diagnosed cases. Specialists treated on average 28 newly diagnosed cases as compared to 3 by GPs (Figure 3, Appendix 4), whereas most of the remaining patients were repeat cases (Figure 4, Appendix 5). These results indicate that the market is promising for a new market entrant. These results are also indicative that GPs will be less familiar with the treatment of BPH compared to the Specialist, as was the case with studies on renal deficiencies (Vandermerwe and Taishoff, 2000).

The data shows that Specialists regularly managed an average of 216 BPH patients whereas GPs managed only 10 BPH cases (Figure 5, Appendix 6). It was clear that Specialists received a higher percentage of BPH patient referrals than GPs in a typical month (65% vs 0%; Figure 6, Appendix 7). Patient referrals were from GPs (38%), hospital based internists/physicians (36%) and others (26%), (Figure 7, Appendix 8). It was very common for GPs to refer their BPH patients to other physicians (Figure 8, Appendix 9). On average, GPs referred 33% of their BPH patients to other physicians, of which all of them were referred to Specialists.
Figure 1: Average number of patients seen in a month

Mean: GPs = 950  Specialists = 285
Figure 2: Number of BPH patients seen in a month

Mean: GPs = 10  Specialist = 82
Figure 3. Number of newly diagnosed BPH patients seen in a month

No. of Patients

<table>
<thead>
<tr>
<th></th>
<th>GPs</th>
<th>Specialist</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td>1-2</td>
<td>6</td>
<td>48</td>
</tr>
<tr>
<td>3-4</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>5-6</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>7-8</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>9-10</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>11 or above</td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

Mean: GPs = 3  Specialist = 28
Figure 4. Number of repeat cases seen in a month

No. of Patients

- GPs
- Specialist

% of Respondents

0 1-2 3-4 5-6 7-8 9-10 11-30 31-50 51-70 71-90 91 or above

Mean GPs = 6 Specialist = 48
Figure 5. Number of patients regularly treated for BPH

No. of Patients

<table>
<thead>
<tr>
<th>Group</th>
<th>1-5</th>
<th>6-10</th>
<th>11-30</th>
<th>31-50</th>
<th>51-100</th>
<th>101-150</th>
<th>151-200</th>
<th>201 or above</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPs</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>14</td>
<td>14</td>
<td>21</td>
<td>27</td>
</tr>
<tr>
<td>Specialists</td>
<td>43</td>
<td>30</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mean: GPs = 10  Specialists = 216
Figure 6. Percentage of patients referred by other physicians

Mean: GPs = 0%  Specialists = 65%
Figure 7. Sources of referrals

- Geriatricians: 20%
- GPs: 38%
- Internist/physicians: 36%
- Others: 5%

Legend:
- GP (private clinics)
- Urologists
- Geriatricians
- Internists/physicians (hospital based)
- Others
Figure 8. Percentage of patients referred to other physicians

<table>
<thead>
<tr>
<th>% of Patients</th>
<th>GPs</th>
<th>Specialists</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>17</td>
<td>94</td>
</tr>
<tr>
<td>1 - 10</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>11 - 20</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>21 - 30</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>31 - 40</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>41 - 50</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>51 - 60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>61 - 70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>71 - 80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>81 - 90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>91 - 100</td>
<td>13</td>
<td>13</td>
</tr>
</tbody>
</table>

Mean: GPs = 33% Specialists = 1%
4.2. Diagnosis and Patient Classification

The Specialists saw far more severe BPH patients than GPs due to their specialty in that area (Figure 9, Appendix 10). The average percentage of severe cases of patients seen by the Specialists' was much higher than GPs (23% vs. 10%). However, it was evident that for mild cases, GPs see a higher percentage of patients than the Specialists (55% vs 41%), (Figure 9, Appendix 10). For moderate cases, both GPs and Specialists see approximately the same percentage of patients (35% vs. 36%).

