8th NATIONAL PHARMACY R&D CONFERENCE 2014

Quality R&D: Transforming Universal Excellence

10 - 12 JUNE 2014
GRAND BLUE WAVE HOTEL
SHAH ALAM

Organised By:
Pharmaceutical Services Division
Ministry of Health Malaysia

In collaboration with:
Malaysian Pharmaceutical Society
CONTENT

Foreword from the Honourable Minister of Health Malaysia ................................................................. 2
Welcome Message from the Director General of Health Malaysia .......................................................... 3
Welcome Message from the Senior Director of the Pharmaceutical Services, MOH Malaysia ................................................................. 4
Message from Chairman of Organising Committee ........................................................................... 5
Organising Committee & Sub-Committees ......................................................................................... 6
Chronology of National Pharmacy R&D Conferences 2002 –2014 .................................................. 8
Theme & Objectives ............................................................................................................................ 9
Conference Programme Outline ........................................................................................................ 10
Pre- Conference Workshop Programme ........................................................................................... 11
Conference Programme ....................................................................................................................... 12
Plenary Speakers & Synopsis of Plenary Presentations .................................................................... 15
Judges ................................................................................................................................................ 19
List of Oral & Poster Presentations .................................................................................................... 20
Compendium of Abstracts
  • Oral Presentations .......................................................................................................................... 29
  • Poster Presentations ...................................................................................................................... 71
Winners of 7th National Pharmacy R&D Conference 2012 ............................................................ 90
Acknowledgements ........................................................................................................................... 92
Location Plan ...................................................................................................................................... 93
Salam sejahtera and Salam 1Malaysia,

On behalf of the Ministry of Health Malaysia, I would like to extend our heartfelt congratulations to the Pharmaceutical Services Division, Ministry of Health for their efforts and dedication in organising the 8th National Pharmacy Research and Development Conference. I am glad to receive the invitation to officiate this biennial conference which brings together researchers to present the outcomes of their diverse research activities. The theme of this conference, Quality R & D: Transforming Universal Excellence is very much in line with the current situation in our country which is moving towards globalization. Hence, it is a necessity for products and services of the Ministry to fulfill quality specifications and is geared towards the national goal.

I am glad to note that pharmacists have contributed significantly to research and development and this fact can be ascertained from this conference that has been organised for the eighth time. I suggest that outcomes of all successful presentations are consolidated to derive new policy decisions applicable for improving service provision by pharmacists and other healthcare providers in our facilities. It is undeniable that the Ministry is ever evolving to strive for the betterment in the service provision to its customers.

I hope this conference will recognise new research talents who can be trained and inspired to lead future budding researchers. This is important because it is parallel with the objectives of the Entry-Point Project (EPP) 2 under Healthcare in the Economic Transformation Programme and the Country Health Plan: 10th Malaysian Plan 2011-2015, which is creating an ecosystem that supports the growth of clinical research and other health sector transformation. Pharmacists and other health providers must come together to contribute in research to achieve the ministry and country’s goals.

Once again, I congratulate the Pharmaceutical Services Division for taking the initiative to organise this conference.

Thank you.

YB DATUK SERI DR. S. SUBRAMANIAM
Minister of Health Malaysia
Assalamualaikum warahmatullahi wabarakatuh

Salam 1Malaysia

It gives me great pleasure to welcome all participants to the 8th National Pharmacy Research and Development Conference 2014. I am delighted that this biennial conference, jointly organised by the Pharmaceutical Services Division (PSD), Ministry of Health (MOH) and the Malaysian Pharmaceutical Society (MPS), reflects a successful public private partnership to achieve common goals towards betterment of health.

I am happy to note that the objectives of this conference are in accordance with the 67th World Health Assembly document, dated 25 Jan 2014, which stated that “support for research and development is important for the sustainable supply of future essential medicines, to address public health needs”. I sincerely urge researchers to focus on the National Health Research Priority Areas, as outlined by the MOH in the 10th Malaysian Plan. Based on research findings, the Ministry will be in a better position to formulate policies in healthcare for the general public.

It is encouraging to see the participation and involvement of multidisciplinary teams from MOH, members of the academia, both from the public and the private sectors, as well as local and international circles. I expect the participants will acquire a wealth of knowledge which can be implemented in their workplace. This ripple effect will ultimately support the Ministry’s efforts in preparing for a well-informed consumer on medicines and healthcare.

I would like to congratulate the PSD, MPS and the various committee and subcommittee, and all oral and poster presenters for making this conference a great milestone for the MOH this year.

Wassallam and thank you.

YBHG. DATUK DR. NOOR HISHAM BIN ABDULLAH
Director General of Health Malaysia
Assalamualaikum warahmatullahi wabarakatuh and Salam 1 Malaysia

First and foremost, I would like to express my highest and utmost gratitude to Allah s.w.t for granting us all, the chance and opportunity to hold the 8th National Pharmacy Research and Development (R&D) Conference, 2014. This event would not be a success without the co-operation, co-ordination and hard work of everyone in the Pharmaceutical Services Division (PSD), MOH and the Malaysian Pharmaceutical Society. A special mention to the Selangor State Health Department for hosting this year’s event.

The theme for this year, “Quality R&D: Transforming Universal Excellence” is the continuation of the previous conference. This is in line with the mission of fulfilling the country’s needs, in aiming towards becoming a developed country by the year 2020. Thus, all new R&D projects conducted by our pharmacists must be at par or better than the universal standards. Therefore, we must ensure that our findings are of high quality and standards, hence accountable and able to compete internationally. As the Head of Profession, I give my full support to address these challenges.

It is evident that the focus of this year’s conference is more on topics pertaining to clinical and pharmacy practice. This will certainly assist in promoting rationale prescribing and dispensing practices, as well as tackling pharmaceutical care issues in hospitals and clinics nationwide. With such emphasis and extensive R&D, I hope we will achieve the expected outcomes, satisfy our customers and assist in reducing costs.

It is encouraging that this conference has received good participation as affirmed by the large number of research applications received by the organising committee. It clearly indicates the interest of our pharmacists and other healthcare personnel in pursuing R&D activities. I hope research continues to be a culture among the pharmacists and other healthcare providers, so that the principle of continuous improvement, or kaizen, is applied at all levels of services. Therefore, I would urge everyone to give more attention towards the outcomes of research to improve the healthcare of the public at large.

Finally, my sincere thanks and gratitude to the Director of Pharmacy Practice and Development (PSD), the Organising Chairman of the main committee and all sub-committees for your perseverance and hard work in making this event a successful one. I hope that this conference will discover remarkable research products that will enable transformation of the pharmaceutical sector towards universal excellence.

Thank you.

YBHG. DATO’ EISAH BINTI A. RAHMAN
Senior Director of Pharmaceutical Services
Ministry of Health Malaysia
Assalamualaikum warahmatullahi wabarakatuh

Salam sejahtera.

I am honoured to welcome all speakers and participants to the 8th National Pharmacy Research & Development (R&D) Conference 2014, an outstanding event much awaited for in the pharmacy fraternity to commemorate the gathering of people presenting their research findings. The organising committee had chosen the vibrant city of Shah Alam to be the conference venue. This biennial conference is one of the most anticipating events in the calendar of the Pharmaceutical Services Division, Ministry of Health (MOH).

As the chairman of the organising committee, I am proud to announce that we had received many applications for both the oral and poster categories in this year conference. The scientific committee had diligently read those abstracts and had accepted 27 abstracts each for clinical pharmacy, pharmacy practice and others, in the oral presentation category. In the poster category, the committee had accepted 12 abstracts each in the categories mentioned. To bring our conference greater heights, we had decided to open up the conference to participants outside Ministry of Health, meaning the academia, industry, both local and abroad. To create a working research culture, we had also invited participation from doctors, nurses and other healthcare providers. Through this conference, we intend to capsulize the essence of quality R&D from these researchers for the benefit of all healthcare professionals.

I thank the Senior Director of Pharmaceutical Services Division, MOH for the support and the Director of Pharmacy Practice and Development, Pharmaceutical Services Division, MOH for the inspiration and constant motivation. I also would like to express my gratitude to the honorable judges for making their time to this conference, the distinguished speakers for their thoughts, the Deputy Director of Pharmacy Services, Selangor State Health Department, the organising main committee and sub-committees for the invaluable time and efforts to make this conference a big success.

May you achieve a fruitful conference!

Wassallam.

ABDOL MALEK BIN ABD. AZIZ
Organising Chairman
8th National Pharmacy Research and Development Conference 2014
### ORGANISING COMMITTEE

<table>
<thead>
<tr>
<th>Patron</th>
<th>Y. Bhg. Dato’ Eisah binti A. Rahman</th>
<th>Senior Director of Pharmaceutical Services, Ministry of Health Malaysia</th>
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</thead>
<tbody>
<tr>
<td>Conference Advisor</td>
<td>Dr. Salmah Bahri</td>
<td>Director of Pharmacy Practice and Development, Pharmaceutical Services Division MOH</td>
</tr>
<tr>
<td>Chairperson</td>
<td>Mr. Hj. Abdol Malek bin Abd. Aziz</td>
<td>Chief Pharmacist, Hospital Tuanku Ja’afar, Seremban</td>
</tr>
<tr>
<td>Co-Chairperson</td>
<td>Mdm. Zawiyah Mat Johor</td>
<td>Deputy Director of Pharmacy Services, Selangor State Health Department</td>
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<tr>
<td>Secretary</td>
<td>Ms. Siti Fauziah Abu</td>
<td>Senior Principal Assistant Director, Pharmaceutical Services Division MOH</td>
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<tr>
<td>Treasurers</td>
<td>Mr. Kamarudin Ahmad</td>
<td>Pharmacist U48, Hospital Miri</td>
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<td>Mr. Lam Kai Kun</td>
<td>General Manager, Malaysian Pharmaceutical Society</td>
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<tr>
<td>Event Managers</td>
<td>Mdm. Atia Hashim</td>
<td>Chief Pharmacist, Hospital Tuanku Fauziah</td>
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<td></td>
<td>Mr. Mazlan Ismail</td>
<td>Deputy Director of Prevention and Consumer Protection, MOH</td>
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### SUB-COMMITTEES

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<thead>
<tr>
<th>SUB-COMMITTEES</th>
<th>CHAIRPERSON</th>
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<tr>
<td>Secretariat</td>
<td>Ms. Mariam Bintary Rushdi</td>
<td>Ms. Mary Chok Chiew Fong</td>
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<td>Deputy Director of Pharmacy Development MOH</td>
<td>Ms. Chan Pui Lim</td>
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<td>Ms. Siti Fauziah Abu</td>
<td>Ms. Nik Nor Aklima Nik Othseman</td>
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<td>Senior Principal Assistant Director, Pharmaceutical Services Division MOH</td>
<td>Ms. Safura Sa’ad</td>
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<td>Ms. Nurfal Rahimah A. Rahim</td>
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<td>Ms. Suhaila Hashim</td>
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<td>Technical &amp; Logistics</td>
<td>Mr. Manzatul Azrul Azrie Sulaiman</td>
<td>Mr. Abdul Halim Abu Naim</td>
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<td>Principal Assistant Director Pharmacy Enforcement MOH</td>
<td>Mdm. Ferawati Asmi</td>
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<td>Datin Ainon Elony Othman</td>
<td>Mdm. Nur Azimah Mohd. Taman</td>
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<td>Senior Principal Assistant Director Selangor State Health Department</td>
<td>Mr. Brendan Su Hau Teck</td>
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<td>Mr. Helmi Hafiz Hashim</td>
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<td>Senior Principal Assistant Director, Pharmaceutical Services Division MOH</td>
<td>Mdm. Hasnizaran Hasan</td>
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<td>Mdm. Munira Muhammad</td>
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<td>Mr. Muhamad Syafiq Saleh</td>
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<td>Mdm. Hanisah Shafie</td>
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<td>Ms. Suzana Shamsuddin</td>
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<td>SUB-COMMITTEES</td>
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| Booth & Symposium       | Ms. Mariam Bintary Rushdi                         | Mdm Fuziah Abd. Rashid  
Mdm. Norma Abdullah  
Mdm. Zubaidah Che Embee  
Mdm. Halimatus Sa’diah Ahmad  
Mr. Parthiban A/L Sivalingam |
| Judges                 | Dr. Roshayati Mohammad Sani                      | Mdm. Aishah Hamzah  
Mdm. Hasnah Ibrahim  
Ms. Choe Jiun Yi  
Ms. Noor Atiqah Mat Yusoff |
| Pre-Conference         | Dr. Siti Noriina Md Said                         | Mdm Kamaliah Md Saman  
Mdm Basariah Naina  
Mdm Farizan Abdul Ghaffar |
| Programme              | Mdm. Zaiton Kamarruddin                          | Mdm. Noorul Aimi Daud  
Ms. Sarah Dyiana Shafie  
Mdm. Josephine A/P Henry Basil |
| Multimedia & Photography| Mr. Mazlan Ismail                               | Ms. Siti Fauziah Abu  
Mr. Mohd Dziehan Mustapa  
Mr. Rahman Baco  
Mr. Farhan Akmal Mohd Taha |
| Scientific & Compendium| Dr. Faridah Aryani Md. Yusof                      | Mdm. Rokiah Isahak  
Dr. Hasenah Ali  
Mr. Leong Weng Choy  
Dr. Lawrence Anak Anchah  
Dr. Liau Siow Yen  
Ms. Mary Chok Chiew Fong  
Mr. Abdul Haniff Mohd. Yahaya  
Mdm. Noorazlinda Yaacob  
Mdm. Yanti Nasyuhana Sani  
Mr. Chan Huan Keat |
| Oral Presentation      | Mr. Abdul Haniff Mohd. Yahaya                    | Mdm. Rokiah Isahak  
Mr. Leong Weng Choy  
Dr. Lawrence Anak Anchah  
Ms. Mary Chok Chiew Fong  
Mr. Chan Huan Keat |
| Poster Presentation    | Mdm. Noorazlinda Yaacob                          | Dr. Liau Siow Yen  
Mdm. Yanti Nasyuhana Sani |
| Registration           | Dr. Nour Hanah Othman                            | Mdm. Norhayatli Musa  
Mr. Mohd Shahril Mat Nordin  
Mr. Kamarudin Ahmad  
Mdm. Nabila Abdul Rahman  
Ms. Noor Izzana Abdul Razak  
Ms. Nurul Rahmah A. Rahim  
Ms. Suhaila Hashim |
| Plenary                | Dr. Hasenah Ali                                  | Ms. Nik Juzaimah Juhari  
Ms. Chan Pui Lim  
Ms. Nik Nor Aklima Nik Othman |
| Masters of Ceremony    |                                                  | Mdm. Hanisah Shafie  
Mr. Abdul Fatah Hambali  
Mr. Jegatheswaran Panderengen |

8th National Pharmacy R&D Conference, 10th – 12th June 2014
“Quality R & D: Transforming Universal Excellence”

7th National Pharmacy R&D Conference
Theme: “Pharmacy Research: New Frontiers towards the Nation’s Needs”

6th National Pharmacy R&D Conference

5th National Pharmacy R&D Conference
Theme: “Research for Evidences: Strategy to Enhance Medication Safety”

4th National Pharmacy R&D Conference
Theme: “Enhancing Drug Utilization: An Approach towards Quality Use of Medicine”

3rd National Pharmacy R&D Conference
Theme: “Quality Improvement through R&D”

2nd National Pharmacy R&D Conference
Tema: “Perkembangan R&D Farmasi: Isu dan Cabaran”

1st National Pharmacy R&D Conference
Tema: “Penerapan Budaya Penyelidikan Dalam Perkhidmatan Farmasi”

19th – 21st June 2012
The Zon Regency Hotel, Johor Bahru

14th – 16th June 2010
Bayview Hotel, Georgetown Penang

28th – 30th July 2008
Putrajaya Hospital, Putrajaya

28th – 30th November 2006
Legacy Hotel, Melaka

5th – 8th September 2004
Pan Pacific Hotel, Sepang, Selangor

22nd - 23rd September 2003
Holiday Villa, Langkawi, Kedah

5th – 7th August 2002
New Pacific Hotel, Kota Bahru, Kelantan
THEME & OBJECTIVE

THEME

“QUALITY R&D: TRANSFORMING UNIVERSAL EXCELLENCE”

OBJECTIVES

• To inculcate professionalism and quality in research

• To provide a platform for pharmacists and other health professionals to share their research findings through collaboration and networking

• To promote publication of research findings as evidence in practice and decision making
<table>
<thead>
<tr>
<th>10th June 2014 (Tuesday)</th>
<th>11th June 2014 (Wednesday)</th>
<th>12th June 2014 (Thursday)</th>
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<tbody>
<tr>
<td>Registration</td>
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<tr>
<td>(07:30 - 08:30)</td>
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<tr>
<td>Keynote Address</td>
<td>Plenary II</td>
<td>Oral Presentation (Final)</td>
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<tr>
<td>(08:30 - 09:15)</td>
<td>(08:30 - 09:15)</td>
<td>(08:30 - 10:00)</td>
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<tr>
<td>Plenary I</td>
<td>Oral &amp; Poster Presentation (Session II)</td>
<td>Plenary IV</td>
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<tr>
<td>(09:15 – 10:00)</td>
<td>(09:15 - 10:15)</td>
<td>(10:30 - 11:15)</td>
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<td>Break / Exhibition / Poster Viewing</td>
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<td>(10:00 – 10:30)</td>
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<td>Arrival of Honorary Guests</td>
<td>Welcoming Remarks</td>
<td>Multimedia Presentation</td>
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<td>(10:30-10:45)</td>
<td>(10:45 – 11:00)</td>
<td>(11:15 – 11:30)</td>
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<tr>
<td>Opening Ceremony &amp; Launching of 'My Blue Book'</td>
<td>Oral &amp; Poster Presentation (Session III)</td>
<td>Judges’ Comments, Announcement of Winners, Prize-Giving Ceremony</td>
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<tr>
<td>(11:00 – 12:00)</td>
<td>(10:30 - 12:15)</td>
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<td>Multimedia Presentation</td>
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<td>Closing Ceremony</td>
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<td>(12:00 – 12:15)</td>
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<td>VVIP Poster and Booth Viewing</td>
<td>Plenary III</td>
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<td>Lunch</td>
<td>Lunch Symposium II</td>
<td>Lunch &amp; Adjourn</td>
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<tr>
<td>(12:45 – 14:00)</td>
<td>(13:00 - 13:30)</td>
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<tr>
<td>Oral &amp; Poster Presentation – Session I</td>
<td>Oral &amp; Poster Presentation (Session IV)</td>
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<td>Break/ Poster Viewing</td>
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<td>Dinner Symposium I</td>
<td>Dinner Symposium II</td>
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<td>GALA Dinner</td>
<td>Dinner</td>
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<td>(20:15 - 22:00)</td>
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# Pre-Conference Workshop Programme

**Sunday, 8th June 2014**

<table>
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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>3:00 pm – 5:00 pm</td>
<td>Check-in</td>
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<tr>
<td>7:00 pm – 8:30 pm</td>
<td>Dinner <em>(Rebana Foyer)</em></td>
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**Monday, 9th June 2014**

<table>
<thead>
<tr>
<th>Time</th>
<th>Workshop/Session</th>
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</table>
| 8:00 am – 8:30 am | **Registration**<br>Workshop 1<br>Pharmacy Practice Research Publication<br>(Assoc. Prof. Dr. Mohamed Azmi Ahmad Hassali)<br>Workshop 2<br>Social Media for Research and Knowledge Sharing<br>(Mr. Hasnain Zafar Baloch)<br>Workshop 3<br>Medical Statistics for Research in Pharmacy<br>(Prof. Dr. Adinegara bin Lutfi Abas)<br>
| 8:30 am – 10:00 am | - The Joy of Writing Research Papers<br>- The Basics of Data Presentation and Analysis (Part 1)<br>(Rebana 2)<br>- Social Media for Research and Knowledge Sharing<br>- Social Curation Tools<br>(Rebana 1)<br>- Introduction to Data and Variables<br>- Data Presentation & Descriptive Statistics<br>(Kompang)<br>
| 10:00 am – 10:30 am | Tea Break *(Rebana Foyer)*<br>
| 10:30 am – 12:30 pm | - The Basics of Data Presentation and Analysis (Part 2)<br>- Key to Effective Writing: Research Paper Organization<br>(Rebana 2)<br>- Facebook & Twitter<br>- Blogs & Wikis<br>(Rebana 1)<br>- Session 1: Descriptive Statistics<br>- Session 2: Inferential Statistics<br>(Kompang)<br>
| 12:30 pm – 1:00 pm | Lunch Symposium I *(Rebana 1)*<br>
| 1:00 pm – 2:30 pm | Lunch *(Rebana Foyer)*<br>
| 2:30 pm – 5:00 pm | - Effective Writing Principles: Paraphrasing and Plagiarism in Research<br>- Hitting the Bulls Eyes: Targeting the Right Journal<br>(Rebana 2)<br>- Question & Answer<br>- Hands on<br>(Rebana 1)<br>- Session 3: Chi Square and Measures of Association<br>- Sample Size Calculation<br>(Kompang)<br>
| 5:00 pm – 5:30 pm | Tea Break & Adjourn *(Rebana Foyer)*<br>
## CONFERENCE PROGRAMME

### MONDAY, 9th June 2014

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>3:00pm – 6:00 pm</td>
<td>Check-in &amp; Registration (Dewan Perdana Foyer)</td>
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<tr>
<td>6:30 pm – 8:30 pm</td>
<td>Dinner (Dewan Perdana Balcony)</td>
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<tr>
<td>8:30 pm – 10:00 pm</td>
<td>Briefing for Presenters (Oral and Poster Presentations) (Dewan Perdana)</td>
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<td>Poster Presentation Set-up (Dewan Perdana)</td>
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<td>Briefing for Judges (Gasing 1)</td>
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### TUESDAY, 10th June 2014

<table>
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<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>7:30 am – 8:30 am</td>
<td>Registration (Dewan Perdana Foyer)</td>
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</table>
| 8:30 am – 9:15 am | Keynote Address  
YBhg. Dato’ Eisah binti A. Rahman  
Senior Director of Pharmaceutical Services, Malaysia (Dewan Perdana) |
| 9:15 am – 10:00 am| Plenary I  
“Quality Research: Improving Patients and Health System Outcomes” (Dewan Perdana) |
| 10:00 am – 10:30 am | Tea Break (Dewan Perdana Balcony)                                                                   |
| 10:15 am – 10:45 am| Arrival of Honorary Guests (Dewan Perdana)                                                          |
| 10:45 am – 11:00 am| Welcoming Remarks  
YBhg. Dato’ Eisah binti A. Rahman  
Senior Director of Pharmaceutical Services, Malaysia (Dewan Perdana) |
| 11:00 am – 12:15 pm| Opening and Launching Ceremony  
YB Datuk Seri Dr. S. Subramaniam  
Minister of Health Malaysia (Dewan Perdana) |
| 12:15 pm – 12:45 pm| VVIP Poster and Booth Viewing (Dewan Perdana)                                                       |
| 12:45 pm – 2:15 pm | Lunch Break (Dewan Perdana Balcony)                                                                 |
| 2:15 pm – 5:35 pm  | Oral & Poster Presentations – Session I  
Clinical Pharmacy  
OC1 – OC10 (Dewan Perdana)  
Pharmacy Practice  
OP1 – OP10 (Rebana 1)  
Others  
OO1 – OO10 (Rebana 2)  
Poster  
P1 – P13 (Dewan Perdana) |
| 5:35 pm – 5:45 pm  | Tea Break (Dewan Perdana Balcony)                                                                   |
| 7:45 pm – 10:00 pm| Dinner Symposium I & GALA DINNER (Dewan Perdana)                                                    |
### CONFERENCE PROGRAMME

**WEDNESDAY, 11th June 2014**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
</table>
| 7:30 am – 8:30 am | Registration  
(Dewan Perdana Foyer)                                             |
| 8:30 am – 9:15 am | Plenary II  
“Evidence Based CPGs: Expectations and Challenges”  
Prof. Dr. Abdul Rashid Abdul Rahman  
(Dewan Perdana) |
| 9:15 am – 10:15 am | Oral & Poster Presentations – Session II  
Clinical Pharmacy  
OC11 – OC13  
(Dewan Perdana)  
Pharmacy Practice  
OP11 – OP13  
(Rebana 1)  
Others  
OO11 – OO13  
(Rebana 2)  
Poster  
P14 – P17  
(Dewan Perdana) |
| 10:15 am – 10:30 am | Tea Break  
(Rebana Foyer & Dewan Perdana Balcony) |
| 10:30 am – 12:15 pm | Oral & Poster Presentations – Session III  
Clinical Pharmacy  
OC14 – OC18  
(Dewan Perdana)  
Pharmacy Practice  
OP14 – OP18  
(Rebana 1)  
Others  
OO14 – OO18  
(Rebana 2)  
Poster  
P18 – P24  
(Dewan Perdana) |
| 12:15 pm – 1:00 pm | Plenary III  
“Disentangling the Complexity of Research Publications in Pharmacy”  
Assoc. Prof. Dr. Mohamed Azmi Ahmad Hassali  
(Dewan Perdana) |
| 1:00 pm – 1:30 pm | Lunch Symposium II  
(Dewan Perdana) |
| 1:30 pm – 2:30 pm | Lunch  
(Dewan Perdana Balcony) |
| 2:30 pm – 5:30 pm | Oral & Poster Presentations – Session IV  
Clinical Pharmacy  
OC19 – OC27  
(Dewan Perdana)  
Pharmacy Practice  
OP19 – OP27  
(Rebana 1)  
Others  
OO19 – OO26  
(Rebana 2)  
Poster  
P25 – P36  
(Dewan Perdana) |
| 5:30 pm – 5:45 pm | Tea Break  
(Rebana Foyer & Dewan Perdana Balcony) |
| 7:45 pm – 8:15 pm | Dinner Symposium II  
(Dewan Perdana) |
| 8:15 pm – 9:00 pm | Dinner  
(Dewan Perdana Balcony) |
## THURSDAY, 12th June 2014

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>7:30 am – 8:30 am</td>
<td>Registration</td>
<td>(Dewan Perdana Foyer)</td>
</tr>
<tr>
<td>8:30 am – 10:00 am</td>
<td>Oral Presentations – Final (Top 3)</td>
<td>(Dewan Perdana)</td>
</tr>
<tr>
<td>10:00 am – 10:30 am</td>
<td>Exhibits Open</td>
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<tr>
<td>10:30 am – 11:15 am</td>
<td>Plenary IV</td>
<td></td>
</tr>
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<td></td>
<td>“Future Development of Health Economics Research in Malaysia”</td>
<td></td>
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<td></td>
<td>Prof. Kenneth KC Lee</td>
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<tr>
<td>11:15 am – 11:30 am</td>
<td>Multimedia Presentation</td>
<td>(Dewan Perdana)</td>
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<tr>
<td>11:30 am – 12:00 pm</td>
<td>Judges Comments on Oral &amp; Poster Presentations</td>
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<td></td>
<td>Announcement of Winners</td>
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<tr>
<td></td>
<td>Prize Giving Ceremony</td>
<td>(Dewan Perdana)</td>
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<tr>
<td>12:00 pm – 1:00 pm</td>
<td>Closing Ceremony</td>
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<td>YBhg. Dato’ Eisah binti A. Rahman</td>
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<td></td>
<td>Senior Director of Pharmaceutical Services, Malaysia</td>
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<tr>
<td>1:00 pm</td>
<td>Lunch &amp; Adjourn</td>
<td>(Dewan Perdana Balcony)</td>
</tr>
</tbody>
</table>

**Note (Refer to Location Plan):**

- Level 1: Rebana Foyer, Rebana 1, Rebana 2 and Kompong
- Level 2: Dewan Perdana Foyer, Dewan Perdana and Gasing 1
- Level 2 (Mezzanine): Dewan Perdana Balcony
PLENARY I
“Quality Research: Improving Patients and Health System Outcomes”

YBhg. Dato’ Dr. Amar-Singh HSS
MBBS (Mal), MRCP (UK), FRCP (Glasg), MSc Community Paeds (Lond)

Dato’ Dr Amar-Singh HSS is Head of Clinical Research Centre Perak and a senior Consultant Community Paediatrician & Head of the Paediatric Department at Hospital Raja Permaisuri Bainun, Ipoh. He is responsible for Paediatric services in Perak.

He graduated with MBSS from University of Malaya in 1983 and earned his MRCP in UK in 1988. He continued to pursue MSc Community Paediatrics (distinction) from University of London in 1992 and Certificate in Theology (2nd class honours) from Moore Theological College, Australia in 1998. He also obtained FRCP (Glasg) in 2000.

He has a long standing interest in children with disability, family self-help groups, NGOs, child abuse, adolescent counselling, disadvantaged/marginalised children (especially the Orang Asli/Indigenous People) & the development of services for children. He is also the President of the National Early Childhood Intervention Council (NECIC).

He is very active in research and postgraduate paediatric training. He has more than 100 local and international research publications and reports and is a HSR, Clinic Research & QA trainer. His research areas of interest include community interventional trials, Disability, Injury Prevention, Immunisation, Child Abuse, Adolescent issues, Poverty reduction, Orang Asli Health, Parent Self-help Groups, Community Nursing, Ambulatory Paediatrics, etc.

With his wife, he also offers spiritual direction and counselling.

SYNOPSIS
Health needs and challenges have dramatically changed in the past few decades. However healthcare professionals and the healthcare systems have changed much slower and are often not “suitable” for the current health needs of the population. In the past health systems were more concerned with mortality. With the rapid decline in mortality, problems that cause significant morbidity have emerged as more important. Many of the health challenges for our time are largely related to lifestyle, genetic disorders or behavioural problems. Research into these areas is both challenging and requires a health system approach.

Health Systems Research (HSR) in Malaysia started as a programme in the mid 1980s, expanded into an institute (the Institute for Health Systems Research) and is currently one of the National Institutes of Health. HSR uses basic research methodology but attempts to apply it in a community interventional approach. It involves doing research to solve current issues, and a focus on improving health systems, patient care and patient outcomes. It requires substantive stakeholder and policy maker involvement throughout the process, thus facilitating knowledge translation.

There are many reasons for conducting research. Some of these involve meeting training requirements, “requests” of managers, academic or career advancement, etc. However, the primary focus of research must be to improve care by changing health system outcomes. Pharmacists are uniquely gifted to do research; it is hardwired into their undergraduate training and outlook. Unfortunately most of their research is focused on a narrow area and involves some aspect of drug dynamics, clinician/patient abuse/compliance to drug guidelines, knowledge on a particular drug, pharmacist intervention in improving compliance, etc. In addition many of these studies get repeated many times at the local level.

For pharmacist to move forward, they must think and do research outside their narrow confines, ‘outside the box’. In essence stop thinking like ‘just a pharmacist’. Some key suggestions for change include:

1. Don’t worry about your KPIs and what others in the hierarchical structure will think. Become patient and system centered.

2. Target areas with real health needs. Take time to identify and conduct meaningful research projects. This requires taking time to explore and ask interesting questions with others. Remember that “developing a good research question is the most important part of the research process” Lipowski.

3. Have research partnership with meaningful colleagues, clinicians and policy makers. Have clear boundaries to protect you especially from managers or doctors who make ‘take over’ the work.

4. Do not stop when the research is completed, carry your research to policy. Be an advocate of your research to influence policy. Translate key findings into knowledge that can be used.

There will be many obstacles for pharmacists who want to be recognised as a valid member of the team who do quality research that improves patient and health system outcomes. There will be some individuals who attempt to limit you and others who attempt to use you. There is a ‘price to pay’ to make pharmacists an equal partner in the healthcare profession. There will be a need for champions and trail blazers from within and without to support you.
PLENARY II
“Evidence Based CPGs: Expectations and Challenges”

Prof. Dr. Abdul Rashid Abdul Rahman
MBChB (Sheffield), PhD (Clinical Pharmacology) (Dundee)
FRCPI (Eire), FRCP (Edin)

Abdul Rashid Abdul Rahman is currently Professor of Medicine and Clinical Pharmacology at Cyberjaya University College of Medical Sciences where he was the Founding Vice President for Research and Founding Dean for Center for Research and Graduate Studies. He is also an adjunct Professor of Medicine at the Kulliyah of Medicine International Islamic University. He is a visiting Consultant Physician of An Nur Specialist Hospital and Institute Jantung Negara. His previous post includes Founding Director of the Advance Medical and Dental Institute Universiti Sains Malaysia.

Abdul Rashid obtained his MBChB from the University of Sheffield, PhD in Clinical Pharmacology in University of Dundee and Membership and Fellowship from both the Royal Colleges of Physician from UK and Ireland. He is past President of the Malaysian Society of Hypertension and Islamic Medical Association of Malaysia. Membership of international societies include International and European Society of Hypertension and the European Cardiac Society. He is chairman of Malaysian Clinical Practice Guideline Committee for Hypertension, Veno-thromboembolism, Good Clinical Practice and member of the CPG committee for Dyslipidaemia and Primary Cardiovascular Prevention. He is a member of the several expert committees in the ministries of Health, Science and Technology, Education, Agriculture and JAKIM.

The word Evidence Based Medicine (EBM) was popularised by David Sackett just over two decades ago and within a few years becomes a mantra in modern medicine. However the origin of EBM can be traced to Ibn Sina (Avicenna) more than a millennium ago when he outlined important principles to prove the efficacy of a particular treatment modality. Clinical decision making has been the main beneficiary of EBM. About three decades ago most clinical decision making especially on therapeutics were guided by experts opinion collectively called “Consensus Statements”. With the expanding knowledge-base in health, driven by better quality research and development, expert-based Consensus Statements are being replaced by evidenced-based Clinical Practice Guideline (CPG) and evidenced-based Health Policy. Credible CPGs are expected to use strict criteria in evaluating evidence. Indeed expert opinion is now considered the lowest level evidence when committees sit down to draft CPGs. The expectation is thus once a CPG is published it represents the best evidence based guideline at that particular point in time and abiding by its recommendation should produce the best clinical outcome.

One of the challenges with EBM driven CPGs is the dearth of evidence to show that it has a positive impact of patient outcome in the real world. Efforts in generating this evidence is considered ‘non rocket science’ and as such is not given priority by researchers. There is also the challenge of getting funding for such research. Another challenge is in the process of coming out with the CPG itself. Different CPG committees may quote the same studies but may not come out with the same recommendations. A clear case in point is when one looks at the latest Hypertension CPGs. Even the three CPGs from the USA (by the American Heart Association, American Society of Hypertension and Joint National Committee) do not necessarily make the same recommendation. Yet another challenge is to translate the CPGs into clinical practice with the minimum lag time.

Evidence Based CPG is here to stay. Challenges faced can be overcome if all stake holders are committed in generating better evidence and be focussed on the end in mind; which is the best possible outcome for our patients.
PLENARY III
“Disentangling the Complexity of Research Publications in Pharmacy”

Assoc. Prof. Dr. Mohamed Azmi Ahmad Hassali
B.Pharm (Hons), M.Pharm (Clin Pharm) (USM), PhD (Monash, Aust)

Dr. Mohamed Azmi Ahmad Hassali graduated with a Bachelor Degree in Pharmacy from Universiti Sains Malaysia in the year 1998. He also holds a Master’s Degree in the field Clinical Pharmacy from the same university. In the year 2002, he had been selected to receive the Universiti Sains Malaysia “Academic Staff Training Scheme Fellowship” to pursue his PhD studies in the field of pharmacy practice at Victorian College of Pharmacy, Monash University, and Melbourne, Australia. He had been successfully awarded with a PhD degree in May 2006. Upon his return from Australia, he had been appointed as a lecturer at Discipline of Social and Administrative Pharmacy, School of Pharmaceutical Sciences, USM. He actively serves in many international organization such as International Society of Pharmacoepidemiology (ISPE), International Society of Pharmacoeconomics and Outcomes Research (ISPOR), International Pharmaceutical Federation (FIP), Health Action International-Asia Pacific (HAI-AP) and Action on Antibiotic Resistant (ReAct). Since July 2011, he had been selected to head the country group for the International Network for Rational Use of Drugs (INRUD). He also holds visiting professor appointments at medical and pharmacy institutions in Nepal, India, Pakistan, Saudi Arabia and Malaysia. He always been invited to countries such as Saudi Arabia, Nepal, Pakistan, Oman, India, Indonesia, Sri Lanka, Australia and Thailand to deliver lectures and conduct workshops on topics related to social pharmacy education, pharmacy practice research and pharmaceutical policy. At current, he also serves as the international advisory board for many international journals such as the “American Journal of Pharmaceutical Education”, “Pharmacy Practice”, ‘Journal of Pharmaceutical Health Service Research” and “Journal of Pharmaceutical Policy and Practice”. He often been invited as a reviewer for journals such as “Pharmacoepidemiology and Drug Safety”, “British Journal of Clinical Pharmacology”, ‘Health Policy’, ‘Value in Health’, “Pharmacoeconomics”, “International Journal of Pharmacy Practice”and ‘International Journal of Clinical Pharmacy’. At national level, he had been appointed as board member for Pharmacy Board of Malaysia . He also had been appointed as the council member for Malaysian Pharmaceutical Society, Malaysian Academy of Pharmacy and advisor for the Malaysian Pharmacy Student Association (MyPSA). He also serves as one of the committee member for the National Medicine Policy Steering Committee under the Ministry of Health and also serves committee member for the Malaysian Health Promotion Board health promotion grant evaluation committee. His current main research interest areas are related to the area of social pharmacy education, clinical pharmacoeconomics and quality use of medicines. During the seven five years, Dr Azmi had successfully supervised more than 20 PhD and MSc candidates mainly in the field of social pharmacy and pharmacy practice. Due to his vast experience in the field of social pharmacy, he also had been appointed by many foreign universities especially from New Zealand, Australia and UK as external postgraduate thesis examiner. As an avid researcher and writer, Dr Azmi had published more than 200 full research journal articles in international peer reviewed journals and had authored more than 200 conference presentations. In terms of his societal contribution, he had been appointed as the Deputy President for one of the key non-governmental organization in Penang, Yayasan Bina Ilmu which caters for education and health for disadvantaged community in the State. Due to his excellent contribution to both the profession and society, he had been awarded with ‘Outstanding Pharmacist of The Year Award’ by the Malaysian Pharmaceutical Society in September 2013. Currently, Dr. Azmi holds the appointment as the Deputy Dean for student affairs and networking at the School of Pharmaceutical Sciences, Universiti Sains Malaysia.

The ever evolving role of pharmacists over the years had been justified by the provision of timely evidence through high quality research publications. Within this context, pharmacy practice and clinical research plays a great role in transformation of pharmacy services worldwide. In Malaysia, over the last decade many pharmacists especially in the public health service and academia were actively involved in research activities. Although many research had been conducted by pharmacists in the country, the publication rates in good quality journals were still lacking compared to their counterparts from other parts of the world. As one of the component in research process, publication of research findings in good journals is the key for disseminating the body of knowledge generated. Besides that, research publications will help health policy makers to make timely decision on any activities that will improve patient care process by pharmacists. It is widely known that publications of research findings in good publication source are not an easy task. There is a need for Malaysian pharmacy researchers to improve their research publication skills via consolidating tactfully the underpinning concept of research publication process. In this presentation some of the common issues in publication of pharmacy practice research will be covered and how to overcome barriers to publish research work will be shared by using personal experience.
“Future Development of Health Economics Research in Malaysia”

Prof. Kenneth KC Lee
BSc(Pharmacy), MPhil, PhD

Kenneth Lee is Professor of Pharmacy and Head, School of Pharmacy, Monash University, Malaysia. Before he moved to Malaysia, he was Professor and Associate Director (External Affairs) of the Chinese University of Hong Kong (CUHK) School of Pharmacy where he was one of the founding members and had subsequently worked for 18 years. He was appointed as a Justice of the Peace by the government of Hong Kong in 2003 for his services to the community.

Prof Lee received his pharmacy undergraduate training from the University of Washington in Seattle. His subsequent higher qualifications were from the CUHK and the University of Oxford, UK. He is widely recognised as one of the pioneers in pharmacoeconomics and outcomes research in Asia focusing on comparative effectiveness research, health technology assessment and healthcare policy development. He has published extensively in peer-reviewed international journals and has been author/editor of several textbook chapters. He has been the Editor-in-chief of the Journal of Medical Economics since 2006 and is serving on the editorial board of a number of international journals including Value in Health. He served as Adjunct Professor of School of Pharmacy, the CUHK, and Honorary Professor of School of Public Health, the University of Hong Kong from 2010-13. From 2008-11, he was also appointed as visiting Professor of University of London School of Pharmacy. He has been recently appointed as the Chairman of the Scientific Advisory Committee of the Malaysian Medicinal and Aromatic Plants (MyMAP) project, a collaborative project between Monash University and the Prime Minister’s Office of Malaysia.

Prof Lee has served in a number of positions in the International Society for Pharmacoeconomics and Outcomes Research (ISPOR). He was the major driving force and later a founding member of the first ISPOR regional consortium – ISPOR Asia Consortium which was established in 2004. He served as president of the Consortium from 2006-8. Before this, he also spearheaded and became the founding chair of the first ISPOR local chapter in Asia – ISPOR Hong Kong Chapter in 1999. He had been a member of the organising committee of several ISPOR Asia Pacific Conferences from 2004-11. He had also taught in a number of ISPOR short courses. Currently he is one of the co-editors of Value in Health Regional Issue, an official publication of ISPOR. In May 2012, he was elected as a member of the ISPOR Board of Directors for 2012-4.

Technological advances in recent decades have vividly changed medical practice and mode of health service delivery. Nevertheless, systems where government has to act as the single payer often have to face the reality of advanced services being deprived due to an ever escalating cost of health care. Many western and some Asian countries have therefore started to adopt Health Technology Assessment (HTA) to evaluate the value rather than the unit cost of a new drug or medical technology. HTA is a multi-disciplinary field of policy research to study the medical, social, ethical, and economic implications of development, diffusion, and use of health technology (International Agency for HTA, 2008). The main purpose of performing HTA is to maximize health benefits under the constraints of limited resources.

HTA in Malaysia is still in a developing stage, yet it is anticipated that the discipline will mature and become a standard of practice in the not-too-far future in view of all the recent changes in the global health care landscape. Looking back at history of health care reform of various countries, it is often the government who has to take the lead in adopting this practice before more health professionals would be motivated to join the discipline.