4.3. Choice of Treatment Options

On average a considerable proportion of BPH patients were monitored by observation or watchful-waiting only (31% GPs 26% Specialists; Figure 10, Appendix 11). The high proportion of patients who received watchful waiting corresponds well with the large proportion of mild cases reported. However, drug therapy was the most common and widely used treatment option initiated (57% GPs 48% Specialists). Apart from drug therapy, Specialists had a greater tendency to resort to surgical treatment (20%) compared to GPs (7%).
Figure 9. Percentage of BPH patients classified as mild, moderate or severe

Mean % of Patients

- Mild: 55 (GPs), 41 (Specialists)
- Moderate: 35 (GPs), 36 (Specialists)
- Severe: 10 (GPs), 23 (Specialists)
Figure 10. Percentage of patients on various treatment options

- Drug therapy
- Watchful waiting
- Surgery
- Drug therapy & surgery
- Minimally invasive treatment

<table>
<thead>
<tr>
<th>Treatment Option</th>
<th>Percentage of Specialists</th>
<th>Percentage of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug therapy</td>
<td>48</td>
<td>7</td>
</tr>
<tr>
<td>Watchful waiting</td>
<td>31</td>
<td>26</td>
</tr>
<tr>
<td>Surgery</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>Drug therapy &amp; surgery</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Minimally invasive treatment</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
4.4. Drug Therapy

4.4.1. Follow-up visits for drug therapy

Of all patients given drug therapy, a significant proportion returned for follow up treatment after their first visit (Figure 11, Appendix 12). About 75% of patients treated by GPs and 85% treated by Specialists returned for follow up treatment. This is a good indication of the high level of patient compliance.

4.4.2. Factors influencing drug selection

In general the physicians took into account both drug and patient related factors when deciding on a drug for treatment. It was evident that a number of drug and patient related factors influence decision in drug selection (Figure 12, Appendix 13). Important drug related factors were efficacy, safety profile and price, while patient related factors were patient tolerability and symptom severity.

Efficacy, safety profile, price, patient tolerability and severity of symptoms had the most impact on the choice of drug therapy with scores of 7 or more for both GPs and Specialists (Figure 12). Branthwaite and Bruggemann (1996), also observed fairly high customer expectations for similar 'quality' factors with respect to antibiotics amongst European populations. Specialists tended to stress more on the safety profile of the drug, blood pressure condition and age, while GPs showed greater concern over severity of symptoms compared to Specialists.
Figure 11. Percentage of patients on follow-up drug therapy

Mean: GPs = 75%  Specialists = 85%
Figure 12. Relative importance of factors influencing choice of drug therapy

- Severity of symptoms
- Efficacy
- Tolerability
- Safety profile
- Price
- Speed of onset of action
- Patients financial situation
- Blood pressure of patient
- Age
- Patients ability of administration
- Patients choice

Mean Rating Scale

1 = Not Important  10 = Very Important
4.4.3. Current usage of commonly prescribed drugs

4.4.3.1 Physician preference

It was evident that all three commonly used products were rather widely prescribed by both GPs and Specialists (Figures 13, 14). In general the percentage of drugs currently prescribed by Specialists were much higher than that by GPs (Figures 13, 14). However, Product Y which is the product of interest to Company A, was the second most common drug currently prescribed by Specialists (80%; Figure 14).

4.4.3.2 Proportion of patients treated with particular products

Product X was the most widely used drug currently prescribed for BPH (Figures 13, 14, 15; Appendix 14). More than one third of BPH patients reported in this study currently used Product X. An average of 45% of patients were treated by GPs, whilst 51% of patients were treated by Specialists (Figure 15, Appendix 14). Pricing policy and earlier introduction may account for its wider use.

There was some variance between GPs and Specialists in the use of Product Y and Z. Specialists treated a higher proportion of patients with Products X and Y, while GPs treated a larger proportion of patients with Product Z (Figure 15). This appears to be contradictory to the popular belief that GP’s were ‘economic’ customers, as Product Z was the most expensive product. This pattern of usage may be due to the fact that Product Z was the oldest product in the market. Hence, familiarity of the product amongst physicians and patients may explain its popularity.
Figure 13. Drugs currently prescribed by GPs
Figure 14. Drugs currently prescribed by Specialists

- Product X: 100%
- Product Y: 80%
- Product Z: 70%

% of Respondents
Figure 15. Percentage of patients on each currently used drug
4.4.4. Prescription preferences of users and non-users of Product Y

The prescription pattern of current users and non-users of product Y are illustrated in Figure 16. Usage of Products X and Z amongst non-users of Product Y was much higher compared to users of Product Y. There was clearly a stronger preference to switch over to Products X and Z. The results indicate that Products X and Z were strong competitors to Product Y.