There are a few areas that require immediate attention if HTA is to take off in Malaysia. These include the building of research capacity, establishing a threshold for cost-effectiveness, and setting up of a databank for different disease states in terms of health service utilization. To properly address these 3 issues, we must start to develop the infrastructures and expertise as soon as possible. A general culture in research is therefore of utmost importance if we are to become a country with an advanced health care system.
<table>
<thead>
<tr>
<th>JUDGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Dr. Ab. Fatah bin Ab. Rahman</td>
</tr>
<tr>
<td>Universiti Sultan Zainal Abidin, Terengganu</td>
</tr>
<tr>
<td>Prof. Dr. Mohamed Mansor bin Manan</td>
</tr>
<tr>
<td>Universiti Teknologi MARA, Selangor</td>
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<tr>
<td>Prof. Dr. Syed Azhar bin Syed Sulaiman</td>
</tr>
<tr>
<td>Universiti Sains Malaysia, Pulau Pinang</td>
</tr>
<tr>
<td>Assoc. Prof. Datin Dr. Zoriah bt Aziz</td>
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<tr>
<td>Universiti Malaya, Kuala Lumpur</td>
</tr>
<tr>
<td>Assoc. Prof. Dr. Mohd bin Makmor Bakry</td>
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<tr>
<td>Universiti Kebangsaan Malaysia, Kuala Lumpur</td>
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<tr>
<td>Prof. Dr. Salmiah bt Mohd Ali</td>
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<tr>
<td>MAHSA University, Kuala Lumpur</td>
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<tr>
<td>Prof. Dr. Rosnani bt Hashim</td>
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<tr>
<td>Cyberjaya University College of Medical Sciences, Selangor</td>
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<tr>
<td>Prof. Dr. P. T. Thomas</td>
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<td>Taylor’s University, Selangor</td>
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<td>Dr. Kala iarasu M. Peariasamy</td>
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<tr>
<td>Hospital Sungai Buloh</td>
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<tr>
<td>Dr. Kamaruzaman bin Saleh</td>
</tr>
<tr>
<td>National Pharmaceutical Control Bureau, Selangor</td>
</tr>
<tr>
<td>Mdm. Abida Haq bt Syed M Haq</td>
</tr>
<tr>
<td>Hospital Kuala Lumpur</td>
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<tr>
<td>Mdm. Kamarunnesa bt Mokhtar Ahmad</td>
</tr>
<tr>
<td>Hospital Putrajaya</td>
</tr>
</tbody>
</table>
## List of Oral & Poster Presentations

### Oral Presentations: Clinical Pharmacy

<table>
<thead>
<tr>
<th>Session</th>
<th>Abstracts#</th>
<th>Title</th>
<th>Presenter</th>
<th>Institution</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>10th June 2014 (Tuesday) 2.15 – 5.35 pm</td>
<td>OC1</td>
<td>Factors Influencing Time in Therapeutic Range in Patients on Long Term Warfarin Therapy</td>
<td>Dr. Lawrence Anak Anchah</td>
<td>Pusat Jantung Hospital Umum Sarawak</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>OC2</td>
<td>The Use of Self-Monitoring Blood Glucose and its Relationship with Glycaemic Control in Insulin-Treated Type 2 Diabetic Patients</td>
<td>Mdm. Ding Wern Jing</td>
<td>Hospital Permaisuri Bainun, Perak</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>OC3</td>
<td>Appropriateness of the Use of Histamine H2 Receptor Antagonists/Proton Pump Inhibitors for Stress Ulcer Prophylaxis in the Medical Wards in Kulim Hospital</td>
<td>Mr. Choong Chun Wah</td>
<td>Hospital Kulim, Kedah</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>OC4</td>
<td>Prescribing Practice of Loading Doses of Intravenous Phenytoin in Kuala Lumpur Hospital</td>
<td>Mr. Thian Soon Wah</td>
<td>Hospital Kuala Lumpur</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>OC5</td>
<td>Comparative Study on the Effectiveness, Safety and Acceptability of Unguentum Cocos and Cera-Scalp® Ointment in the Treatment of Scalp Psoriasis</td>
<td>Ms. Cynthia Hee Xiao Ying</td>
<td>Hospital Pulau Pinang</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>OC6</td>
<td>The Predictors in Usage of Acid Suppressant Therapy in Medical Wards of a Tertiary Hospital</td>
<td>Ms. Oh Ai Ling</td>
<td>Hospital Umum Sarawak</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>OC7</td>
<td>Suboptimal Response to Aspirin and Clopidogrel: 1-Month Clinical Outcomes in Patients Implanted with Drug Eluting Stents</td>
<td>Mdm. Melissa Mejin</td>
<td>Pusat Jantung Hospital Umum Sarawak</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>OC8</td>
<td>A Fixed-Dose Combination Therapy Versus Dual Antidiabetic Therapy: Impact on Glycaemic Control and Weight Profile</td>
<td>Ms. Loh Tze Min</td>
<td>Klinik Kesihatan Merlimau, Melaka</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>OC9</td>
<td>Evaluation on In-Hospital Outcomes of ST-Elevation Myocardial Infarction Patients Treated with Streptokinase</td>
<td>Mdm. Normi binti Hamdan</td>
<td>Hospital Seri Manjung, Perak</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>OC10</td>
<td>Effect of Erythropoietin on Blood Pressure among Haemodialysis Patients in Hospital Kuala Krai</td>
<td>Ms. Rosnani binti Ab Rahman</td>
<td>Hospital Kuala Krai, Kelantan</td>
<td>34</td>
</tr>
<tr>
<td>11th June 2014 (Wednesday) 9.15 – 10.15 am</td>
<td>OC11</td>
<td>Comparison on Pharmacokinetic Parameters in Adult with Vancomycin and Gentamicin in Pahang Tertiary Hospitals</td>
<td>Mr. Mohemmad Redzuan bin Mohammad Rizal</td>
<td>Hospital Tengku Ampuan Afzan, Pahang</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>OC12</td>
<td>Prevalence of Adverse Drug Reactions and Risk Factors in Adult Patients Receiving HAART in Hospital Pulau Pinang</td>
<td>Ms. Ang Kee Hooi</td>
<td>Hospital Pulau Pinang</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>OC13</td>
<td>Effect of a Clinical Pathway: Pharyngitis-Tonsillitis in Children and Adults on the Use of Antibiotics in Terengganu</td>
<td>Ms. Noor Rodhiah binti Abd Rahman</td>
<td>Hospital Sultanah Nur Zahirah, Terengganu</td>
<td>36</td>
</tr>
<tr>
<td>Session</td>
<td>Abstracts#</td>
<td>Title</td>
<td>Presenter</td>
<td>Institution</td>
<td>Page</td>
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<tr>
<td>11th June 2014 (Wednesday) 10:30 – 12:15 pm</td>
<td>OC14</td>
<td>A Study to Determine Variability Between Extrapolated and Actual Serum Concentration of Gentamicin in Duchess of Kent Hospital: A Pilot Study (Seagent)</td>
<td>Mr. Kong Kian Keong</td>
<td>Hospital Duchess of Kent, Sabah</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>OC15</td>
<td>An Evaluation of Empiric Weight-Based Gentamicin Dosing Regimen in Neonates at Hospital Sultanah Bahiyah</td>
<td>Ms. Ng See Yee</td>
<td>Hospital Sultanah Bahiyah, Kedah</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>OC16</td>
<td>Study on the Use of Intravenous Fish Oil Lipid Emulsion in Premature Neonates Requiring Parenteral Nutrition</td>
<td>Mr. Lee V’Joon</td>
<td>Hospital Sungai Buloh, Selangor</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>OC17</td>
<td>A Retrospective Study on Pharmacists’ Intervention and Physicians’ Acceptance in Heart Failure Clinic of Penang Hospital</td>
<td>Ms. Choong Shiuau Fenn</td>
<td>Hospital Pulau Pinang</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>OC18</td>
<td>A Study of Kidney Function Changes Associated with Angiotensin-Conveting Enzyme Inhibitors (ACEI) or Angiotensin Receptor Blockers (ARB) in Renal Impaired Patients with Heart Failure or Acute Coronary Syndrome</td>
<td>Ms. Choy Suok Teng</td>
<td>Hospital Tengku Ampuan Afzan, Pahang</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>OC19</td>
<td>Gentamicin Pharmacokinetics in Neonates: Determination of Factors and Predictors for Local Pharmacokinetic Equations of HTAR, Klang</td>
<td>Mdm. Rose Aniza binti Rusli</td>
<td>Hospital Tengku Ampuan Rahimah, Selangor</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>OC20</td>
<td>Risk Factors of Pacemaker Implantation Infection: A Single Centre’s Experience</td>
<td>Ms. Izzati binti Abdul Halim Zaki</td>
<td>Hospital Queen Elizabeth II, Sabah</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>OC21</td>
<td>The Association between Vancomycin AUC-24/MIC and Treatment Outcome Among Critically III Patient with MRSA Infection</td>
<td>Mr. Azmi Nor Mohd Farez bin Ahmat</td>
<td>Institut Kanser Negara, Putrajaya</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>OC22</td>
<td>Association between Adherence to the Malaysian Clinical Practice Guidelines and Effectiveness of Cancer Pain Management</td>
<td>Ms. Wong Te Ying</td>
<td>Hospital Pulau Pinang</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>OC24</td>
<td>The Risk Factor Associated with Tuberculosis Infection among Healthcare Workers in Hospital Slim River</td>
<td>Mdm. Nur Azlina binti Rusli</td>
<td>Hospital Slim River, Perak</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>OC25</td>
<td>Management of Over-Anticoagulation in Hospitalized Patients Receiving Warfarin in Hospital Seri Manjung</td>
<td>Ms. Lau Yoke Peng</td>
<td>Hospital Seri Manjung, Perak</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>OC26</td>
<td>Treatment Outcomes and Cost-Effectiveness of Granisetron in Patients Receiving Antiemetic Prophylaxis for Low Emetogenic Chemotherapy: A Hospital-Based Perspective from Malaysia</td>
<td>Mr. Chan Huan Keat</td>
<td>Hospital Sultanah Bahiyah, Kedah</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>OC27</td>
<td>The Appropriateness of Ready-Made Parenteral Nutrition (PN) Prescribed and Pharmacists Interventions in Hospital Pulau Pinang</td>
<td>Ms. Low Jocin</td>
<td>Hospital Pulau Pinang</td>
<td>43</td>
</tr>
<tr>
<td>Session</td>
<td>Abstracts#</td>
<td>Title</td>
<td>Presenter</td>
<td>Institution</td>
<td>Page</td>
</tr>
<tr>
<td>----------</td>
<td>------------</td>
<td>--------------------------------------------------------------------------------------------</td>
<td>--------------------</td>
<td>--------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td></td>
<td>OP1</td>
<td>Improving Administration of Calcium Carbonate in Chronic Kidney Disease Patients: Role of Pharmacists?</td>
<td>Ms. Eng May Fern</td>
<td>Hospital Seberang Jaya, Pulau Pinang</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>OP2</td>
<td>Evaluation of Medication Adherence and Barrier to Highly Active Antiretroviral Treatment among RVD Patients in Hospital Sultan Haji Ahmad Shah</td>
<td>Ms. Cheah Bee Fong</td>
<td>Hospital Sultan Haji Ahmad Shah, Pahang</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>OP3</td>
<td>Influence of Medication Labeling Modification on Adherence, Comprehension and Preference among Patients Receiving Chronic Medications: A Randomized Controlled Trial</td>
<td>Mr. Chan Huan Keat</td>
<td>Hospital Sultanah Bahiyah, Kedah</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>OP4</td>
<td>A Study on the Assessment of Understanding, Compliance, Technique and Device Management in Asthmatic Children and the Caretakers of Sarawak General Hospital, Kuching</td>
<td>Ms. Ngu Sing Jiat</td>
<td>Hospital Umum Sarawak</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>OP5</td>
<td>The Use of Medicine and Identification of Potentially Inappropriate Medicine Among Elderly Patients Admitted to a Specialist Hospital</td>
<td>Mr. Choy Mun Pung</td>
<td>Clinical Research Centre, Hospital Taiping, Perak</td>
<td>46</td>
</tr>
<tr>
<td>OP6</td>
<td>OP6</td>
<td>Improving Prescription Practices in Ministry of Health (MOH) Primary Care Clinics: A Randomised Community Trial</td>
<td>Ms. Lim Wei Yin</td>
<td>Clinical Research Centre, Perak</td>
<td>47</td>
</tr>
<tr>
<td>OP7</td>
<td>OP7</td>
<td>Adherence to Antiretroviral Therapy in HIV-Infected Paediatric Patients in Kuala Lumpur Hospital: Preliminary Findings</td>
<td>Ms. Koo Kaitian</td>
<td>Hospital Kuala Lumpur</td>
<td>47</td>
</tr>
<tr>
<td>OP8</td>
<td>OP8</td>
<td>A Multicentre Study on Factors Affecting Adherence Towards Methadone Maintenance Therapy (MMT) in MMT Clinics in Johor</td>
<td>Mr. Mohd. Shafie bin Zabidi</td>
<td>Hospital Sultanah Aminah, Johor Bahru</td>
<td>48</td>
</tr>
<tr>
<td>OP9</td>
<td>OP9</td>
<td>Impact of Pharmacists Counseling Towards Patients’ Knowledge and Compliance of Anti-Epileptic Drugs</td>
<td>Ms. Diane Poh Beng Yee</td>
<td>Hospital Pulau Pinang</td>
<td>48</td>
</tr>
<tr>
<td>OP10</td>
<td>OP10</td>
<td>The Appropriateness of Acid Suppressive Medications’ Use among Surgical Inpatients in Hospital Sultan Abdul Halim</td>
<td>Ms. Ranita A/P Kirubakaran</td>
<td>Hospital Sultan Abdul Halim, Kedah</td>
<td>49</td>
</tr>
<tr>
<td>OP11</td>
<td>OP11</td>
<td>Comparisons and Predictors of Patients Satisfaction with Traditional Counter and Value-Added Outpatient Pharmacy Services in Hospital Sultanah Bahiyah: Have We Done Enough?</td>
<td>Mr. Chan Huan Keat</td>
<td>Hospital Sultanah Bahiyah, Kedah</td>
<td>49</td>
</tr>
<tr>
<td>OP12</td>
<td>OP12</td>
<td>The Impact of Medication Adherence on Cost among Type 2 Diabetes Patients</td>
<td>Mdm. Fadzilah binti Shafie</td>
<td>Jabatan Kesihatan Negeri Melaka</td>
<td>50</td>
</tr>
<tr>
<td>OP13</td>
<td>OP13</td>
<td>A Pilot Study on the Effectiveness of a Pharmacist Initiated Home Medication Review Programme among Type 2 Diabetes Patients in the State of Penang, Malaysia</td>
<td>Ms. Chow Ee Pin</td>
<td>Klinik Kesihatan Bukit Minyak, Pulau Pinang</td>
<td>50</td>
</tr>
<tr>
<td>Session</td>
<td>Abstracts#</td>
<td>Title</td>
<td>Presenter</td>
<td>Institution</td>
<td>Page</td>
</tr>
<tr>
<td>--------------</td>
<td>------------</td>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------</td>
<td>----------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>11th June 2014 (Wednesday) 10.30 – 12.15 pm</td>
<td>OP14</td>
<td>The Outcome of Implementing Breathe Easy Programme (BEP) in Asthma Patients in Kulim Hospital</td>
<td>Mr. Jaya Muneswarao A/L Ramadoo @ Devudu</td>
<td>Hospital Kulim, Kedah</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>OP15</td>
<td>Usage of Traditional and Complementary Medicine (TCM) among Patient with Chronic Illness Admitted in Medical Wards of Hospital Tuanku Ampuan Najihah, Kuala Pilah</td>
<td>Ms. Thamarai Chelvi A/P Balachandran</td>
<td>Hospital Tuanku Ampuan Najihah, Negeri Sembilan</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>OP16</td>
<td>The Impact of Home Medication Review (HMR) Program among Patients Diagnosed with Schizophrenia Enrolled Under Home Care Team, Hospital Bahagia Ulu Kinta, Perak</td>
<td>Ms. Tan Yee Mun</td>
<td>Hospital Bahagia Ulu Kinta, Perak</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>OP17</td>
<td>Effectiveness of Asthma MTAC Service in Asthma Control Improvement (EASI Study)</td>
<td>Ms. Phua Sook Hui</td>
<td>Hospital Duchess of Kent, Sabah</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>OP18</td>
<td>Complementary and Alternative Medicine (CAM) Use and the Impact on Medication Adherence among Diabetic Patients in Sibu Hospital: A Preliminary Report</td>
<td>Ms. Ting Su Rong</td>
<td>Hospital Sibu, Sarawak</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>OP19</td>
<td>Assessment of Osteoporotic Patients’ Adherence and Knowledge on Alendronate Therapy</td>
<td>Mdm. Liew Yee Yoon</td>
<td>Hospital Seberang Jaya, Pulau Pinang</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>OP20</td>
<td>Cost-Effectiveness Study of Pantoprazole and Esomeprazole in Treatment of Upper Gastrointestinal Bleeding at Hospital Taiping</td>
<td>Ms. Choo Shea Jiun</td>
<td>Hospital Taiping, Perak</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>OP21</td>
<td>Patient Responses Towards Variations in Lovastatin Appearances Due to Switching between Generic Brands in Hospital Sultanah Bahiyah (HSB)</td>
<td>Mdm. Siti Nadijah binti Abd. Rahim</td>
<td>Hospital Sultanah Bahiyah, Kedah</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>OP22</td>
<td>Prospective Observational Study: Assessment of Pharmacist and Physician-Managed Warfarin Clinic by Comparing Time Spent to Stabilize INR Value</td>
<td>Mdm. Azura binti A’zlan</td>
<td>Hospital Melaka</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>OP23</td>
<td>Health-Related Quality of Life in Patients Receiving Methadone Therapy</td>
<td>Ms. Siti Norfatiah binti Mohd. Pauzi</td>
<td>Hospital Hulu Terengganu, Terengganu</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>OP24</td>
<td>Retrospective Drug Use Evaluation of Ceftriaxone in Hospital Duchess of Kent in Year 2012</td>
<td>Ms. Leong Bo Kuan</td>
<td>Hospital Duchess of Kent, Sabah</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>OP25</td>
<td>An Evaluation on the Effectiveness of the MCISAAC Score Rules in the Management of Children Diagnosed with Sore Throat in Paediatric General Ward, Hospital Kulim</td>
<td>Mdm. Saravananparya A/P Thillaivanam</td>
<td>Hospital Kulim, Kedah</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>OP26</td>
<td>The Effectiveness of Adult Epilepsy-Medication Therapy Adherence Clinic (EPI-MTAC) in Hospital Tuanku Ampuan Najihah (HTAN), Kuala Pilah</td>
<td>Ms. Kong Lai San</td>
<td>Hospital Tuanku Ampuan Najihah, Negeri Sembilan</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>OP27</td>
<td>Cost-Effectiveness Analysis (CEA) of Antihypertensive Drugs in Patients with Type 2 Diabetes Mellitus in Lahad Datu Hospital</td>
<td>Mr. James Voo Yau Hon</td>
<td>Hospital Lahad Datu, Sabah</td>
<td>57</td>
</tr>
<tr>
<td>Session</td>
<td>Abstracts#</td>
<td>Title</td>
<td>Presenter</td>
<td>Institution</td>
<td>Page</td>
</tr>
<tr>
<td>---------</td>
<td>------------</td>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------</td>
<td>---------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>10th June 2014 (Tuesday) 2.15 – 5.35 pm</td>
<td>OO1</td>
<td>Knowledge and Attitude Towards Antibiotic Usage: A Cross-Sectional Study in Hospital Slim River, Malaysia</td>
<td>Ms. Lee Ian Min</td>
<td>Hospital Slim River, Perak</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>OO2</td>
<td>A Multi-Centre Cross Sectional Study among Non Poison Wholesalers on Sales of Counterfeit Medicinal Products and the Awareness on Product Registration in Malaysia</td>
<td>Mr. Mazlan bin Ismail</td>
<td>Bahagian Perkhidmatan Farmasi, KKM</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>OO3</td>
<td>Beliefs about Generic Medicines among Patients at a District Public Hospital in Malaysia</td>
<td>Mr. Wong Zhi Yen</td>
<td>Hospital Teluk Intan, Perak</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>OO4</td>
<td>Knowledge, Attitude and Perception Towards Smoking among Healthcare Workers in Negeri Sembilan</td>
<td>Mr. Wan Abd Muiz bin Wan Mohd Salizam</td>
<td>Klinik Kesihatan Senawang, Negeri Sembilan</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>OO5</td>
<td>Development of Lipophilic Cationic 64CU-BIS (Diphosphine) Complexes for Myocardial Perfusion</td>
<td>Mr. Mohd Khairul Najah bin Che A Halim</td>
<td>Hospital Putrajaya</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>OO6</td>
<td>A Review on Prescribing Errors of Pediatric Prescriptions in an Outpatient Pharmacy Department (OPD), Hospital Kemaman</td>
<td>Ms. Athirah Nabilah binti Alias</td>
<td>Hospital Kemaman, Terengganu</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>OO7</td>
<td>Knowledge, Attitude and Practice of Antibiotic Prescribing among Medical Officers at Public Healthcare Facilities in the State of Kedah, Malaysia</td>
<td>Ms. Siti Rahmah @ Noor Syahireen binti Mohammed</td>
<td>Klinik Kesihatan Tunjang, Kedah</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>OO8</td>
<td>Pattern of Prescribing Error in Outpatient Setting at Sibu Hospital</td>
<td>Ms. Ting Su Rong</td>
<td>Hospital Sibu, Sarawak</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>OO9</td>
<td>&quot;MYSELF&quot;: Multi-Source Feedback Programme for Evaluation of Provisional Registered Pharmacist at Public Hospitals in Malaysia</td>
<td>Ms. Doris A/P George Visuvasam</td>
<td>Hospital Raja Permaisuri Bainun, Ipoh</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>OO10</td>
<td>Knowledge on Paracetamol Usage among Out Patients in Hospital Sultan Haji Ahmad Shah (HOSHAS), Temerloh</td>
<td>Mdm. Leng Poh Xuan</td>
<td>Hospital Sultan Haji Ahmad Shah, Pahang</td>
<td>62</td>
</tr>
<tr>
<td>11th June 2014 (Wednesday) 9.15 – 10.15 am</td>
<td>OO11</td>
<td>A Multi-Center Study on Discharge Prescribing Errors at Government Hospitals in Negeri Sembilan</td>
<td>Ms. Adibah binti Murayadi</td>
<td>Hospital Tuanku Ampuan Najihah, Negeri Sembilan</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>OO12</td>
<td>Knowledge, Attitude and Practice of Antibiotics Use in Children with Upper Respiratory Tract Infection Among Caregivers’ in Kota Bharu Healthcare Clinics</td>
<td>Ms. Fatin Nor Atikah binti Othman</td>
<td>Klinik Kesihatan Pengkalan Chepa, Kelantan</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>OO13</td>
<td>Knowledge, Attitude and Practice Towards Methadone Maintenance Therapy among Pharmacists in Melaka Ministry of Health Facilities</td>
<td>Ms. Yau Chiet Yien</td>
<td>Hospital Melaka</td>
<td>64</td>
</tr>
<tr>
<td>Session</td>
<td>Abstracts#</td>
<td>Title</td>
<td>Presenter</td>
<td>Institution</td>
<td>Page</td>
</tr>
<tr>
<td>---------</td>
<td>-----------</td>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------</td>
<td>--------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>11th June 2014 (Wednesday) 10.30 – 12.15 pm</td>
<td>OO14</td>
<td>Comparing Point of Care Devices for International Normalised Ratio Testing with Standard Laboratory Methods at a Hospital Based Anticoagulation Clinic</td>
<td>Ms. Foong Wai Keng</td>
<td>Hospital Raja Permaisuri Bainun, Perak</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>OO15</td>
<td>Knowledge, Attitude &amp; Practice (KAP) of Cancer Patients Towards Antiemetic Medications: HRPZ II Experience</td>
<td>Ms. Nazif Salihin bin Ahmad Imran</td>
<td>Hospital Raja Perempuan Zainab II, Kelant</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>OO16</td>
<td>Adherence of Pharmacy Personnel to Standard Operating Procedure in Medication Dispensing</td>
<td>Ms. Malathi Siriraman A/P Jayaraman</td>
<td>Hospital Sultanah Bahiyah, Kedah</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>OO17</td>
<td>A Multi-Center Cross Sectional Study on Sales of Medicinal Products in Tanah Rancangan FELDA, Malaysia</td>
<td>Mr. Mazlan Bin Ismail</td>
<td>Bahagian Perkhidmatan Farmasi, KKM</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>OO18</td>
<td>Prevalence of Prescribing Error in Manual Method of Prescribing at Hospital Raja Permaisuri Bainun Ipoh</td>
<td>Mr. Chang Chee Tao</td>
<td>Hospital Raja Permaisuri Bainun, Perak</td>
<td>66</td>
</tr>
<tr>
<td>11th June 2014 (Wednesday) 2.30 – 5.30 pm</td>
<td>OO19</td>
<td>Practices and Self Confidence Towards Antibiotic Prescribing: An Exploratory Study Focusing Prescribers in the District of Kota Setar, Kedah, Malaysia</td>
<td>Ms. Rabiatul Salmi binti Md Rezal</td>
<td>Klinik Kesihatan Simpang Empat, Kedah</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>OO20</td>
<td>A Study on Jobs Satisfaction and Level of Stress among Pharmacists Working in Government Hospitals and Health Clinics in Negeri Sembilan</td>
<td>Ms. Lee Wai Han</td>
<td>Hospital Tuanku Ampuan Najihah, Negeri Sembilan</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>OO21</td>
<td>Knowledge, Attitude and Perceptions of Pharmacists in Government Service Towards Adverse Drug Reaction Reporting in Kelantan</td>
<td>Ms. Nor Akila binti Mahmood</td>
<td>Klinik Kesihatan Bandar Kota Bharu, Kelant</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>OO22</td>
<td>Prevalence of High On-Treatment Platelet Reactivity to Aspirin in Patients with Stable Coronary Artery Disease</td>
<td>Mdm. Yanti Nasyuhana binti Sani</td>
<td>Pusat Jantung Hospital Umum Sarawak</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>OO23</td>
<td>A Survey Assessing Knowledge and Perception of Patients Towards Generic Medicines in Hospital Seberang Jaya (HSJ)</td>
<td>Ms. Catherine Lim Tze Yinn</td>
<td>Hospital Seberang Jaya, Pulau Pinang</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>OO24</td>
<td>The Association of Thrombin and Factor Xa with the Time in Therapeutic Range in Patients on Long Term Warfarin Therapy</td>
<td>Dr. Lawrence Anak Anchah</td>
<td>Pusat Jantung Hospital Umum Sarawak</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>OO25</td>
<td>Study on Knowledge and Use of Sublingual Glyceryl Trinitrate among Patients with Acute Coronary Syndrome in Hospital Sultan Haji Ahmad Shah, Temerloh</td>
<td>Ms. Revathy A/P Dava</td>
<td>Hospital Sultan Haji Ahmad Shah, Pahang</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>OO26</td>
<td>Prevalence of Drug Allergy/Hypersensitivity in Hospital Tuanku Ja’afar Seremban (HTJS) in 2012</td>
<td>Ms. Nur Liyana binti Zainal Bahrain</td>
<td>Hospital Tuanku Ja’afar Seremban, Negeri Sembilan</td>
<td>70</td>
</tr>
</tbody>
</table>
## POSTER PRESENTATIONS

<table>
<thead>
<tr>
<th>Session</th>
<th>Abstracts#</th>
<th>Title</th>
<th>Presenter</th>
<th>Institution</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>P1</td>
<td>Knowledge, Attitudes and Practice Regarding the Use of Analgesics among Doctors in a Tertiary Public Health Institution</td>
<td>Mdm. Jaime Chan Yoke May</td>
<td>Hospital Umum Sarawak</td>
<td>72</td>
</tr>
<tr>
<td>P2</td>
<td>P2</td>
<td>Patient Satisfaction and Medication Adherence Evaluation in HIV MTAC, Hospital Sungai Buloh</td>
<td>Mdm. Siti Noor Adila binti Talhah</td>
<td>Hospital Sungai Buloh, Selangor</td>
<td>72</td>
</tr>
<tr>
<td>P3</td>
<td>P3</td>
<td>Parental Perception and Beliefs about Childhood Asthma</td>
<td>Mdm. Radhiatul Mardhiyah binti Ngajidin</td>
<td>Hospital Sultan Haji Ahmad Shah, Pahang</td>
<td>73</td>
</tr>
<tr>
<td>P4</td>
<td>P4</td>
<td>The Impact of Depressive Symptoms on Medication Adherence and Glycaemic Control in Type 2 Diabetes Mellitus in Hospital Kajang</td>
<td>Mdm. Noor Marliza binti Mohd Zamri</td>
<td>Hospital Kajang, Selangor</td>
<td>73</td>
</tr>
<tr>
<td>P5</td>
<td>P5</td>
<td>Methadone Maintenance Treatment Program: Quality of Life of Opioid-Dependent Persons in Hospital Sultan Haji Ahmad Shah, Temerloh</td>
<td>Mr. Amirul Hazim bin Shukri</td>
<td>Hospital Sultan Haji Ahmad Shah, Pahang</td>
<td>74</td>
</tr>
<tr>
<td>P6</td>
<td>P6</td>
<td>The Correlation of Delay in Appropriate Antimicrobial Therapy Initiation with Mortality Rate in Septic Shock</td>
<td>Ms. Nik Najibah binti Nik Abdul Rahman</td>
<td>Hospital Tengku Ampuan Afzan, Pahang</td>
<td>74</td>
</tr>
<tr>
<td>P7</td>
<td>P7</td>
<td>Correlation of Phenytoin Level with Rhabdomylosis and Thrombocytopenia in Critically Ill Patients with Hypoalbuminaemia</td>
<td>Ms. Rahela binti Ambaras Khan</td>
<td>Hospital Sungai Buloh, Selangor</td>
<td>75</td>
</tr>
<tr>
<td>P8</td>
<td>P8</td>
<td>Patient-Reported Outcomes (PROS) of Long Term Anticoagulant Therapy in Hospital Sultan Haji Ahmad Shah, Temerloh</td>
<td>Ms. Siti Masyitah binti Mohd Tawil</td>
<td>Hospital Sultan Haji Ahmad Shah, Pahang</td>
<td>75</td>
</tr>
<tr>
<td>P9</td>
<td>P9</td>
<td>Evaluation of the Effectiveness of Methadone Maintenance Treatment (MMT) for the Reduction of Heroin relapse in Penang</td>
<td>Mr. Ong Peng Seng</td>
<td>Hospital Pulau Pinang</td>
<td>76</td>
</tr>
<tr>
<td>P10</td>
<td>P10</td>
<td>Predictor of Adherence to Calcium Carbonate as Phosphate Binder among Dialysis Patients in Hospital Raja Perempuan Zainab II</td>
<td>Mdm. Hajjah Nik Azlean binti Nik Ismail</td>
<td>Hospital Tanah Merah, Kelantan</td>
<td>76</td>
</tr>
<tr>
<td>P11</td>
<td>P11</td>
<td>Economic Evaluation of Hepatitis C Management in Hospital Sultanah Bahiyah</td>
<td>Mr. Chew Beng Hoong</td>
<td>Hospital Sultanah Bahiyah, Kedah</td>
<td>77</td>
</tr>
<tr>
<td>P12</td>
<td>P12</td>
<td>Generic Medicines: Assessment of the Knowledge and Perception among Healthcare Professionals in Hospital Sultanah Bahiyah (HSB)</td>
<td>Mdm. Norazila binti Abd. Ghani</td>
<td>Hospital Sultanah Bahiyah, Kedah</td>
<td>77</td>
</tr>
<tr>
<td>P13</td>
<td>P13</td>
<td>The Impact of Structured Self-Monitoring Blood Glucose (SMBG) on the Glycemic Control of Type 2 Diabetic Patients</td>
<td>Mdm. Nurhamizah binti Noor Rahim</td>
<td>Hospital Putrajaya</td>
<td>78</td>
</tr>
<tr>
<td>Session</td>
<td>Abstracts#</td>
<td>Title</td>
<td>Presenter</td>
<td>Institution</td>
<td>Page</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------</td>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------</td>
<td>------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>11th June 2014 (Wednesday) 9.15 – 10.15 am</td>
<td>P14</td>
<td>Pharmaceutical Interventions in Female Medical Wards, Kuala Lumpur Hospital</td>
<td>Ms. Nurkhodrulnada Muhamad Lattepi</td>
<td>Hospital Kuala Lumpur</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>P15</td>
<td>Early Onset Neonatal Sepsis Pathogens in Malaysian Hospitals: Determining the Empiric Antibiotic</td>
<td>Ms. Nazedah binti Ain @ Ibrahim</td>
<td>Hospital Sungai Buloh, Selangor</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>P16</td>
<td>Long-Term Outcomes of Children Born to Women with Epilepsy</td>
<td>Mdm. Noor Wahida binti Md Said</td>
<td>Klinik Kesihatan Bachok, Kelantan</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>P17</td>
<td>Cost Analysis of the Extemporaneous Preparation of Folic Acid 1mg/mL Syrup in Sungai Buloh Hospital Out-Patient Pharmacy Department with the Use of Either Simplex Syrup or X-Temp Suspension As a Suspension Vehicle</td>
<td>Mr. Hing Yee Liang</td>
<td>Hospital Sungai Buloh, Selangor</td>
<td>80</td>
</tr>
<tr>
<td>11th June 2014 (Wednesday) 10.30 – 12.15 pm</td>
<td>P18</td>
<td>Adverse Drug Reactions among Patients with Rheumatoid Arthritis</td>
<td>Mdm. Najwa binti Mohd Nasir</td>
<td>Klinik Kesihatan Serendah, Selangor</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>P19</td>
<td>Client Satisfaction Towards Pharmacy Enforcement Services in Sarawak</td>
<td>Mr. Ting Chuo Yew</td>
<td>Cawangan Penguatkuasa Farmasi Sarawak</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>P20</td>
<td>Exploration of Knowledge and Practice among Doctors in the Usage of Acid Suppressant Therapy at a Tertiary Public Health Institution: A Cross-Sectional Survey</td>
<td>Mdm. Phan Hui Sieng</td>
<td>Hospital Bau, Sarawak</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>P21</td>
<td>Antibiotic Use, Expenditure and Outcomes at Kajang Hospital: The Impact of Antibiotic-Medifact Program</td>
<td>Mdm. Lim Lee Ling</td>
<td>Hospital Kajang, Selangor</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>P22</td>
<td>Impact of Medication Belief Towards Medication Adherence among Hypertensive Patients in Primary Health Clinic Ministry of Health</td>
<td>Mdm. Nur Kamalah binti Daud @ Mahusain</td>
<td>Klinik Kesihatan Kajang, Selangor</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>P23</td>
<td>The Effect of Iron Chelating Therapy on Health-Related Quality of Life (HRQOL) in Pediatric Thalassemic Patient</td>
<td>Ms. Chong Lai Peng</td>
<td>Hospital Melaka</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td>P24</td>
<td>Are Antibiotics Usage Justified in Primary Care Setting in Klang?</td>
<td>Ms. Cheang Ching Ye</td>
<td>Pejabat Kesihatan Daerah Klang, Selangor</td>
<td>83</td>
</tr>
<tr>
<td>Session</td>
<td>Abstracts#</td>
<td>Title</td>
<td>Presenter</td>
<td>Institution</td>
<td>Page</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------</td>
<td>--------------------------------------------------------------</td>
<td>------------------------------------</td>
<td>------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>11th June 2014 (Wednesday) 2:30 – 5:30 pm</td>
<td>P25</td>
<td>Patients’ Perception Towards Drive-Thru Pharmacy Service in Hospital Pulau Pinang</td>
<td>Mr. Lim Khoon Hup</td>
<td>Hospital Pulau Pinang</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>P26</td>
<td>Study of Polymyxin Prescribing Pattern in a Tertiary Care Hospital</td>
<td>Ms. Ros Sakinah binti Kamaludin</td>
<td>Hospital Raja Permaisuri Bainun, Perak</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>P27</td>
<td>Incidence and Causality in Adverse Drug Reaction-Related Admission to Hospital: A Systematic Review</td>
<td>Ms. Siti Kamilah binti Malik</td>
<td>Hospital Kajang, Selangor</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>P28</td>
<td>Comparison of Letrozole and Clomiphene Citrate for Induction of Ovulation in Women with Polycystic Ovary Syndrome</td>
<td>Ms. Ezazaya binti Othman</td>
<td>Hospital Sungai Bakap, Pulau Pinang</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>P29</td>
<td>Knowledge, Attitude and Practice on Drugs for Mineral and Bones Disorder in Hemodialysis Patients in Hospital Kuala Krai</td>
<td>Ms. Wan Nor Azira binti Wan Abdullah</td>
<td>Hospital Kuala Krai, Kelantan</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>P30</td>
<td>Impact of Pharmacists Counseling on Patients’ Medication Knowledge in Hospital Pulau Pinang</td>
<td>Ms. Angie Chuah Su Ching</td>
<td>Hospital Pulau Pinang</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>P31</td>
<td>Safety Culture among Pharmacists at Hospitals and Health Clinics in Malacca</td>
<td>Mdm. Srima Elina binti Samsuri</td>
<td>Jabatan Kesihatan Negeri Melaka</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td>P32</td>
<td>National Survey: Exploring Job Satisfactions among Hospital Pharmacists in Malaysia</td>
<td>Ms. Wan Azuati binti Wan Omar</td>
<td>Hospital Taiping, Perak</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td>P33</td>
<td>Assessment of Healthcare Professionals’ Knowledge on Interactions of Warfarin with Drugs, Supplements and Nutrients in Hospital Ampang, Malaysia</td>
<td>Ms. Io Shir Hwa</td>
<td>Hospital Ampang, Selangor</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>P34</td>
<td>Attitudes and Perceptions of Healthcare Professionals Towards Clinical Pharmacy Services in Lahad Datu Hospital (APHP-CPS)</td>
<td>Mr. Alvin Jong Chok Leong</td>
<td>Hospital Lahad Datu, Sabah</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>P35</td>
<td>The Effect of Warfarin Brand Switching on International Normalized Ratio and Warfarin Dose</td>
<td>Ms. Corinne Chew Shu Ling</td>
<td>Hospital Sibu, Sarawak</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>P36</td>
<td>Clinical Impact of Empirical Antifungal Therapy on the Survival from Infection in Chemotherapy-Induced Febrile Neutropaenic Adult Patients</td>
<td>Mdm. Chong Shiau Chin</td>
<td>Hospital Ampang, Selangor</td>
<td>89</td>
</tr>
</tbody>
</table>
Compendium of Abstracts
ORAL PRESENTATIONS
FACTORS INFLUENCING TIME IN THERAPEUTIC RANGE IN PATIENTS ON LONG TERM WARFARIN THERAPY

L. Anchah1, M.S.H. Lim1,2, L.L. Tiong1,2, M. Melissa1,2, N.S. Yanti1,2, A.Y.Y. Fong2,3, T.K. Ong1

1Department of Pharmacy, Pusat Jantung Hospital Umum Sarawak, Kota Samarahan
2Clinical Research Centre, Hospital Umum Sarawak
3Department of Cardiology, Pusat Jantung Hospital Umum Sarawak, Kota Samarahan

INTRODUCTION: Time in therapeutic range (TTR) is used to predict the anticoagulation control over a period of time. Generally a low percentage of TTR below 66% is associated with an increased risk of stroke and haemorrhage.

OBJECTIVES: This study aims to examine the clinical features and factors influencing TTR in a multi-ethnic Sarawak population with atrial fibrillation (AF).

METHOD: We enrolled 176 patients with AF on at least one year of warfarin therapy in Sarawak General Hospital Heart Centre. Patient demographic data, concomitant drugs and 10 previous INR measurements at the point of recruitment date were recorded.

RESULTS: The study population comprised of 94 (53.4%) males, with a mean age (SD) of 57.1 (8.2) years. The ethnic distribution was 52 (29.5%) Malay, 79 (44.9%) Chinese, and 45 (25.6%) non-Malay Bumiputras, respectively. In a multi-ethnic population with atrial fibrillation treated on long-term warfarin, we noted that they were middle-aged and with females receiving lower doses. Mean TTR (SD) was 61.6 (22.8)% with a mean weekly warfarin dose (SD) of 19.8 (7.4)mg. The mean weekly warfarin dose was significantly lower in females [17.9 (7.0) mg vs 21.5 (7.3)mg, P=0.001] and was statistically different between ethnic groups (P=0.002). There was no correlation between TTR with CHA2DS2VASC score, age and race. There was no significant difference in TTR between genders. TTR was significantly affected by concurrent use of other prescribed medications like antiarrhythmics and diuretics (P<0.05) However, there is no significant finding on other drugs such as antiplatelets, statins or beta-blockers.

CONCLUSION: TTR level was acceptable, and factors influencing this were being on concomitant antiarrhythmics and diuretics. Future studies to ascertain factors, including genetics, that influences TTR are warranted.

ID No.: NMRR-12-82-10952
Keywords: time in therapeutic range, warfarin, atrial fibrillation

THE USE OF SELF-MONITORING BLOOD GLUCOSE AND ITS RELATIONSHIP WITH GLYCAEMIC CONTROL IN INSULIN-TREATED TYPE 2 DIABETIC PATIENTS

W.J. Ding, M.C. Wong, L.Y. Chong, P.C. Kong, N.A. Amran, S. Rezuan
Department of Pharmacy, Hospital Raja Permaisuri Bainun, Ipoh

INTRODUCTION: Self-monitoring blood glucose (SMBG) is recommended by local and international guidelines for type-2 diabetic patients on insulin treatment as it may be useful in achieving glycaemic goals.

OBJECTIVES: This study aims to determine the relationship between SMBG and glycaemic control as well as the frequency at which SMBG is performed in insulin-treated type 2 diabetic patients.

METHOD: A cross-sectional study using an interview-based questionnaire was conducted from August to October 2012 in the general medical and endocrine clinics of Hospital Raja Permaisuri Bainun, Ipoh. Type 2 diabetic patients on insulin therapy aged between 18 to 75 years with HbA1c results obtained within 1 year prior to the time of the study were included. The estimated sample size was 100 patients with 50 in each group (insulin-treated type 2 diabetic patients who performed SMBG and insulin-treated type 2 diabetic patients who did not perform SMBG). Patients were conveniently sampled and the study significance level was 0.05 with a power of 80%.

RESULTS: A total of 98 patients were recruited (n=49 in each group). There were no statistically significant differences between the two groups with respect to age, gender, ethnicity, BMI, years of diabetes, years of insulin usage and education level. There was a trend towards better glycaemic control in patients who performed SMBG with HbA1c 9.69% (95% CI 9.11, 10.27) compared to the group who did not perform SMBG with HbA1c 10.63% (95% CI 9.90, 11.34) but this was not statistically significant. The majority of patients who performed SMBG (55.1%) tested their glucose levels more than once per week but less than once per day while only 6 patients (12.2%) performed SMBG at least once a day.

CONCLUSION: There is a trend towards better glycaemic control in patients who performed SMBG.

ID No.: NMRR-12-160-11324
Keywords: self-monitoring blood glucose, glycaemic control, diabetes, insulin
APPROPRIATENESS OF THE USE OF HISTAMINE H2 RECEPTOR ANTAGONISTS/PROTON PUMP INHIBITORS FOR STRESS ULCER PROPHYLAXIS IN THE MEDICAL WARDS IN KULIM HOSPITAL

C.W. Choong¹, M.Y. Hong¹, N.S. Vong¹, W. Choo¹, C.H. Tai¹, M.H. Tan¹, J.Y. Ooi¹, Y.C. Ong²
¹Department of Pharmacy, Hospital Kulim
²Medical Department, Hospital Kulim

INTRODUCTION: Acid suppressive therapy (AST) is used widely as stress ulcer prophylaxis in non-ICU setting. A survey found that almost half of the physicians believed that AST will benefit patients in non-critical care setting. However, most of these patients were receiving acid suppressant without proper indications. Doubt on the use of AST arise when patient exposes to side effects of AST instead of gaining the benefit of it.

OBJECTIVES: To evaluate appropriateness of using histamine H2 Receptor Antagonists or Proton Pump Inhibitors for stress ulcer prophylaxis in non-ICU setting.

METHOD: A one year prospective cohort study was conducted in medical wards. 80 patients were assigned to either control arm (not on stress ulcer prophylaxis (SUP)) or intervention arm (on SUP). All patients were followed up for 4 weeks after started on AST. The primary outcome was observed on the changes in glasgow dyspepsia severity score.

RESULTS: For intervention group, the Glasgow Dyspepsia Severity Score (GDSS) had reduced from 0.58 to 0.50 at second week and remain at 0.50 at fourth weeks after discharge. For control group, the GDSS reduced from 0.38 to 0.20 at second week and further reduced to 0.12 at fourth week after discharge. No significant difference was found in the change of mean GDSS between both group (P=0.393 at week 2, 0.231 at week 4).