4.4.5. Reasons for most common and least common usage of a drug

4.4.5.1. Product X (Competitor product)

Of the current users of Product X, 60% claimed to prescribe the product most commonly because of one or more of the following as the main reasons (Appendix 15).

- Affordable/ Reasonable priced (45% GPs, 86% Specialists)
- Good efficacy (73% GPs, 14% Specialists)
- Convenience of once daily dosage (9% GPs, 86% Specialists)
- Safe to use (18% GPs, 29% Specialists)
- Familiarity and reliability (27% GPs)

Affordability was found to be the main common reason for both GPs and Specialists for using product X the most.
Figure 16. Percentage of current users and non-users of Product Y that receive alternative drugs in the market.
About 13% of users claimed to prescribe Product X the least for one or more of the following main reasons.

- Side effects (33% GPs, 33% Specialists)
- Inefficacy of symptomatic relief (33% GPs)
- Inconvenient dosage (33% Specialists)

4.4.5.2. Product Y (Product of interest)

Thirty-six percent of users of Product Y said that their usage of this product was higher than other products for BPH. The main reasons for prescribing Product Y the most include one or more of the following reasons (Appendix 15).

- Affordable/ Reasonable Priced (50% GPs, 50% Specialists)
- Good efficacy/ result (50% GPs, 50% Specialists)
- Safe to use (25% Specialists)
- Fast onset (25% GPs, 25% Specialists)
- Well-tolerated (25% GPs, 25% Specialists)

However, there was another 36% of users of Product Y who claimed that they prescribed this product the least when compared to other drugs currently prescribed because of one or more of the following reasons.

- Higher cost (33% GPs)
- Inconvenient dosage (33% GPs)
- Poor efficacy (33% GPs)
The proposed re-formulation of Product Y as a once daily treatment (as Product U) offers an excellent strategy to tackle the issue of inconvenient dosage and other patient related factors and thus improve market share. However, cost would still be a major consideration for most doctors, especially GPs.

4.4.5.3. Product Z (Competitor product)

Amongst the current users, only 20% claimed to prescribe Product Z the most compared to other products. They claimed good efficacy as the main reason for using Product Z the most (19%). None of the Specialists considered using product Z the most. This further confirms earlier findings that Product Z was more popular in the GP's market than that of Specialists.

A smaller number of respondents indicated convenient dosage, reliable brand name, safe to use, well tolerated and being applicable for hair loss treatment as some of the reasons for prescribing Product Z.

However, 38% of respondents voiced that they used Product Z the least when compared to other drugs, for the following reasons (Appendix 15).

Expensive (60% GPs, 40% Specialists)
Inefficacy in symptomatic relief (40% Specialists)
Inefficacy in cases with smaller prostate (80% Specialists)

There were contradictory responses towards efficacy of Product Z between GPs and Specialists. GPs prescribing Product Z considered it to be effective (100%) while all specialists who responded to this question indicated inefficacy (80%) as one of the reasons.
4.5. Expected change in future use of products under investigation

4.5.1. Product X (Figures 17, 18, 19; Appendix 16)

Although Product X was currently the most prescribed product, it is evident from Figure 17 that a significant percentage of doctors expected a decrease in future use (47% Specialists, 7% GPs) or do not expect to use it at all (23% GPs).

Respondents who did not consider an increase in the future usage of Product X however, also suggested that a further reduction in cost might potentially increase future usage of the product (56% GPs and 39% Specialists; Figures 18 & 19). More importantly, GPs further demanded to see an improved efficacy (61%; Figure 18) whilst Specialists highlighted the need for fewer side effects (52%; Figure 19). These were the major factors with respect to product X.