CONCLUSION: Both intervention and control arm showed no significant difference in the Glasgow Dyspepsia Severity Score throughout the study. This implies that the use of histamine H2 antagonists or PPI as SUP in patients not in ICU setting, who do not have clear indication, is not justified.

ID No.: NMRR-13-638-16229
Keywords: proton pump inhibitor, histamine H2 receptor antagonist, stress ulcer prophylaxis

PREScribing practice of Loading DOSES of Intravenous Phenytoin in Kuala Lumpur Hospital

J. Sivakami, S.Y. Thian, S.Y. Yeoh, Y.W. Tan
Department of Pharmacy, Hospital Kuala Lumpur

INTRODUCTION: Intravenous phenytoin loading is frequently used to abort seizure or to provide rapid therapeutic level. Phenytoin loading is associated with serious adverse cardiovascular events, thus local guideline have suggested blood pressure (BP) and electrocardiogram (ECG) monitoring throughout intravenous phenytoin loading.

OBJECTIVES: To compare intravenous phenytoin loading practice in Kuala Lumpur Hospital with Consensus Guidelines on the Management of Epilepsy 2010 and to determine the appropriateness of intravenous phenytoin administration.

METHOD: This is a descriptive prospective study conducted in Kuala Lumpur Hospital among adults (more than 18 years) loaded with intravenous phenytoin. Twenty-six subjects from various disciplines were recruited from May to October 2013. Subjects were identified by ward pharmacists and were verbally informed to the investigators. Data on whether BP and ECG monitoring were performed, infusion rate, dilution and phenytoin loading dose were collected from subjects’ progress note.

RESULTS: BP was monitored in 81% of the subjects throughout phenytoin loading with majority of patients from discipline of Neurology not being monitored. Only 8% of subjects had their ECG monitored and this could be due to limited availability of ECG monitors. All subjects were administered appropriately in terms of infusion rate of not more than the maximum 50mg/min and a diluted concentration of equal or less than 10mg/mL. Twenty-two subjects (84.6%) were dosed appropriately (10-20mg/kg), three subjects (11.5%) were underdosed and one subject (3.9%) was given a dose higher than 20mg/kg.

CONCLUSION: Overall, monitoring of subjects during the intravenous phenytoin loading can be improved. However, administration of intravenous phenytoin is carried out appropriately in Kuala Lumpur Hospital. This result warrants future study to correlate the monitoring rate and administration of phenytoin with subjects’ outcome.

ID No.: NMRR-13-1303-18754
Keywords: phenytoin, loading dose, intravenous phenytoin, ECG monitoring
COMPARATIVE STUDY ON THE EFFECTIVENESS, SAFETY AND ACCEPTABILITY OF UNGUENTUM COCOIS AND CERA-SCALP® OINTMENT IN THE TREATMENT OF SCALP PSORIASIS

Department of Pharmacy, Hospital Pulau Pinang

INTRODUCTION: Unguement Cocos (Ung. Cocos) is manufactured locally whereas Cera-Scalp® is a commercial product used for the treatment of scalp psoriasis. Both contain the same efficacy ingredients; coal tar, salicylic acid and precipitated sulphur, but Cera-Scalp® is more expensive.

OBJECTIVES: This study aimed to compare the efficacy, safety and patients’ acceptability of Ung. Cocos vs. Cera-Scalp®.

METHOD: A prospective, open-labelled study was conducted among moderate to severe scalp psoriasis patients. Selected patients were consented and instructed to part their hair and apply Ung cocois on right half and Cera-Scalp® on the left half of the scalp. They were informed to gently rub the ointment on the scalp and leave it for approximately four hours for Ung Cocos and one hour for Cera-Scalp® before rinse off with warm water and shampoo. The same dermatology specialist assessed the effectiveness of both products during week 0, 1 and 4 using a scalp-modified Psoriasis Area and Severity Index (s-mPASI) score (5 points scale; 0=no symptoms to 4=very severe). During the last visit, the safety and acceptability of the products were assessed using modified Finlay-Khan questionnaire, graded from scale 1 to 4 (very much to none).

RESULTS: Twenty patients completed the study and mean s-mPASI score improved significantly from 2.9 at week 0 to 0.7 in Ung. Cocos and 0.6 in Cera-Scalp® at week 4 (p<0.01). However, there was no difference in the efficacy between Ung. Cocos and Cera-Scalp® (p=0.37). Generally, both treatments were well tolerated with no significant side effects and improved the condition and appearance. However, Cera-Scalp® was preferable cosmetically and also not interfering with activity (p<0.01).

CONCLUSION: Both treatments are effective and well tolerated. Therefore, Ung. Cocos is a better option as it is cheaper and Cera-Scalp® shall be reserved for cases when the treatment really interferes with activity.

THE PREDICTORS IN USAGE OF ACID SUPPRESSANT THERAPY IN MEDICAL WARDS OF A TERTIARY HOSPITAL

Department of Pharmacy, Hospital Umum Sarawak

INTRODUCTION: Proton pump inhibitor (PPI) and histamine H2 receptor antagonist (H2RA) are the most common acid suppressants used in gastrointestinal disorder. The trend of usage in Malaysia has changed from predominantly H2RA to PPI from 2007 to 2008, 3.46 versus 2.87 and 2.99 versus 3.24 Defined Daily Dose (DDD)/1000 population/day respectively. This scenario is alarming since PPI is accounted for higher cost expenditure and associated with various untoward consequences such as Clostridium difficile associated diarrhea, pneumonia, and osteoporosis.

OBJECTIVES: This study was conducted to evaluate the indication of acid suppressant therapy and to examine the predictors associated with its usage.

METHOD: A prospective, observational study was conducted via standardized surveillance form over a 2-month period in the medical wards of Sarawak General Hospital. All newly admitted patients who received at least one dose of PPI or H2RA in intravenous or oral dosage form were included in the study. Descriptive statistic and logistic regression were used in data analysis.

RESULTS: Out of 212 cases in the present cohort, about three-quarter n=160 (75.5%) of acid suppressant therapy were given as prophylaxis with the remaining cases were intended for treatment. PPI was the preferred agent accounting for n=120 (75.0%) compared to H2RA in the prophylaxis arm, with more than half n=63 (52.5%) of PPI prophylaxis did not fulfill the criteria as deemed necessary. Out of 63 cases, PPI was prone to be given to patients with only one antiplatelet, anticoagulant or corticosteroid (38.1%). This was followed by 25.4% with single medical condition such as sepsis or renal failure. Renal insufficiency had been identified as the only predictor associated with the initiation of prophylactic PPI over H2RA (OR 2.86, 95% CI 1.21, 6.72, p=0.011).

CONCLUSION: Majority of prophylactic PPI could be over utilized and unnecessary. The translation of present guideline into practice was less satisfactory.

Keywords: proton pump inhibitor, histamine H2 receptor antagonist, acid suppressant therapy
SUBOPTIMAL RESPONSE TO ASPIRIN AND CLOPIDOGREL: 1-MONTH CLINICAL OUTCOMES IN PATIENTS IMPLANTED WITH DRUG ELUTING STENTS

M. Melissa1,2, L.L. Tiong1,2, M.S.H. Lim1,2, N.S. Yanti1,2, S. Tan1,2, L. Anchah1, T.K. Ong2, A.Y.Y. Fong2,3
1Department of Pharmacy, Pusat Jantung Hospital Umum Sarawak, Kota Samarahan
2Department of Cardiology, Pusat Jantung Hospital Umum Sarawak, Kota Samarahan
3Clinical Research Centre, Hospital Umum Sarawak

INTRODUCTION: Dual antiplatelet therapy (DAPT) combining aspirin and clopidogrel remains the cornerstone for preventing stent thrombosis in patients undergoing percutaneous coronary intervention (PCI) with drug eluting stents (DES). Suboptimal response to DAPT has been associated with an increased risk of major adverse cardiovascular events (MACE).

OBJECTIVES: To compare the degree of antiplatelet response and 1-month clinical outcomes in those who had suboptimal response to both aspirin and clopidogrel against patients with suboptimal response to either or none of the antiplatelets.

METHOD: Of 690 patients with DES screened, 190 patients receiving aspirin ≥75mg daily for ≥2 days and clopidogrel 75mg daily for ≥4 days prior to PCI were recruited at Sarawak General Hospital Heart Centre between 18/06/2012-19/12/2013. Platelet aggregation was analysed with multiple electrode aggregometry (MEA) and expressed as AU*min. Patients with MEA≥300AU*min were classified as aspirin poor responders, and MEA≥468AU*min as clopidogrel poor responders. Poor responders to both drugs were classified as dual poor responders (DPR).

RESULTS: From the cohort, 112 (58.9%) patients demonstrated adequate antiplatelet response to both drugs (Group 1), 59 (31.1%) were poor responders to either aspirin or clopidogrel (Group 2) and 19 (10%) were DPR (Group 3). Mean±SD MEA for aspirin was 172±84 AU*min, 213±84 AU*min, 341±53 AU*min in Group 1, 2 and 3, respectively. Mean±SD MEA for clopidogrel was 274.5±140 AU*min, 557±240 AU*min and 673±224 AU*min in Group 1, 2 and 3 respectively. The 1-month MACE was 1.8%, 5.1% and 5.3% in Groups 1, 2 and 3, respectively.

CONCLUSION: There was a low prevalence of DPR in stable patients implanted with DES. 1-month MACE rate of patients with DPR was similar to those who were poor responders to a single antiplatelet. Adequate response to both antiplatelets confers a superior 1-month protection against MACE compared to suboptimal response to either or none of the antiplatelets.

A FIXED-DOSE COMBINATION THERAPY VERSUS DUAL ANTIDIABETIC THERAPY: IMPACT ON GLYCAEMIC CONTROL AND WEIGHT PROFILE

T.M. Loh1, H.E. Lim2, Y. Noorazlinda2, A.H. Hafiza2
1Department of Pharmacy, Klinik Kesihatan Merlimau, Melaka
2Department of Pharmacy, Hospital Melaka

INTRODUCTION: Type 2 diabetes mellitus (T2DM) is a complex progressive disorder characterized by impaired insulin sensitivity, reduced insulin secretion and progressive failure of β- pancreatic cells. Combinations of antidiabetic agent commonly prescribed directly minimize patient’s pill burden thus increasing medication adherence leading to effective treatment.

OBJECTIVES: To evaluate the impact of fixed-dose combination (FDC) versus dual therapy on glycaemic control and weight profile.

METHOD: A retrospective cohort study was conducted by reviewing T2DM patients’ records attending diabetic clinic in Hospital Melaka from 1st January to 31st December 2012. Measurable parameter includes reduction in glycosylated haemoglobin (HbA1c), fasting blood glucose (FBG) and weight from baseline and after 6 months follow-up. Data was analyzed by using SPSS paired-t test and one way ANOVA test.

RESULTS: A total of 81 T2DM patients who received FDC n=18 (Glucovance®) and n=20 (Janumet®,) and dual therapy n=43 (Metformin+Gliclazide) were studied. Reduction in HbA1c level from baseline to post 6 months was statistically significant in treatment group using FDC, however, mean reduction of FBG and were insignificant. Mean difference of HbA1c from baseline and after 6 months follow up was 0.61% (p=0.014) for Glucovance®, 0.52% (p=0.031) for Janumet®, and 0.03% (p=0.926) for Metformin+Gliclazide. Among all regimens, there is insignificant difference in terms of superiority of FDC versus dual therapy on glycaemic control and weight profile (p>0.05).

CONCLUSION: The outcome of this study reflects that FDC and dual therapy have an impact on glycaemic control and weight reduction to a parallel comparable extent in diabetes mellitus.

ID No.: NMRR-13-395-15091
Keywords: type 2 diabetes mellitus, fixed-dose combination, dual therapy, glycaemic control
OC9

EVALUATION ON IN-HOSPITAL OUTCOMES OF ST-ELEVATION MYOCARDIAL INFARCTION PATIENTS TREATED WITH STREPTOKINASE

H. Normi1, S. Sofiyyah1, L.L. Sin2, P.K. Lai3, L. Yvonne4
1Department of Pharmacy, Hospital Seri Manjung
2Department of Pharmacy, Hospital Slim River
3Bahagian Perkhidmatan Farmasi, Jabatan Kesihatan Negeri Perak
4Department of Pharmacy, Hospital Changkat Melintang

INTRODUCTION: Ischemic heart disease remained the first leading cause of death and caused 7 million deaths worldwide in 2011. Early reperfusion therapy with fibrinolytic agent Streptokinase in ST-Elevation Myocardial Infarction (STEMI) patients has been shown to reduce mortality up to 50% but it may cause various adverse effects. Evaluation on the benefits and main complications encountered in our own population will enable effective management been implemented.

OBJECTIVES: To determine the in-hospital mortality rate, survival of STEMI patients treated with Streptokinase, its’ complications and predictors of the outcome.

METHOD: Retrospective study which involved data collection of 102 STEMI patients treated with 1.5 million units intravenous Streptokinase who had been admitted to Coronary Care Unit Seri Manjung Hospital from June 2009 to December 2011 was conducted. The primary outcome measured was in-hospital mortality rate and percentage of survived STEMI patients. Categorical variables were analysed with chi-square test and independent t-test was used to analyse parametric continuous variables.

RESULTS: Majority of patients included were male (86.3%), Malays (61.8%) and smokers (55.9%). There were 90 patients survived (88.2%) and 12 patients died (11.8%, p=0.001). Median age (IQR) of survived patients was 53 years (48-63) and higher to those patients who died, 68 years (59-77), p=0.002. Univariate regression analysis showed that Chinese patients, smokers, alcoholic had higher odds of mortality (OR 3.56, 95% CI 0.74,17.14), p=0.113; (OR 1.58, 95% CI 0.39,6.43), p=0.524; and (OR 3.91, 95% CI 0.86,17.81), p=0.079 respectively. Most patients developed hypotension (53.9%) compared to bleeding (17.6%). Lower mean systolic blood pressure (SBP) and diastolic blood pressure (DBP) post streptokinase significantly carried higher risk of mortality (OR 0.96, 95% CI 0.93, 0.99), p=0.017 and (OR 0.94, 95% CI 0.902,0.987), p=0.012.

CONCLUSION: In-hospital mortality rate of STEMI patients in Seri Manjung Hospital was comparable to national data and hypotension was the main complication developed.

ID No.: NMRR-11-930-10635
Keywords: STEMI, streptokinase, mortality rate

OC10

EFFECT OF ERYTHROPOIETIN ON BLOOD PRESSURE AMONG HAEMODIALYSIS PATIENTS IN HOSPITAL KUALA KRAI

Department of Pharmacy, Hospital Kuala Krai

INTRODUCTION: Anemia is among the most important complications of chronic kidney disease. Erythropoietin (EPO) may improve anemia, but it can cause hypertension in these patients.

OBJECTIVES: Our aim is to investigate the effect of EPO on blood pressure (BP) at 0, 15 and 30 minutes among patients undergoing haemodialysis in Haemodialysis Unit (HDU), Hospital Kuala Krai (HKK). We also investigate the effect of two different doses of EPO and demographic factors on incremental blood pressure.

METHOD: A prospective study of EPO-alpha (Eprex) therapy on haemodialysis patients was conducted from April to August 2013. BP was measured at 0, 15, and 30 minutes after EPO injection. Paired t test was used to analyze mean arterial pressure (MAP) at 0, 15, and 30 minutes.

RESULTS: Among 36 patients that were evaluated, 32 patients showed significant incremental of MAP (>4mmHg) after 30 minutes of EPO injection (107±12)mmHg to (119±16)mmHg, p=0.001. Patients receiving EPO 4000IU/dose had higher mean MAP at 30 min (105 to 128mmHg) compared to 2000IU/dose (108 to 116mmHg), p=0.03. No significant association between demographic factors (age, gender, race, hemodialysis duration, family history of hypertension, existence of hypertension and number of antihypertensive used) with the incremental blood pressure.

CONCLUSION: EPO showed significant incremental of MAP in majority of haemodialysis patients in HKK. Patients receiving EPO 4000IU/dose had higher mean MAP but not influence by demographic factors.

ID No.: 16375
Keywords: haemodialysis, erythropoietin, blood pressure, mean arterial pressure
COMPARISON ON PHARMACOKINETIC PARAMETERS IN ADULT WITH VANCOMYCIN AND GENTAMICIN IN PAHANG TERTIARY HOSPITALS

A.G. Nur Fazlin1, M.T. Siti Masyitah2, S. Nurul Hidayah1, M.R. Mohemmad Redzuan1, R.Y. Fong1, J.M. Yew1, M.Z.A. Hajar1
1Department of Pharmacy, Hospital Tengku Ampuan Afzan, Kuantan
2Department of Pharmacy, Hospital Sultan Haji Ahmad Shah, Temerloh

INTRODUCTION: Pharmacokinetic parameters such as elimination rate constant (Ke), half-life (t1/2) and volume of distribution (Vd) may vary in different setting and population. Local population pharmacokinetic parameters would be more helpful to pharmacist when performing dosage recommendation during therapeutic drug monitoring (TDM).

OBJECTIVES: The main aim of this study was to compare adult population parameters for vancomycin and gentamicin in Hospital Tengku Ampuan Afzan (HTAA) and Hospital Sultan Haji Ahmad Shah (HoSHAS) and to generate population pharmacokinetic data based on these two settings. In addition, the study also compared the pharmacokinetic parameters for vancomycin and gentamicin between normal and impaired renal function adult patients.

METHOD: A retrospective multi-centered study was undertaken for Pharmacy TDM unit of HTAA and HoSHAS. Data were retrieved and analysed using standard TDM guidelines formulae and compared using Mann-Whitney U Test.

RESULTS: Gentamicin and vancomycin data were obtained from 388 and 258 patients respectively. Vd of gentamicin and vancomycin between HTAA and HoSHAS showed no significant difference (Gentamicin: 0.378 vs 0.434, p=0.056; Vancomycin: 0.617 vs 0.718, p=0.119) while K_e (Gentamicin: 0.215 vs 0.714, p<0.001; Vancomycin: 0.116 vs 0.060, p<0.001) and t_1/2 (Gentamicin: 3.20 vs 3.95, p<0.001; Vancomycin: 5.975 vs 9.976, p<0.001) showed significant difference. The mean population V_d for vancomycin and gentamicin were 0.94L/kg and 0.56L/kg. Vancomycin V_d between normal and impaired renal function showed no significant difference (0.67 vs 0.67, p=0.905) while K_e (0.05 vs 0.11, p<0.001) and t_1/2 (13.59 vs 6.23, p<0.001) showed significant difference. However, no significant differences were observed for V_d (0.440 vs 0.411, p=0.087), K_e (0.180 vs 0.187, p=0.488), t_1/2 (3.680 vs 3.687, p=0.789) for gentamicin between normal and impaired renal patients. The population pharmacokinetic data for gentamicin between renal impairment and normal renal function were V_d=0.56L/kg, K_e=0.2195h-1 and t_1/2=5.006h.

CONCLUSION: Vd of vancomycin and gentamicin for Pahang population can be generated but not for the other parameters. In patient with normal and impaired renal function, only population Vd for Vancomycin can be generated while all pharmacokinetic parameters for Gentamicin can be generated.

ID No.: NMRR-13-1068-15689
Keywords: pharmacokinetic parameters, vancomycin, gentamicin

PREVALENCE OF ADVERSE DRUG REACTIONS AND RISK FACTORS IN ADULT PATIENTS RECEIVING HAART IN HOSPITAL PULAU PINANG

Department of Pharmacy, Hospital Pulau Pinang

INTRODUCTION: Highly Active Antiretroviral Therapy (HAART) produces common and often strong adverse drug reactions (ADRs) that can lead to non-adherence and interruptions in the drug regimen. Therefore, early recognition of adverse reactions is necessary to improve tolerability and effectiveness of the therapy.

OBJECTIVES: To determine the prevalence of ADRs and the risk factors associated with ADRs in adult HIV patients receiving HAART.

METHOD: A retrospective cohort study was conducted in the Infectious Disease Clinic (ID Clinic) in Hospital Pulau Pinang. Data of HIV patients aged 18 years and above who received HAART were included whereas data of patients aged less than 18 years, pregnant women and patients whose data were incomplete or without baseline records were excluded. Systematic random sampling was then used to select subjects from those that met the study criteria. Two types of ADRs namely clinical or laboratory ADRs and the risk factors for ADRs such as gender, age, CD4 count, concomitant drugs, and opportunistic infections were collected. Data were analyzed using SPSS and multivariable logistic regression was used to evaluate the influence of these risk factors on the development of ADRs among the HIV patients.

RESULTS: A total of 415 retrospective cases were identified (65.5% male). There were 314 (75.7%) cases documented with at least one ADR. The most common clinical ADR was skin rash (16.4%) whereas dyslipidemia (23.6%) followed by anemia (12.3%) and hepatotoxicity (11.3%) were the most common laboratory ADR. Female was more prone to develop at least 2 ADRs as compared to male population (OR 2.4, 95% CI 1.3, 4.3; p=0.003). Besides, concomitant treatment with cotrimoxazole had greater risk of having more than 2 ADRs (OR 2.1, 95% CI 1.1, 4.1; p=0.027).

CONCLUSION: Majority of patients treated with HAART had at least one ADR while female and concomitant treatment with cotrimoxazole contribute to higher risk of ADR.

ID No.: NMRR-12-1421-12658
Keywords: prevalence, adverse drug reactions, risk factors, HAART
OC13
EFFECT OF A CLINICAL PATHWAY: PHARYNGITIS-TONSILITIS IN CHILDREN AND ADULTS ON THE USE OF ANTIBIOTICS IN TERENGGANU

A.R. Noor Rodhiah, H. Aishah, M.S. Erney, A.R. Ahmad Kashfi
1Pharmacy Department, Hospital Sultanah Nur Zahirah, Kuala Terengganu
2Medical Department, Hospital Sultanah Nur Zahirah, Kuala Terengganu

INTRODUCTION: Pharyngitis-tonsilitis is a common complaint in pediatric and adult patients. Group A Streptococcus (GAS) pharyngitis-tonsilitis can cause serious complications such as rheumatic heart disease and acute glomerulonephritis. Non-GAS infection is generally mild and self-limiting; hence does not require administration of antibiotics. A non-standardized approach to the treatment of pharyngitis-tonsilitis may lead to inappropriate empirical therapy, increased bacterial resistance, and result in adverse events related to the treatment provided.

OBJECTIVES: The objective of this study was to determine the effect of a clinical pathway, pharyngitis-tonsilitis in children and adults on the appropriateness of antibiotics use.

METHOD: A clinical pathway on pharyngitis-tonsilitis in children and adults was developed and implemented in all government hospitals and 26 health clinics (63.41%) in Terengganu. Pre-intervention and post-intervention patients were identified by prescriptions review. Pre-intervention prescriptions review was conducted between March and May 2012 and post-intervention review conducted between May and July 2013. All prescriptions with pharyngitis and/or tonsillitis were included. Patients’ medical records were retrieved to evaluate the prescription of antibiotics based on McIsaac scoring criteria and antibiotic treatment regime used. Data was analysed via SPSS 17, employing descriptive statistics and non-parametric tests.

RESULTS: We included 4,178 patients in the study (age range was 1 to 93 years, pre-intervention=2,182 patients, post-intervention=1,996 patients). Percentage of patients prescribed with antibiotic was significantly reduced from 92.07% to 78.50% post-intervention (p<0.001). Interestingly, those who received appropriate antibiotic were significantly increased (p<0.001) from 24.54% pre-intervention to 53.35% post-intervention.

CONCLUSION: An evidence-based clinical guideline can influence and improve practices of prescribing antibiotics by healthcare providers in Terengganu. Awareness and education among prescribers are undeniably crucial and requires constant improved monitoring to optimize patient outcomes and maximize clinical efficiency.

ID No.: 18964
Keywords: appropriate antibiotic, clinical pathways, pharyngitis-tonsilitis

OC14
A STUDY TO DETERMINE VARIABILITY BETWEEN EXTRAPOLATED AND ACTUAL SERUM CONCENTRATION OF GENTAMICIN IN DUCHESS OF KENT HOSPITAL: A PILOT STUDY (SEAGENT)

K.K. Kong, S.H. Lee, M. Mohd Masran
1Pharmacy Department, Hospital Duchess of Kent, Sandakan
2Pharmacy Department, Klinik Kesihatan Sandakan

INTRODUCTION: The current gentamicin therapeutic drug monitoring (TDM) practice is complicated and time consuming. The application of current available nomograms to our local setting is limited by interpatient aminoglycosides pharmacokinetics variability and lack of appreciation in dosage adjustment. The use of graphical method as alternative has not been applied due to insufficient evidence and experience in terms of safety and accuracy.

OBJECTIVES: To investigate the difference between the actual and the extrapolated gentamicin level at 12-hours post administration by using semilog linear graph.

METHOD: A cross-sectional study was undertaken in 13 patients who fulfil the inclusion and exclusion criteria and receiving once daily gentamicin therapy from March to July 2013 in Hospital Duchess of Kent (HDOKH). Three post-dose serum gentamicin levels were taken from each patient review was conducted between March and May 2012 and post-intervention review conducted between May and July 2013. All prescriptions with pharyngitis and/or tonsillitis were included. Patients’ medical records were retrieved to evaluate the prescription of antibiotics based on McIsaac scoring criteria and antibiotic treatment regime used. Data was analysed via SPSS 17, employing descriptive statistics and non-parametric tests.

RESULTS: We included 4,178 patients in the study (age range was 1 to 93 years, pre-intervention=2,182 patients, post-intervention=1,996 patients). Percentage of patients prescribed with antibiotic was significantly reduced from 92.07% to 78.50% post-intervention (p<0.001). Interestingly, those who received appropriate antibiotic were significantly increased (p<0.001) from 24.54% pre-intervention to 53.35% post-intervention.

CONCLUSION: An evidence-based clinical guideline can influence and improve practices of prescribing antibiotics by healthcare providers in Terengganu. Awareness and education among prescribers are undeniably crucial and requires constant improved monitoring to optimize patient outcomes and maximize clinical efficiency.

ID No.: NMRR-12-1308-14533
Keywords: aminoglycoside, actual and extrapolated concentration, therapeutic monitoring, graphical method
AN EVALUATION OF EMPIRIC WEIGHT-BASED GENTAMICIN DOSING REGIMEN IN NEONATES AT HOSPITAL SULTANAH BAHIYAH

Y.S. Tang, S.Y. Ng, N. Thiyagar
Department of Pharmacy, Hospital Sultanah Bahiyah, Alor Setar

INTRODUCTION: Gentamicin is used extensively in NICU in the treatment of suspected or proven bacterial infection. However, little is known about the pharmacokinetics of gentamicin in this very young age patients.

OBJECTIVES: This study aimed to evaluate the accuracy of the current weight-based neonatal gentamicin dosing regimen in Sultanah Bahiyah Hospital without further dosing adjustment.

METHOD: Cross-sectional single centre study of all gentamicin pharmacokinetic evaluations in patients less than 30 days of life were conducted from May to December 2012. The study involved 199 neonates of gestational age (GA) 25 to 49 weeks with average body weight of 2.33±0.83kg. The neonates were dosed using a weight-based gentamicin dosing regimen.

RESULTS: Overall accuracy rate was only 63% when current regimen was used. 56% of Group I patients, 40% of Group II patients and 12% of Group III patients had sub-therapeutic level. High trough levels (>2mcg/ml) were present in 2% of Group I patients, 2% of Group II patients and 1% of Group III patients. While only 1% of group III patients had supra-therapeutic level. According to pharmacokinetic extrapolation using the collected data, a GA-based dosing regimen is proposed to account for high incidence of sub-therapeutic level with the current regimen and examined through pharmacokinetic modeling. Pharmacokinetic modeling of the new GA-based dosing regimen predicted an overall accuracy of 90%.

CONCLUSION: The current weight-based gentamicin dosing regimen should be amended in order to obtain higher dosing accuracy. New dosing regimen based on gestational age increases the dosing accuracy, although they still need to be prospectively evaluated.

ID No.: NMRR-12-167-11421
Keywords: weight-based, gentamicin, dosing, neonate

STUDY ON THE USE OF INTRAVENOUS FISH OIL LIPID EMULSION IN PREMATURE NEONATES REQUIRING PARENTERAL NUTRITION

V.J. Lee, M.S. Aida
Department of Pharmacy, Hospital Sungai Buloh

INTRODUCTION: Premature infants possess limited energy and fat reservoir as they have missed the important period of nutrient accretion and storage. Their nutritional needs were usually dependent on parenteral nutrition (PN). Intravenous lipid emulsion (ILE) is an essential part of PN regimen in neonates. Although PN is life saving; it has been associated with PN-associated liver disease (PNALD) when used for prolonged duration.

OBJECTIVES: To compare the incidence of parenteral nutrition associated liver disease (PNALD) in premature neonates receiving either SMOFLipid or Intralipid.

METHOD: Retrospective observational study from January 2009 to October 2013 in 59 premature neonates receiving at least 7 days of PN containing either Intralipid (n=28) or SMOFLipid (n=31). Liver parameters including direct bilirubin, total bilirubin, ALT and ALP were recorded at baseline (before starting PN) and on day 14.

RESULTS: 3 out of 28 neonates in the Intralipid group developed PNALD while receiving parenteral nutrition. Whereas, in the SMOFLipid group, no incidence of PNALD was reported. Total bilirubin on day 14 versus baseline was slightly reduced in neonates receiving SMOFLipid group while a significant increase was seen in the Intralipid group. An increase in ALT level on day 14 versus baseline was seen in both group. However, the increment was only significant in Intralipid group (p<0.05) but not in the SMOFLipid group (p>0.05).

CONCLUSION: Fish oil-based lipid emulsion (SMOFLipid) was potentially beneficial in protecting the liver. A lower incidence of parenteral nutrition associated liver diseases (PNALD) was seen in premature neonates receiving SMOFLipid compared to those receiving Intralipid. Reduction of total bilirubin also indicates promising effect of SMOFLipid in protecting the liver.

ID No.: 18079
Keywords: lipid emulsion, premature neonates, parenteral nutrition associated liver disease (PNALD)
INTRODUCTION: In Heart Failure Medication Therapy Adherence Clinic (MTAC), pharmacists work together with doctors in the management of chronic heart failure patients. They educate patients on drug regimen and counsel patients on importance of compliance. Heart failure MTAC was operated since 2010 in Penang Hospital.

OBJECTIVES: To determine the types of pharmacist intervention, physicians’ acceptance towards such interventions and to review the usage of beta blockers (BB) and angiotensin converting enzyme inhibitors (ACEI)/angiotensin receptor blockers (ARB) in Heart Failure Clinic.

METHOD: A retrospective study was conducted in the Heart Failure Clinic of Penang Hospital. Patient records from October 2010 to August 2012 were retrieved and reviewed. Patient’s data on demographics (name, age, gender and race, NYHA class), drug regimen (ACEI/ARB, diuretics, beta blocker), social and medical status and also patient’s compliance status were recorded. Types of intervention or suggestion made by pharmacist and acceptance of physicians towards such intervention were recorded. All the data were analyzed using statistical software, SPSS version 17.

RESULTS: From 482 interventions that were recorded, the majority (42.9%) were for antihypertensive drugs, followed by diuretics (22.2%). Suggestion to increase the dose of the antihypertensive drugs was the highest intervention done. More than half of the interventions suggested by pharmacists (58.3%) were accepted by the doctors. 88% of patients were taking Beta Blockers and 85.2% of patients were taking ACEI/ARB.

CONCLUSION: Pharmacists do play a role in HF clinic and more than half of the intervention suggested were accepted by the physician (58.3%) in Heart Failure Clinic. Treatment in the Heart Failure Clinic complied to the evidence-based guideline.

ID No.: NMRR-13-1376-18753
Keywords: pharmacist, intervention, heart failure, doctors acceptance

INTRODUCTION: Solid evidence had shown that ACEi or ARB enhances survival in patients who experienced myocardial infarction and in those who have left ventricular dysfunction. However, their use is often limited by the concern of deterioration in renal function among renal impaired patients.

OBJECTIVES: We carried out this study to obtain local data regarding the effects of ACEi/ARB on kidney function in these patients.

METHOD: In consented heart failure or ACS patients in whom ACEi/ARB was initiated by cardiologist in the ward or cardiology clinic in Hospital Tengku Ampuan Afzan between December 2011 and April 2012. Serum creatinine and potassium were recorded at baseline and week 2, week 4, week 6 and week 12.

RESULTS: Twenty patients with a mean age of 62.4±8.8 years, baseline GFR of 37.7±14.0ml/min and serum potassium of 4.1±0.5mmol/L were recruited. Among them, 19 patients completed follow up of 12 weeks. Majority of them were male (n=17, 85%) and the most commonly prescribed medication was Perindopril (n=14, 70%). Among patients with comorbidities (n=19, 95%), 12 patients were diabetic (60%) and 14 patients were hypertensive (70%). Two (10%) patients experienced a reduction of GFR >30% at week 4 (37.3%) and week 12 (34.2%) respectively. No patient developed serum potassium level more than 5.5mmol/L. The changes in GFR after the initiation of ACEi/ARB over the 12 weeks was not significant (n=19), p= 0.059.

CONCLUSION: Overall, 10% of the patient (n=20) developed elevation of GFR more than 30% throughout the study period. None of them had rise of potassium level >5.5 mmol/L. The initiation of ACEi/ARB in patients with underlying kidney disease (GFR<60ml/min) does not lead to significant changes in GFR over 12 weeks.

ID No.: NMRR-12-784-11022
Keywords: ACE inhibitor, renal impairment, heart failure, acute coronary syndrome
GENTAMICIN PHARMACOKINETICS IN NEONATES: DETERMINATION OF FACTORS AND PREDICTORS FOR LOCAL PHARMACOKINETIC EQUATIONS OF HTAR, KLANG

R. Rose Aniza, L.P. Cheng, A.F. Farah Izyan, S.J. Woo
Department of Pharmacy, Hospital Tengku Ampuan Rahimah, Klang

INTRODUCTION: Previous literatures have established pharmacokinetic equations of aminoglycoside antibiotics; however, the population parameters that were used for estimation of pharmacokinetic profiles in neonates were mainly taken from adult population parameters with limited references on local neonatal population. Concerns of individualised pharmacotherapy led to this study on gentamicin in neonatal ICU.

OBJECTIVES: To determine local population pharmacokinetic parameters; clearance rate, volume of distribution (Vd) and half-life of gentamicin and factors that influence the pharmacokinetic parameters.

METHOD: Data were collected from 143 neonates receiving gentamicin from February to June 2013. Out of these, 90 neonates were included for analysis. Data on gentamicin serum concentration were retrieved from TDM request form whereas patients’ medical and drug history were gathered from bed head ticket and medication chart. Variables such as patients’ gestational and postnatal age, birth weight (BW) and creatinine clearance (CrCl) were analysed. All relevant pharmacokinetic parameters were calculated for each case.

RESULTS: About one-third of the subjects were born prematurely with mean gestational age of 36.7 weeks (SD=3.03). The mean values for CrCl, elimination rate constant (Ke), Vd and half-life of gentamicin were 37.0ml/min (SD=19.31), 0.112hr⁻¹ (SD=0.06), 0.78L/kg (SD=0.36) and 7.35 hours (SD=3.12) respectively. The clearance rate was proportionately increased with postnatal age and BW among patients weighing less than 2.5kg (p<0.05). Birth weight was a good predictive variable of Ke (p=0.002). There is a significant linear relationship between half-life of gentamicin and patients’ gestational age (p=0.001). However, Vd was not influenced by any of the above variables (BW, gestational and postnatal age). Furthermore, the mean CrCl of premature neonates was significantly lower than full term neonates (p=0.007, 95% CI -19.12, -3.12).

CONCLUSION: The mean Vd differs significantly from international data but was comparable to the local ones. Inter-patient variability was an important aspect to consider in predicting individual pharmacokinetics.

ID No.: NMRR-13-974-18118
Keywords: gentamicin, neonates, pharmacokinetic profile

RISK FACTORS OF PACEMAKER IMPLANTATION INFECTION: A SINGLE CENTRE’S EXPERIENCE

A.H.Z. Izzati¹, S. Nor Nadiah¹, E. Norah², I. Jalihah¹, H. Narwani³, S.Y. Liau¹,2, H.B. Liew¹,2
¹Pharmacy Department, Hospital Queen Elizabeth II, Kota Kinabalu
²Cardiology Department, Hospital Queen Elizabeth II, Kota Kinabalu
³Clinical Research Centre, Hospital Queen Elizabeth II, Kota Kinabalu

INTRODUCTION: Implantation of permanent pacemaker (PPM) is a treatment for various types of bradyarrhythmia. Several risk factors have been associated with infections caused by PPM implantation, including peri-procedural antibiotics use. Currently, there is no study done in Malaysia to analyze the risk factors of permanent pacemaker infection.

OBJECTIVES: To determine the factors associated with PPM infections.

METHOD: This was a case-control study. Casenotes were reviewed for all patients who underwent PPM implantation from January 2011 to July 2013 at a tertiary regional cardiac centre in Sabah. A checklist was used to collect information including patient and procedural risk factors and peri-procedural antibiotic use. Risk factors were analyzed based on a routine clinical surveillance of infection upon patient’s discharge on Day-10. Sample size calculation was done using two proportional formulas with the power of study set at 80%.

RESULTS: A total of 112 patients were included, 12 with PPM infections (cases) and 100 without PPM infections (controls). All patients had received prophylactic antibiotics prior to implantation but they varied at discretion of implanting clinician. Univariate analysis showed that administration of cefoperazone after implantation was associated with a lower infection rate (OR 0.198, 95% CI 0.05, 0.79; p<0.05). Longer duration of procedure was associated with a higher infection rate (OR 1.016, 95% CI 1.004-1.028; p<0.05). Multivariable logistic regression showed that both duration of procedure (OR 1.016, 95% CI 1.003, 1.029; p=0.015) and cefazolin administration after implantation (OR 0.196, 95% CI 0.046, 0.842; p=0.028) were independent factors for PPM infection. Prophylactic antibiotic choice was not significantly associated with the infection rate.

CONCLUSION: PPM infections were associated with the longer duration of procedure. This may be associated with the complexity of procedures, operator experience and choice of antibiotics. Further study is needed to formulate a preventive strategy such as an antibiotic policy that may minimize the risk of PPM infections.

ID No.: NMRR-13-804-16974
Keywords: infection, pacemaker, cefazolin, risk factors
THE ASSOCIATION BETWEEN VANCOMYCIN AUC-24/MIC AND TREATMENT OUTCOME AMONG CRITICALLY ILL PATIENT WITH MRSA INFECTION

A. Azmi Nor Mohd Farez1, S. Ahmad Fuad2, M. Makmor Bakry2, C.L. Lau2, R. Ramliza4
1Department of Pharmacy, Institut Kanser Negara, Putrajaya
2Faculty of Pharmacy, Universiti Kebangsaan Malaysia, Kuala Lumpur
3Department of Pharmacy, Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur
4Department of Medical Microbiology & Immunology, Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur

INTRODUCTION: The increasing trend in vancomycin minimum inhibitory concentration (MIC) of methicillin-resistant Staphylococcus aureus (MRSA) contributes to the difficulty in optimisation of vancomycin dosing regimen. The emergence of vancomycin-resistant S. aureus with MIC higher than 2μg/mL complicates the treatment of MRSA. Conflicting evidences were reported for the relationship between vancomycin trough concentration and treatment response.

OBJECTIVES: This study investigated the association between the resolution of MRSA bacteraemia and vancomycin AUC0-24, AUC0-24/MIC, vancomycin trough concentration and vancomycin trough concentration/MIC.

METHOD: A total of 28 patients admitted from January 2011 to March 2013 were involved in this study. All data were collected from medical, microbiology and pharmacokinetics records. The clinical response was evaluated on the basis of clinical parameters.

RESULTS: Out of the 28 patients, 46% was classified as responders. The trough concentration did not differ between two groups (14.76±5.89μg/mL and 14.83±4.80μg/mL, p=0.971). High vancomycin MIC was observed in non-responder group (p=0.004). The ratio of vancomycin trough concentration to its MIC was significantly lower in non-responders group (8.76±3.43μg/mL vs. 12.31±4.90μg/mL, p=0.033). The mean ratio of 24-hour area under the curve (AUC0-24) to vancomycin MIC was 345.28±115.30μg/h/mL in responders group and 252.06±103.17μg/h/mL in non-responders group (p=0.024).

CONCLUSION: AUC0-24/MIC of vancomycin MRSA is a better predictor for vancomycin treatment outcomes compared with trough concentration alone especially with a higher vancomycin MIC.

ASSOCIATION BETWEEN ADHERENCE TO THE MALAYSIAN CLINICAL PRACTICE GUIDELINES AND EFFECTIVENESS OF CANCER PAIN MANAGEMENT

T.Y. Wong1, V.J.N. Beh1, S.Y. Ang1, R.K. Mohd1, S.W. Khoo1, E.E. Ong2
1Pharmacy Department, Hospital Pulau Pinang
2Medical Department, Hospital Pulau Pinang

INTRODUCTION: A meta-analysis of 52 studies has shown that 64% of patients with advanced or metastatic disease experienced pain. The Malaysian Clinical Practice Guideline (CPG) for Management of Cancer Pain was launched in 2010 and there is no study on the adherence to this guideline and effectiveness of cancer pain management.

OBJECTIVES: The objectives were to determine the adherence to CPG when prescribing pain medications and the effectiveness of cancer pain management. The correlation between the effectiveness and adherence of CPG was also determined.

METHOD: A prospective, observational study was conducted in the Oncology Ward, Penang Hospital for 10 months. Conscious and alert patients aged 18 and above with solid tumours and a pain score higher than 3 on admission were included. Patients with haematological malignancies and those who underwent surgery were excluded. Patients' demographics, types of cancer and pain, pain score, pain medications and adherence to CPG were collected using a pain management data collection form. Numerical Pain Rating Scale was used to determine the pain intensity scores. Data was analyzed using SPSS, specifically with chi-square and Wilcoxon signed rank tests.

RESULTS: A total of 86 cases (52.3% male; 39.5% Malay, 37.2% Chinese and 23.3% Indian) were observed. Lung and breast cancers were the two most frequently encountered cancers (19.8% each). Majority of patients had moderate to severe pain before treatment (33.7% moderate; 54.7% severe) and most patients had a reduction in pain score to mild pain after treatment (81.4%). Pain management in accordance to CPG was found to be 76.7%. Pain score was significantly reduced from 6.44 to 2.44 (p<0.01). Patients with effective cancer pain control (defined as pain score ≤ 2) were found to be 73.3%. Adherence to CPG significantly produced effective cancer pain management (p=0.007).

CONCLUSION: Adherence to Malaysian CPG in cancer pain management is vital to ensure quality care and adequate pain relief.