4.5.2. Product Y (Figure 17, 20, 21; Appendix 16)

The envisaged future usage of Product Y varied with level of specialization of physicians. A high proportion of GPs had no idea of the future usage of Product Y (23%). This may be due to lack of familiarity. As evident in Figure 17, a significant proportion of physicians expect their usage of Product Y to increase in the future (20% Specialists, 13% GPs) compared to products X and Z. Only 6% of Specialists expect increase in their usage of Product X, while none of the Specialists expect any increase in usage of product Z.
Figure 17. Expected change in the future use of Products X, Y and Z

- Don't Know
- Decrease
- Increase

GPs

<table>
<thead>
<tr>
<th>Product</th>
<th>Don't Know</th>
<th>Decrease</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>13</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>Y</td>
<td>13</td>
<td>8</td>
<td>23</td>
</tr>
<tr>
<td>Z</td>
<td>10</td>
<td>17</td>
<td>23</td>
</tr>
</tbody>
</table>

% Respondents

SPECIALISTS

<table>
<thead>
<tr>
<th>Product</th>
<th>Don't Expect to Use at All</th>
<th>Stay the Same</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>6</td>
<td>47</td>
</tr>
<tr>
<td>Y</td>
<td>7</td>
<td>46</td>
</tr>
<tr>
<td>Z</td>
<td>7</td>
<td>66</td>
</tr>
</tbody>
</table>

% Respondents
Figure 18. GPs response on factors that will increase future usage of Product X

- Most important
- Second Most important
- Third Most important

- Improved efficacy: 36, 17, 8
- Reduction of cost: 31, 13, 12
- Faster speed of onset: 11, 18
- Better safety profile: 11, 3
- Company Promotion: 4, 2
- Less side effects: 4, 7, 8
- Better dose titration: 4, 5
- Better tolerability: 14
- Ease of administration: 6, 12
- Better patient compliance: 4, 5
Figure 19. Specialists response on factors that will increase future usage of Product X

- **Less side effects**: Most important (25), Second most important (18), Third most important (9)
- **Reduction of cost**: Most important (26), Second most important (13)
- **Improved efficacy**: Most important (12), Second most important (14), Third most important (10)
- **Ease of administration**: Most important (7), Second most important (25), Third most important (11)
- **Better patient compliance**: Most important (7)
- **Faster speed of onset**: Most important (9)
- **Better safety profile**: Most important (13)
- **None**: Most important (23)
Figure 20. GPs response on factors that will increase future usage of Product Y

- **Most important**
- **Second most important**
- **Third most important**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Most Important</th>
<th>Second Most Important</th>
<th>Third Most Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction of cost</td>
<td>35%</td>
<td>4%</td>
<td>16%</td>
</tr>
<tr>
<td>Improved efficacy</td>
<td>24%</td>
<td>9%</td>
<td>11%</td>
</tr>
<tr>
<td>Ease of administration</td>
<td>9%</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>Expansion of BPH patient pool</td>
<td>9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less side effects</td>
<td>8%</td>
<td></td>
<td>29%</td>
</tr>
<tr>
<td>Faster speed of onset</td>
<td>7%</td>
<td>13%</td>
<td>9%</td>
</tr>
<tr>
<td>Better dose titration</td>
<td>5%</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>Company Promotion</td>
<td>4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Better patient compliance</td>
<td>12%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Better tolerability</td>
<td></td>
<td></td>
<td>15%</td>
</tr>
<tr>
<td>Better safety profile</td>
<td>7%</td>
<td></td>
<td>8%</td>
</tr>
</tbody>
</table>
Figure 21. Specialists response on factors that will increase future usage of Product Y

- **Reduction of cost:**
  - Most important: 42
  - Second most important: 13
  - Third most important: 12

- **Less side effects:**
  - Most important: 10

- **Better dose titration:**
  - Second most important: 8

- **Ease of administration:**
  - Third most important: 18

- **Company Promotion:**
  - Second most important: 9

- **Improved efficacy:**
  - Most important: 42
  - Second most important: 13

- **Faster speed of onset:**
  - Most important: 9

- **Better patient compliance:**
  - Most important: 13

- **Better safety profile:**
  - Second most important: 12

- **None:**
  - Most important: 21

% of Respondents
In contrast, the anticipated increase in usage of Product Y by GPs was lower (13%), compared to the expected increase in their usage of Product Z (23%). A more important observation was that 23% of GPs responded that they do not expect to use Product X or Y at all in the future.

Although the use of Product Y appears to be more promising in the Specialists market (Figure 17), there was also a significant proportion of Specialists who expect a decrease in their future usage (20%) or do not expect to use it at all (7%).

However, both GPs and Specialists clearly indicated that reduction in cost was the most important factor that will increase their future usage of Product Y (Figure 20 & 21), while in terms of efficacy and side effects Product Y has an edge over Product X (Figures 18, 19, 20, 21).

4.5.3. Product Z

As noted earlier, Product Z was more popular amongst GPs than Specialists (Figure 15). The strong association of Product Z amongst GPs was also reflected in the higher percentage GPs (23%) who expect increased usage of Product Z compared to Specialists who expect no future increase for the product (Figure 17).

However, the reduction of cost was by far the most important criterion for increase in their future usage of Product Z (Figure 22 & 23). Significantly higher number of respondents demanded a cheaper price for Product Z compared to the other two, while improved efficacy was the second most important factor that could encourage increased future usage of Product Z.
Figure 22. GPs response on factors that will increase future usage of Product Z.

- Reduction of cost: 83% (Most important), 12% (Second most important), 19% (Third most important)
- Improved efficacy: 12% (Most important), 20% (Second most important), 19% (Third most important)
- Less side effects: 8% (Most important), 17% (Second most important), 19% (Third most important)
- Faster speed of onset of action: 10% (Most important), 17% (Second most important), 19% (Third most important)
- Better tolerability: 10% (Most important), 11% (Second most important), 19% (Third most important)
- If Specialist used more: 5% (Most important), 11% (Second most important), 19% (Third most important)
- Better patient compliance: 5% (Most important), 9% (Second most important), 19% (Third most important)
- Ease of administration: 5% (Most important), 9% (Second most important), 19% (Third most important)
- Better safety profile: None
- None: 5%
Figure 23. Specialist response to factors that will increase future usage of Product Z

- **Reduction of cost**: 80% (Most important), 10% (Second most important), 13% (Third most important)
- **Increased patient number with enlarged prostate gland**: 57% (Most important), 7% (Second most important)
- **Less side effects**: 12% (Most important), 10% (Second most important)
- **Ease of administration**: 10% (Most important), 12% (Second most important)
- **None**: 7% (Most important)

% of Respondents
In general, reduction of cost and improved efficacy were the more important expectations for increasing future usage of all three products. The results of this study also clearly suggest that the market is most sensitive to price. Also, greater awareness of specific benefits in terms of efficacy through promotions could further increase consumer confidence and increase future usage.

4.6. Reasonable/Affordable pricing of once daily “Product U”.

It was evident that GPs were somewhat more price-sensitive than the Specialists. The optimum price per tablet for GPs was RM 1.10 with an acceptable price range between RM 0.85 and RM 1.85 (Figure 24). In contrast, the optimum price per tablet for Specialists was RM 1.40 with an acceptable price range between RM 0.85 and RM 1.55 (Figures 25).

However, it should be noted that all doctors were asked to estimate the price for an unknown hypothetical product with once daily dosage. In order to avoid bias, physicians were not shown any product profile of the proposed improved formulation. In reality Product U, with some comparative advantage in terms of 'quality' characteristics and the benefit of the once daily formulation, may be priced at a higher than the customer expected penetration price.

The appropriate price should fall within the price range between the highest reasonable price determined by what customers are willing to pay for the product in view of their perception of its value, and the lowest price what the company is willing to accept.
Figure 24. Market pricing and optimum price of new product per tablet based on GPs response

- Too cheap  - Reasonably priced  - Expensive, still using  - Too expensive to use

The price at which fewest respondents reject the product because it is too cheap or too expensive
RM 1.10

Point of Marginal Inexpensiveness
RM 0.85

Point of Marginal Expensiveness
RM 1.85
Figure 25. Market pricing and optimum price of new product per tablet based on specialists response

- ■ Too cheap  - ○ Reasonably priced  - ◊ Expensive, still using  - △ Too expensive to use

The price at which fewest respondents reject the product because it is too cheap or too expensive

RM 1.40

Point of Marginal Inexpensiveness
RM 0.85

Point of Marginal Expensiveness
RM 1.55

% of Respondents

0 10 20 30 40 50 60 70 80 90 100

0 0.25 0.5 0.75 1 1.25 1.5 1.75 2 2.25 2.5 2.75 3 3.25 3.5 3.75 4 4.25 4.5 4.75 5

Price