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Keywords: vancomycin, MRSA, intensive care, AUC0-24/MIC

ID No.: NMRR-12-857-12518
Keywords: clinical practice guidelines, cancer pain management, effectiveness, adherence
AN EVALUATION OF TIME IN THERAPEUTIC RANGE IN MALAYSIAN POPULATION: A MULTICENTER STUDY

R. Rose Aniza1, B. Nurul Zaidah2, M.S. Long3, E.M.F. Chong4, S. Ezmalina Sazza5, A. Noor Fadzilah6, M. Sahimi7, Warfarin MTAC Task Force8
1Department of Pharmacy, Hospital Tengku Ampuan Rahimah, Klang
2Department of Pharmacy, Hospital Serdang
3Department of Pharmacy, Hospital Selayang
4Department of Pharmacy, Hospital Kuala Lumpur
5Department of Pharmacy, Bahagian Perkhidmatan Farmasi, Ministry of Health
6Department of Pharmacy, Hospital Putrajaya
7Department of Pharmacy, Hospital Tengku Ampuan Afzan, Kuantan
8Cardiology Pharmacy Committee, Bahagian Perkhidmatan Farmasi, Ministry of Health

INTRODUCTION: Warfarin Medication Therapy Adherence Clinic (WMTAC) in MOH, Malaysia was first introduced in 2004 with the aim to optimize anticoagulation therapy. International Normalised Ratio (INR) and percentage time in therapeutic range (TTR) are used to assess the quality of anticoagulation treatment, and are linked to bleeding and thromboembolic complications. However, there is a lack of published data evaluating the TTR percentage in Malaysia.

OBJECTIVES: To determine the mean of TTR, factors that influence it and TTR and INR values which correlate with bleeding and thromboembolic complications in WMTAC patients.

METHOD: Data were collected from 36 MOH facilities. Patients were enrolled if they actively followed up and had been taking warfarin for at least 3 months before January 2012. Patients’ demographics, INR values, bleeding and thromboembolic history were collected from patients’ record or INR booklet. The expanded INR range (0.2) was used to calculate TTR using Rosendaal linear interpolation method. All relevant variables were analysed against the intended parameters.

RESULTS: A total of 1589 patients (mean age; 60±13.65) were included in the study. Overall, the mean and median of TTR was 74% (±20.5) and 77% (IQR 60.5% to 91.0%) respectively. For patients who had 3 or more episodes of missed dose, TTR was influenced by the number of dosage adjustment (p<0.001) and MTAC visit (p=0.004), average follow-up intervals (p=0.042) and episodes of missed dose (p=0.003). The mean INR was 3.48 (±1.48) and 1.99 (±0.67) across patients with history of bleeding and those with thromboembolic history respectively. Thromboembolic events was 2.8 times higher in patients with TTR<75% as compared with those with TTR ≥75% (95% CI 1.29, 5.85, p=0.009).

CONCLUSION: Majority of patients enrolled in WMTAC have an optimal INR control. Efforts in quality improvement should be continuously employed towards achieving excellent anticoagulation control.

ID No.: NMRR-13-1364-15247
Keywords: time in therapeutic range, international normalized ratio, warfarin, warfarin medication therapy adherence clinic

THE RISK FACTOR ASSOCIATED WITH TUBERCULOSIS INFECTION AMONG HEALThCARE WORKERS IN HOSPITAL SLIM RIVER

M.M. Nazirul Mudin1, S. Shahiran2, W.J. Lim3, R. Nur Azlina3, Z.A. Zarena3
1Department of Pharmacy, Institut Kanser Negara, Putrajaya
2Biro Pengawalan Farmaseutikal Kebangsaan, Ministry of Health
3Department of Pharmacy, Hospital Slim River

INTRODUCTION: Tuberculosis among healthcare workers received attention after numerous outbreaks of both drug-susceptible tuberculosis (TB) and multidrug-resistant TB occured in hospitals.

OBJECTIVES: To determine the prevalence and factor associated with latent Tuberculosis infection among healthcare workers.

METHOD: Retrospective data from May 2012 until March 2013 of Hospital Slim River healthcare workers who underwent Tuberculin Skin Test was collected. Incomplete records were excluded.

RESULTS: Among 316 participants, test results of 11 (3.4%) participants were positive and 305 (96.6%) were negative. The highest prevalence of tuberculin skin test positive result were found among those who were female (81.9%), Malay (90.9%), with age above 35 years (63.6%), working as a nurse (45.5%), clinical-based (72.7%) and working in the general operation theater (81.8%). Based on this study, Hospital Slim River showed a low prevalence of latent tuberculosis.

CONCLUSION: Effective control measures were an important tool to reduce TB transmission. It can be assumed that healthcare workers were familiar with the appropriate protective measures. Healthcare workers should continuously strive towards improving the preventive and control measures to reduce risk of tuberculosis transmission.

ID No.: NMRR-13-427-15288
Keywords: tuberculin, tuberculosis, healthcare worker
OC25  MANAGEMENT OF OVER-ANTICOAGULATION IN HOSPITALIZED PATIENTS RECEIVING WARFARIN IN HOSPITAL SERI MANJUNG

Y.P. Lau1, S.C. Chiew2, S.W. Chew2, A.M. Azreena Izzaty1, A. Erin1
1Department of Pharmacy, Hospital Seri Manjung
2Department of Pharmacy, Klinik Kesihatan Pantai Remis

INTRODUCTION: Warfarin remains the most widely used oral anticoagulant despite its narrow therapeutic index. Routine monitoring is warranted as patients’ international normalized ratio (INR) values tend to fluctuate due to warfarin pharmacokinetic profile and patients’ risk factors. Over-anticoagulation rate in warfarinised patients ranged from 30 to 50% while serious bleeding episodes occurred in 1.2 to 8.1% of patients. Recognition of over-anticoagulation risk factors and implementation of effective management in over-anticoagulation are crucial.

OBJECTIVES: To determine the number of over-anticoagulated hospitalized warfarin patients, contributing risk factors of over-anticoagulation and interventions used in managing over-anticoagulated patients in Hospital Seri Manjung (HSM).

METHOD: This was a retrospective study involving a review of medical notes of hospitalized warfarin patients admitted from January-December 2012. Data on patients’ demographic background, warfarin therapy, clinical information and over-anticoagulation management was collected by using a pre-tested data collection form. Number of over-anticoagulated patients and types of intervention were presented as descriptive statistics. The factors associated with over-anticoagulation were analysed using multiple logistic regression.

RESULTS: Data of 46 patients was collected. 18 patients (39.1%) experienced over-anticoagulation during hospitalization in 2012. An increase of 1mg in warfarin dose would increase the patients’ odds of experiencing over-anticoagulation by 2.07 times (95% CI 1.12, 3.84, p=0.021). Patients with heart failure had 27.75 times higher odds of experiencing over-anticoagulation than those without heart failure (95% CI 2.18, 352.78, p=0.010). Most cases of over-anticoagulation were managed by withholding warfarin dose (n=9, 50.0%); withholding warfarin dose and giving Vitamin K (n=3, 16.7%); withholding warfarin dose, giving Vitamin K and fresh frozen plasma (n=2, 11.1%).

CONCLUSION: Heart failure and higher warfarin dose were significant risk factors contributing to over-anticoagulation. The management of over-anticoagulation in HSM was similar to treatment guideline adopted in MTAC Warfarin Protocol, Pharmaceutical Services Division, Ministry of Health, Malaysia.

ID No.: NMRR-13-468-15584
Keywords: over-anticoagulation, warfarin, management

OC26  TREATMENT OUTCOMES AND COST-EFFECTIVENESS OF GRANISETRON IN PATIENTS RECEIVING ANTIEMETIC PROPHYLAXIS FOR LOW EMETOGENIC CHEMOTHERAPY: A HOSPITAL-BASED PERSPECTIVE FROM MALAYSIA

H.K. Chan1, N.A. Ghani, G. Phua, M.S. Kassim, K.P. Wong
Department of Pharmacy, Hospital Sultanah Bahiyah, Alor Setar

INTRODUCTION: Despite the recommendations of antiemetic guidelines, granisetron has been widely used as prophylaxis for chemotherapy-induced nausea and vomiting (CINV) in low emetogenic chemotherapy (LEC).

OBJECTIVES: To compare the treatment outcomes and cost-effectiveness of a granisetron regimen (intravenous granisetron added to dexamethasone or metochlopramide) to a standard regimen (dexamethasone or metoclopramide) in LEC.

METHOD: This was a prospective cohort study. Randomly-selected patients receiving LEC with either granisetron regimen (n=52) or standard regimen (n=42) in 2012 were instructed to record their 5-day CINV experiences in a diary. Complete responses (no nausea and emesis and no rescue medication) in both acute (0 to 24 hours) and delayed (24 to 120 hours) phases were used as the primary endpoints. Direct costs of both regimens incurred by hospital including drug acquisition cost, material cost and time spent for related clinical activities were evaluated. ICER was calculated in MYR per successfully treated (complete response) patient. One-way sensitivity analyses were conducted to address uncertainty in model parameters.

RESULTS: No significant differences were found in baseline characteristics between two groups. Granisetron regimen showed a higher complete response rate for acute emesis (96.1% versus 81.0%; p=0.017) but it did not significantly improve the control of acute nausea, delayed nausea and delayed emesis. As demonstrated by the multiple logistic regression model, standard regimen had led to a higher risk of acute emesis (adjusted OR=8.75; 95% CI 1.26, 61.00; p=0.029). The total cost per patient incurred by hospital was 7.31 times higher for granisetron regimen (MYR76.48 versus MYR10.46). ICER of granisetron regimen, relative to standard regimen, was MYR430.66 per successfully treated patient. The model was found to be most sensitive to the complete response rate of granisetron regimen.

CONCLUSION: While being more efficacious in controlling acute emesis, the high ICER had made the use of granisetron as CINV prophylaxis in LEC remaining controversial.

ID No.: NMRR-10-1390-7732
Keywords: granisetron, low emetogenic, cost-effectiveness
THE APPROPRIATENESS OF READY-MADE PARENTERAL NUTRITION (PN) PRESCRIBED AND PHARMACISTS INTERVENTIONS IN HOSPITAL PULAU PINANG

A.K. Sarah, H.K. Liew, J. Low, I. Syahira, H.P. Lee, P.S. Khoo
Department of Pharmacy, Hospital Pulau Pinang

INTRODUCTION: Ready-made parenteral nutrition (PN) is a nutritional support for critically ill patients. Collaboration of pharmacists and physicians in parenteral nutrition prescribing is important to ensure appropriate nutrition for patients.

OBJECTIVES: The purposes of this study were to determine the frequency of inappropriate prescribing of ready-made PN and acceptance of pharmacists’ interventions.

METHOD: A prospective cohort study was conducted to review the prescribing pattern of ready-made PN in surgical wards and high dependency area. Subjects prescribed with ready-made PN were included. A data collection form which includes demographic data, medical data, type of ready-made PN prescribed and intervention by pharmacist was used. Formula of 25 to 30kcal/kg/day based on ESPEN guideline was used to determine the appropriateness of prescribed ready-made PN. Total calorie supplied within the range was considered appropriate. Cases with calories supplied higher or lower than requirement were considered as overfeeding and underfeeding, respectively.

RESULTS: Study demonstrated that 75% (n=39) of the patients (n=52) were inappropriately prescribed with ready-made PN while only 25% (n=13) were prescribed appropriately. The number of underfed patients was higher as compared to overfed patients (87% vs 13%). Underweight patients tended to be given ready-made PN with higher calories while overweight patients tended to be supplied with lower calories. Among the inappropriately prescribed cases, 62% were intervened by pharmacists and all the interventions were accepted by prescribers. Limited choices of ready-made PN and cases started during weekends rendered no pharmacists intervention.

CONCLUSION: Although majority of patients were inappropriately prescribed with ready-made PN, pharmacists played an important role in ensuring appropriate nutrition for patients.

ID No.: NMRR-13-1295-15787
Keywords: ready-made parenteral nutrition, pharmacists, calorie
OP1  IMPROVING ADMINISTRATION OF CALCIUM CARBONATE IN CHRONIC KIDNEY DISEASE PATIENTS: ROLE OF PHARMACISTS?

M.F. Eng, S.Y. Tan, R. Retha, Y.C. Tan, S.C. Cheah, J.Y. Gong
Pharmacy Department, Hospital Seberang Jaya

INTRODUCTION: Calcium carbonate is the phosphate binder of choice in government health institutes due to its low cost and good tolerability. However, inappropriate administration of calcium carbonate may render phosphate-lowering therapy ineffective. Hence, patient education has become a key component in improving patients’ adherence especially in chronic kidney disease (CKD) patients.

OBJECTIVES: This study aimed to evaluate the impact of pharmacist-led education session in improving patients' knowledge and administration of calcium carbonate. We also investigated the association of demographic variables with the knowledge and administration.

METHOD: A total of 57 eligible CKD patients at Nephrology Clinic, Hospital Seberang Jaya who were prescribed with calcium carbonate were included. A validated survey was designed to explore patients’ knowledge and administration of calcium carbonate before and after pharmacist-led education. Patients with pre-survey scoring of 7 were provided individualized pharmacist-led education session using validated standard counseling material. After 4 weeks, post-survey was conducted for reassessment. Wilcoxon signed-rank test was used to compare the pre-post survey score on knowledge and administration of calcium carbonate. Association of demographic variables with knowledge and administration were assessed using Chi-square test.

RESULTS: The study showed statistically significant improvement in patient’s knowledge [pre score median (IQR) 0 (0, 3) compare with post score 3 (2, 3); p<0.05]. Patients’ administration of calcium carbonate also improved significantly after pharmacists-led education session [pre score median (IQR) 4 (2, 5) compare with post score 5 (5, 5); p<0.05]. However, the study showed no significant association between demographic data with patient’s knowledge and administration of Calcium Carbonate. The survey questions showed increment in the number of patients answered correctly after the counseling.

CONCLUSION: The study results showed pharmacist-led education session had improved patient’s knowledge and administration of calcium carbonate. Therefore, pharmacists have important roles in patients counseling that may help to enhance their compliance.

ID No.: NMRR-13-907-15375
Keywords: calcium carbonate, chronic kidney disease, pharmacist counseling

OP2  EVALUATION OF MEDICATION ADHERENCE AND BARRIER TO HIGHLY ACTIVE ANTIRETROVIRAL TREATMENT AMONG RVD PATIENTS IN HOSPITAL SULTAN HAJI AHMAD SHAH

B.F. Cheah, S. Noorulhuda, T. Rajarajesvary, A.R. Safariani, H.L. Yip
Department of Pharmacy, Hospital Sultan Haji Ahmad Shah, Temerloh

INTRODUCTION: The goal of highly active antiretroviral treatment (HAART) is to achieve maximal and durable suppression of virus replication. Strict adherence to HAART is necessary due to high probability of developing resistance. However, the reasons for non-adherence are varied and complex.

OBJECTIVES: This study was aimed to investigate the adherence and its barrier to HAART among retroviral disease (RVD) patients and to explore the association of the barriers and non-adherence.

METHOD: This was a cross-sectional study carried out in RVD Clinic of Hospital Sultan Haji Ahmad Shah from March 2013 until May 2013. Subjects recruited were selected based on inclusion and exclusion criteria. The patients demographic, medication adherence assessment by using Morisky Medication Adherence Scale-9 (MMAS-9) and 15 barriers to adherence were obtained in a face-to-face interview using validated questionnaire adapted from Murphy et al (2003).

RESULTS: Out of 51 enrolled participants, 26 (51%) were found to be non-adherence (MMAS-9 score<11). Five most commonly endorsed reasons for non-adherence to HAART, were busy with other thing (25.5%), simply forgot (23.5%), followed by did not want others to notice medication and fell asleep or sleep through dose time (both 15.7%) and change in daily routine (11.8%). Exploring relationship between two variables, CD4 count and morisky score of the 51 participants using Spearman rank correlation, there was a non-significant (p=0.209). On multivariate analysis factors such as gender, age, mode of HIV transmission, marital status, duration of HAART, none of the factor was found to be associated with non-adherent (p>0.05).

CONCLUSION: Majority of participants show non-adherence to HAART. The most common barrier identified was busy with other thing. All of the demographic characteristics showed no significant association with degree of adherence (p>0.05).

ID No.: NMRR-13-500-15369
Keywords: adherence, barrier, highly active antiretroviral therapy, retroviral disease
INFLUENCE OF MEDICATION LABELING MODIFICATION ON ADHERENCE, COMPREHENSION AND PREFERENCES AMONG PATIENTS RECEIVING CHRONIC MEDICATIONS: A RANDOMIZED CONTROLLED TRIAL

Department of Pharmacy, Hospital Sultanah Bahiyah, Alor Setar

INTRODUCTION: Inadequacies of computer-generated medication labels have been consistently reported by patients due to the use of small fonts and confusing instructions.

OBJECTIVES: To assess the influence of font-enlarged and pictogram-incorporated labels on adherence, comprehension and preferences among patients receiving chronic medications.

METHOD: This was a randomized controlled trial of three arms. Outpatients receiving antihypertensive or antidiabetic medications were screened for eligibility. They were randomly allocated with computer-generated (n=35), font-enlarged (n=40) or pictogram-incorporated (n=35) labels for these chronic medications. Assessment of baseline adherence scores using the Morisky Medication Adherence Scale (MMAS), comprehension scores using a structured questionnaire and preferences was conducted upon recruitment. Follow-up telephone interviews were conducted after 4 weeks to detect the changes of patients’ adherence and comprehension levels. Within and between-group comparisons were made using the paired-t tests and repeated measures ANOVA, respectively.

RESULTS: Patients receiving font-enlarged labels had a higher number of chronic medications compared with those receiving computer-generated and pictogram-incorporated labels (7.28 versus 5.66 versus 6.83; p=0.014). They were similar in other baseline characteristics. Those receiving pictogram-incorporated labels showed the highest within-group increment in both adherence (6.66 versus 5.99; p=0.011) and comprehension scores (6.00 versus 5.63; p=0.010). Both font-enlarged and pictogram-incorporated labels had improved patients’ adherence within two weeks prior to the follow-up interviews. As indicated by F tests, three groups did not significantly differ in the change of both adherence (p=0.573) and comprehension scores (p=0.069). Overall, patients demonstrated highest preference towards font-enlarged labels (56.4%), followed by pictogram-incorporated labels (43.6%). Elder patients and those with higher number of morbidities showed a higher preference towards the pictogram-incorporated labels.

CONCLUSION: Both modified labels contributed positively to adherence and comprehension of patients receiving chronic medications. Variations in preferences might have reflected the needs of different subgroups in receiving medication instructions.
**OP4 A STUDY ON THE ASSESSMENT OF UNDERSTANDING, COMPLIANCE, TECHNIQUE AND DEVICE MANAGEMENT IN ASTHMATIC CHILDREN AND THE CARETAKERS OF SARAWAK GENERAL HOSPITAL, KUCHING**

*S.J. Ngu¹, S.Z. Bakhtiar¹, K.S. Law¹, O.T. Voon¹, S.Y. Jong², M.H. Ooi²*

¹Department of Pharmacy, Hospital Umum Sarawak  
²Department of Paediatrics, Hospital Umum Sarawak

**INTRODUCTION:** Childhood asthma is a chronic inflammatory airway disorder that requires long-term anti-inflammatory treatment. Sound knowledge of the disease process, satisfactory use of medication delivery device and treatment adherence are keys to good asthmatic control.

**OBJECTIVES:** To evaluate the caretakers’ understanding of asthma and its treatment, compliance, technique and device management.

**METHOD:** All asthmatic children referred to the Respiratory Medication Therapy Adherence Clinic which was run by pharmacists at Sarawak General Hospital, Kuching, Sarawak from May 2012 until April 2013, were evaluated using a standardized questionnaire.

**RESULTS:** A total of 429 patients were evaluated; of whom 389 (91%) were assessed once and the remaining 40 (9%) required repeated counselling and re-evaluation, and 51 children (12%) were newly started on prophylactic treatment. Approximately 70% (n=310) of the caretakers demonstrated good understanding of the underlying disease process, and 351 (82%) recognized the common features of asthma. While 316 (84%) could determine the right treatment frequency and dosages, only 14% (n=62) could identify all the common asthmatic triggers. Of the 285 children receiving both prophylactic and rescue therapy, only 223 (78%) had good compliance to treatment. As high as 93% (n=271) caretakers demonstrated good administration technique with metered-dose inhaler and spacer and 53 (72%) children could use easyhalers satisfactorily. There were 29 (18%) caretakers who stored their devices inappropriately and less than a-third (n=89) of them showed correct spacer cleaning methods. Almost all parents requiring repeated reassessment showed vast improvements during subsequent clinic visits.

**CONCLUSION:** Majority of caretakers have no difficulty identifying the common asthma features but a significant number did not understand the underlying disease process. While most caretakers could demonstrate satisfactory device use, many maintained their asthmatic devices inappropriately.

ID No.: NMRR-14-20-19229

Keywords: asthma, knowledge, compliance, device

**OP5 THE USE OF MEDICINE AND IDENTIFICATION OF POTENTIALLY INAPPROPRIATE MEDICINE AMONG ELDERLY PATIENTS ADMITTED TO A SPECIALIST HOSPITAL**

*M.P. Choy¹, E.S. Lai¹, A. Norulsaffia², K.H. Chuah², H.C. Ong², S.C. Low³, W.K. Cheah³*

¹Clinical Research Centre, Hospital Taiping  
²Department of Pharmacy, Hospital Taiping  
³Department of Medicine, Hospital Taiping

**INTRODUCTION:** Elderly tend to have multiple medical conditions that require combination of medications. They are also more susceptible to adverse effects of the medication.

**OBJECTIVES:** This study described the medication use among elderly admitted to Taiping Hospital and identified potentially inappropriate medicine (PIM) based on Beers Criteria.

**METHOD:** This was a sub-analysis of a study designed to investigate the impact of a system change to the patients’ outcome. For the purpose of that study, the inclusion criteria were above 60 years old, admitted to wards C4 and D5, and discharged in September 2011 and February 2012. Exclusion criteria were admission due to cerebrovascular disease, nephorology, respiratory or endocrinology related illnesses, and extended stay for rehabilitation. Medical records of patients who fulfilled the criteria were retrieved and reviewed. For medication use, only oral medicines prescribed for chronic conditions were considered. Beer’s criteria were applied to identify PIM, both acute and chronic.

**RESULTS:** 92 patients were reviewed for this study. Their mean age was 75.6 (SD=6.3). On average, the patients needed 5.7 types of medicines and 8.5 pills daily. After adjusting for age, gender and ethnicity (using multiple linear regressions), patients with diabetes and chronic kidney disease (CKD) need significantly more pills compared to the others. Patients with CKD and diabetes took an average of 11.7 (SD=5) and 10.1 (SD=3.7) pills per day respectively. On admission, 16 of the 68 patients with complete medication history had at least one PIM. The 3 most common PIM were prazosin (7.3%), immediate-release nifedipine (4.3%), and ticlopidine (3.3%). When discharged, 10 patients had at least one PIM.

**CONCLUSION:** Most elderly in this study needed more than 4 types of medicine and 6 pills per day. From the extensive Beers criteria, only a few were identified. The applicability of Beers Criteria needs to be evaluated, considering differences in formulary and practice.

ID No.: NMRR-12-722-12604

Keywords: elderly, potentially inappropriate medicine, Beers criteria
ADHERENCE TO ANTIRETROVIRAL THERAPY IN HIV-INFECTED PAEDIATRIC PATIENTS IN KUALA LUMPUR HOSPITAL: PRELIMINARY FINDINGS

K. Koo1, K.C. Yap1, N.S. Zahari1, J.W. Tan1, T.J. Mohamed2, K.A. Mohd Razali2
1Paediatric Pharmacy Unit, Hospital Kuala Lumpur
2Infectious Diseases Unit, Paediatric Institute, Hospital Kuala Lumpur

INTRODUCTION: Paediatric adherence to antiretroviral therapy (ART) is complex and complicated. Therefore, understanding paediatric ART adherence is essential in viral load suppression and overall Human Immunodeficiency Virus (HIV) management.

OBJECTIVES: To assess adherence to ART and its affecting factors in HIV-infected children.

METHOD: A prospective, observational study was carried out in Paediatric Institute Kuala Lumpur Hospital. Subjects aged between six and eighteen years were recruited during clinic visits using convenient sampling starting April 2013. Subjects were assessed at monthly interval for 3 visits. Pill count, self-logged diary and questionnaire interview were administered to the subjects who were on ART, excluding those on oral solution.

RESULTS: Thirty-two subjects were recruited and 25 completed 3 monthly follow-up. There was 7 drop-out during follow-up. The mean age was 12 ± 2 years and 60% were female. For disease disclosure status, 10 subjects were fully disclosed, 12 subjects underwent partial disclosure and 3 subjects remained non-disclosure. Average adherence rate by pill count and diary check is 93%. However, self-reported adherence was only 88%. There were no significant differences between the average adherence rate by different caregivers (p=0.587) although the biological parents reported the highest adherence among all. Factors affecting adherence were forgetful (74%), burden with ART (65%), psychosocial support/behavioural characteristics (57%), belief in ART (26%), accessibility to ART (17.4%) but none of the subjects reported that side effects of ART affect their adherence (0%).

CONCLUSION: Adherence to ART in this population has almost achieved the targeted 95% as suggested by National AIDS Manual (NAM), United Kingdom. These preliminary findings hope to provide a clearer picture for optimal clinical care of HIV management and hence necessary approaches should be undertaken to improve the current situation.

ID No.: NMRR-13-644-16212
Keywords: HIV, paediatric, Anti Retroviral Therapy, factors affecting ART adherence
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**OP8**

**A MULTICENTRE STUDY ON FACTORS AFFECTING ADHERENCE TOWARDS METHADONE MAINTENANCE THERAPY (MMT) IN MMT CLINICS IN JOHOR**


1Hospital Muar, 2Hospital Sultanah Aminah, Johor Bahru, 3Hospital Muar, 4Hospital Tengku Ampuan Jemaah, 5Hospital Tuanku Jaafar, 6Hospital Mabsah, 7Hospital Permai, Johor Bahru, 8Hospital Perlis, 9Hospital Permai, 10Hospital Pulau Pinang, 11Hospital Puteri, 12Hospital Pulau Pinang, 13Hospital Pulau Pinang, 14Hospital Pulau Pinang, 15Hospital Pulau Pinang

**INTRODUCTION:** The Methadone Maintenance Therapy (MMT) programme has been introduced and implemented since 2005 and adherence is a key factor to ensure successful of this programme.

**OBJECTIVES:** The aim of this study to identify potential factors that affecting the adherence and relapse towards MMT programme.

**METHOD:** This was a cross-sectional study carried out in 12 MMT clinics in the state of Johor. All respondents were interviewed using validated data collection form. Data were entered and analyzed with Logistic Regression Analysis and Multiple Logistic Regression Analysis using SPSS 19.0.

**RESULTS:** A total number of 400 respondents, consisted of 395 male and 5 female, with mean age of 40.2±9.1 years. 88.5% (n=354) were Malay, Chinese 8% (n=32) and Indian 3.5% (n=14). After adjustment for treatment and participant covariates, adjusted odd ratio (OR) indicated that Chinese 38.91 (95% CI 1.45, 1043, p=0.03), participant who had attended secondary school 4.29 (95% CI 1.76, 10.44, p=0.001) and college or university graduate 26.98 (95% CI 2.13, 341, p=0.01), sometimes accompanied by family during directly observed therapy (DOT) or take away 10.08 (95% CI 1.15, 88.49, p=0.04) and participant who had history of opiate abuse 0.04 (95% CI 0.002, 0.72, p=0.04) were factors that associated with adherence to the programme. For relapse, we found that participant who had attended secondary school 4.29 (95% CI 1.76, 10.44, p=0.001) and university/college graduated 26.98 (95% CI 2.13, 341, p=0.01), good family support; sometimes accompanied during DOT or take away 10.08 (95% CI 1.15, 88.49, p=0.04), history of drug abuse with opiate 0.04 (95% CI 0.002, 0.72, p=0.03) and tetrahydrocannabinol (THC) 0.35 (95% CI 0.14, 0.89, p=0.03) were factors that were associated with reduced in relapse to the MMT.

**CONCLUSION:** The adherence rates and relapse of patients were strongly associated with participant who had higher education level, good family support and history of opiate and THC abuse.

ID No.: NMRR-12-1295-11549
Keywords: methadone maintenance therapy, adherence, relapse

**OP9**

**IMPACT OF PHARMACISTS COUNSELING TOWARDS PATIENTS’ KNOWLEDGE AND COMPLIANCE OF ANTI-EPILEPTIC DRUGS**


1Pharmacy Department, Hospital Pulau Pinang, 2Neurology Department, Hospital Pulau Pinang

**INTRODUCTION:** Majority of epilepsy patients are controlled with anti-epileptic drugs. If non-compliance, patients may have immediate symptoms such as fits that may lead to lower quality of life, decrease productivity and seizure-related job loss. Therefore, compliance and knowledge towards drugs are vital.

**OBJECTIVES:** This study aimed to determine the impact of pharmacists counseling towards patients’ knowledge and compliance. The achievement of therapeutic drug level of anti-epileptic drugs and factors contributing to non-compliance were also evaluated.

**METHOD:** A cross-sectional study was conducted among epilepsy patients in Hospital Pulau Pinang. Patients with at least two anti-epileptic drugs and had history of at least four fitting episodes a month were included. Validated, interviewer-administered questionnaires were used to obtain demographic data and to assess patients’ knowledge and compliance of their anti-epileptic drugs. Serum drug levels were also checked. Then, pharmacists counseling and drug information leaflets were provided to patients. After a month, patients were reassessed with the same questionnaires and serum drug levels were rechecked.

**RESULTS:** A total of 56 patients (male, 58.9%; Chinese 60.7%, Malay 23.2% and Indian 16.1%) participated. Patients’ knowledge improved significantly after counseling with the mean knowledge scores increased from 2.54 to 3.64 (p<0.01). Knowledge of early and serious side effects of anti-epileptic drugs (p<0.01) improved significantly. Patients’ compliance towards anti-epileptic drugs improved significantly after the counseling (p<0.01). In addition, more patients achieved recommended therapeutic drug range after counseling as compared to before counseling (60.7% vs. 50%, p<0.01). Major factors contributing to non-compliance were forgetfulness, busy schedule and experienced side effects.

**CONCLUSION:** Pharmacists play important roles in educating patients to improve their knowledge and compliance. Additional measures such as pill box and reminder to aid patients’ compliance are necessary to overcome factors contributing to non-compliance.

ID No.: NMRR-13-750-15241
Keywords: patients’ knowledge, compliance, anti-epileptic drugs, pharmacists counseling
THE APPROPRIATENESS OF ACID SUPPRESSIVE MEDICATIONS’ USE AMONG SURGICAL INPATIENTS IN HOSPITAL SULTAN ABDUL HALIM

K. Ranita, J.H. Loo
Department of Pharmacy, Hospital Sultan Abdul Halim, Sungai Petani

INTRODUCTION: In Malaysia, acid suppressive medications (ASM) are one of the most commonly prescribed groups of medication. Many patients are treated with regular ASM for poorly defined reasons and for conditions where ASM therapy is not shown to be beneficial or effective.

OBJECTIVES: To verify the indications of ASM use on admission and upon discharge, according to the Food and Drug Administration approved indications. To determine the prevalence of unjustified use of ASM on admission and upon discharge. To determine the preferable choice of ASM by doctors based to indication.

METHOD: A retrospective observational study on 329 patients was conducted among female surgical inpatient at Hospital Sultan Abdul Halim from 1st of July 2011 till 31st of December 2011. Universal sampling was employed. Categorical data was analyzed with Microsoft Excel 2007 and Statistical Package for Social Science (SPSS) version 16.

RESULTS: The mean age (SD) was 53.44 (18.11) years. Majority of patients were Malay, 215 (65.3%). 87 (26.4 %) were on ASM prior to admission and 131 (40.0 %) were discharged with ASM. The commonest indications for ASM use were stress ulcer prophylaxis (SUP) and peptic ulcer disease (PUD). 94 (28.6 %) and 33 (25.2 %) were prescribed with ASM on admission and upon discharge respectively with no specific clinical indications. Intravenous pantoprazole was the preferred ASM for SUP and PUD in inpatient setting. Tablet esomeprazole was highly prescribed upon discharge for PUD.

CONCLUSION: ASM were commonly and irrationally prescribed with doctors less likely to question the indication and duration of therapy. Proper guidelines on specific indications and duration of therapy with patient education would be beneficial to minimize cost and over prescription of ASM therapy.

ID No.: NMRR-12-201-11520
Keywords: acid suppressive medications, inappropriate indication, surgical inpatients

COMPARISONS AND PREDICTORS OF PATIENT SATISFACTION WITH TRADITIONAL COUNTER AND VALUE-ADDED OUTPATIENT PHARMACY SERVICES IN HOSPITAL SULTANAH BAHIYAH: HAVE WE DONE ENOUGH?

H.K. Chan, N.A. Ghani, F. Ali, Z.Y. Heng, N.A. Shahabudin
Department of Pharmacy, Hospital Sultanah Bahiyah

INTRODUCTION: On top of traditional counter services (TCS), value added services (VAS) have been seen as strategies to reduce patient volume in outpatient pharmacy.

OBJECTIVES: To compare and investigate predictors of patient satisfaction with TCS and three types of VAS (call-and-collect, drive-through and mail pharmacy services) in Hospital Sultanah Bahiyah.

METHOD: This was a retrospective cohort study. Telephone interviews were conducted with randomly-selected patients who had used either TCS (n=103) or VAS (n=105) for their refill prescription claims in 2011 and 2012. A questionnaire containing two domains (general and technical aspects) with 10 statements was used. Respondents were instructed to indicate a score (ranging from 1 to 5) that reflected degree of their agreement with each statement. Adjusted mean satisfaction scores among services were compared using ANCOVA models. Selected covariates included number of medications, morbidities and other demographic variables. Predictors for satisfaction with pharmacy services were determine using multiple linear regressions.

RESULTS: Compared with TCS users, higher proportion of VAS users had tertiary education (52.4% versus 21.4%; p<0.001) and monthly income higher than MYR3,000 (33.3% versus 4.9%; p<0.001). Based on adjusted mean satisfaction scores, VAS users were generally more satisfied (44.63 versus 41.49, p<0.001). They specifically demonstrated a higher satisfaction level for general aspects of services than did TCS users (22.28 versus 19.17, p<0.001). The three types of VAS did not differ in overall patient satisfaction levels (p=0.805). Mail pharmacy service users were less satisfied with their expenditure on prescription claims compared with those using call-and-collect services (4.01 versus 4.62; p=0.010). Age (b=-0.07; p=0.013) and female gender (b=-2.38; p=0.020) were negatively associated with satisfaction among the TCS users. Income (b=2.60; p=0.018) was a significant predictor of satisfaction with VAS.

CONCLUSION: Results demonstrated the strengths of VAS over TCS in improving patient satisfaction. Variations in satisfaction levels among services may require a review of their effectiveness from policy perspectives.

ID No.: NMRR-12-219-11301
Keywords: outpatient dispensing, traditional counter, value-added services, patient satisfaction
THE IMPACT OF MEDICATION ADHERENCE ON COST AMONG TYPE 2 DIABETES PATIENTS

S. Fadzilah1, A. Asrul Shafie2, M.A. Hassali2
1Pharmacy Services Division, Jabatan Kesihatan Negeri Melaka
2Discipline of Social and Administrative Pharmacy, Universiti Sains Malaysia

INTRODUCTION: Diabetes has substantial impact on cost, bringing an economic burden to the patients and national health system. Majority of the patients have poor glycaemic control, usually due to non-adherence to medications

OBJECTIVES: The study aimed to; i) compare the impact of adherence on out-of-pocket expenditure (OOPE) and healthcare utilization cost (HUC); and ii) examine the factors affecting total diabetes cost.

METHOD: Data was collected using a self-administered questionnaire and structured abstracting form. Medication adherence was assessed using 8-item Morisky Medication Adherence Scale. Participants were asked about OOPE in the last three months. One year HUC were abstracted from patients' treatment record. The data of OOPE was then annualized with factor four to standardize the data for one year. Total diabetes cost was a summation of OOPE and HUC. Kruskal-Wallis test was used to compare the differences of the costs with adherence level. Multiple regression was used to assess the factors associated with total diabetes cost.

RESULTS: Diabetes patients spent MYR264,021.74 (mean=725.65, SD=1,926.81) for OOPE annually. Medium adherence group has the highest diabetes cost (MYR94,456.01, 48.40%), followed by low (MYR108,467.31, 30.82%) and high (MYR61,098.42, 20.79%) adherence groups. Annual HUC was MYR210,895.44 (mean=441.20, SD=324.01). In both OOPE and HUC, medium adherence group has the highest diabetes cost, followed by low and high adherence. Total diabetes cost was MYR474,917.18 (mean=993.55, SD=712.10). Medium adherence incurred the highest cost with MYR193,756.02 (40.80%), followed by low and high adherence with MYR168,552.42 (32.49%) and MYR112,608.74 (23.71%), respectively. However, there was no significant difference in total diabetes cost with adherence. Factors associated high diabetes cost was longer duration of diabetes (p<0.001) and poor glycaemic control (p<0.05).

CONCLUSION: There was no significant impact of adherence on total diabetes cost. Higher diabetes cost was associated with longer duration of diabetes and poor glycaemic control.

A PILOT STUDY ON THE EFFECTIVENESS OF A PHARMACIST INITIATED HOME MEDICATION REVIEW PROGRAMME AMONG TYPE 2 DIABETES PATIENTS IN THE STATE OF PENANG, MALAYSIA

E.P. Chow, Mohamed Azmi Hassali
Discipline of Social and Administrative Pharmacy, School of Pharmacy, Universiti Sains Malaysia

INTRODUCTION: Continuity of care beyond traditional institutionalized care for chronic diseases such as diabetes had been advocated in many public health programmes around the globe. In Malaysia, there is no study which document the effectiveness of such programme in diabetes care.

OBJECTIVES: The objective of the study was to evaluate the effectiveness of home medication review program among Type 2 diabetes patients from public primary centre in Penang, Malaysia.

METHOD: Type 2 diabetes patients with HbA1c more than 6.5% and taking 3 or more medications who stayed at their own house were recruited. Eligible patients were randomly assigned into control group and intervention group by coin tossing. Baseline clinical parameters such as HbA1c, blood pressure, fasting blood sugar were collected during recruitment. Each patient was visited twice at their house. During the first visit, blood pressure monitoring, point of care for sugar and total cholesterol levels and assessment on patients’ adherence using the validated questionnaire were conducted. Pill count was conducted and excessive medications were collected to calculate the costing component.

RESULTS: A total of 150 patients were recruited and randomly assigned in two groups (n=75 each group). Fifty patients in the intervention group completed the study. After 2 home visits, there were significant improvement in the adherence score for the intervention group (M=6.895, s=0.93962) compared to the control group (M=4.0471, s=1.50933). There was a significant improvement in knowledge score in the intervention group as well (intervention group (M=10.04, s=1.74917) vs control group (M=5.4493, s=1.89066)).

CONCLUSION: Pharmacist-led home medication reviews improved patients’ adherence and knowledge as well as helping the policy makers to save money on reducing medication wastage.

Keywords: diabetes, medication adherence, cost
THE OUTCOME OF IMPLEMENTING BREATHE EASY PROGRAMME (BEP) IN ASTHMA PATIENTS IN KULIM HOSPITAL

OP14

R. Jaya Muneswarao1, X.Y. Khor1, M.R. Nurazimah1, S.D. Shalinee2
1Department of Pharmacy, Hospital Kulim
2Department of Medical, Hospital Kulim

INTRODUCTION: Asthma is a chronic inflammatory disease of the airways. A baseline study reported 30% of our patients reached well controlled asthma; therefore Breathe Easy Programme (BEP) was introduced. The primary component of BEP is the Integrated Asthma Clinic (IAC) which comprised of doctors and pharmacist-led Respiratory Medication Adherence Clinic (RMTAC). Patients under BEP are followed-up through the IAC. Other components of BEP are Asthma Diary, Written Asthma Action plan and a special Asthma Camp for the patients.

OBJECTIVES: The primary objective was to determine the outcome of implementing BEP. Specific objectives were to compare percentage of BEP patients achieving well control asthma (defined by Asthma Control Test (ACT) score≥20) and to compare the hospitalization/emergency room (ER) visit rate due to exacerbation and peak expiratory flow rate (PEFR) vs the control groups (Control 1 : Standard RMTAC plus usual care, Control 2 : Usual care only)

METHOD: A randomised prospective study conducted at the Chest Clinic and Medical Outpatient Department, Kulim Hospital from December 2012 to December 2013. 102 adult asthma patients were randomly selected and assigned to either BEP (n=34), Control 1 (n=34) or Control 2 (n=34). Data was collected through clinic notes, asthma diary, in-patient records, discharge summaries and questionnaires.

RESULTS: Eighty two percent of BEP patients achieved well controlled asthma (ACT score≥20) vs Control 1 (53%) and Control 2 (32%) (p<0.05). BEP patients showed lower hospitalization/ER visit rate due to exacerbation, 0.53±0.31/patient/year vs Control 1 (1.47±0.54/patient/year) and Control 2 (2.56±0.89/patient/year) (p<0.001). PEFR was higher in BEP patients, 362±25L/min vs Control 1 (334±17L/min) and Control 2 (315±15L/min) (p<0.001).

CONCLUSION: BEP increased the proportion of patient achieving well controlled asthma, reduced their hospitalization/ER visit rate and recorded higher patient’s PEFR.

ID No.: NMRR-13-716-16314
Keywords: breathe easy programme, asthma, asthma control test

USAGE OF TRADITIONAL AND COMPLEMENTARY MEDICINE (TCM) AMONG PATIENT WITH CHRONIC ILLNESS ADMITTED IN MEDICAL WARDS OF HOSPITAL TUANKU AMPUAN NAJIHAH, KUALA PILAH

OP15

B. Thamarai Chelvi, L.H. Boong, N. Basariah
Department of Pharmacy, Hospital Tuanku Ampuan Najihah, Kuala Pilah

INTRODUCTION: The usage of TCM is popular especially among patients with chronic illness. However, little is known about the consequences of using TCM concurrently with conventional medicine without doctor’s knowledge.

OBJECTIVES: To study the awareness and use of TCM among patients with chronic illness admitted to medical wards.

METHOD: A cross-sectional study was conducted among patient with chronic illness admitted to medical wards in Hospital Tuanku Ampuan Najihah. Using a convenience sampling method, a pre-tested and structured questionnaire was administered through a face-to-face interview to 93 consented patients.

RESULTS: About 48% of patients were found using or had used TCM before. Usage of TCM was found to be significantly associated with the age group of patients (p=0.037) but not with other socio-demographic factors. Traditional Malay Herbs had the highest ranking in terms of usage (37.8%), followed by Traditional Chinese Medicine (20.9%). The most common reason for TCM use was recommendation by friends and family (n=19; 42.2%). 68% of the patient using or had used TCM will not consider using TCM again in the future. 39.6% of TCM users used TCM concurrently with conventional medicine. However, only 20% of them made known of their current usage of TCM to their physician. Overall, only 47% of patients were aware of the contraindications and interactions when using both together.

CONCLUSION: It is imperative that health professionals explore the use of TCM with their chronically ill patients, educate them about potentially beneficial therapies in light of the limited available evidence of effectiveness, and work towards an integrated model of health-care provision.

ID No.: 11-05030014-13-07
Keywords: traditional and complementary medicine, awareness, chronic illness
THE IMPACT OF HOME MEDICATION REVIEW (HMR) PROGRAM AMONG PATIENTS
DIAGNOSED WITH SCHIZOPHRENIA ENROLLED UNDER HOME CARE TEAM,
HOSPITAL BAHAGIA ULU KINTA, PERAK

Y.M. Tan¹, C.P. Chong², Y.C. Cheah¹
¹Hospital Bahagia Ulu Kinta
²School of Pharmaceutical Sciences, Universiti Sains Malaysia

INTRODUCTION: HMR program had been incorporated into Malaysian health care system since 2004 as a continuation of patient’s care from health facilities to their home. However, little is known about the impact of HMR program particularly among the patients diagnosed with schizophrenia.

OBJECTIVES: To evaluate the impact of HMR program among patients diagnosed with schizophrenia under the home care team. Patient’s adherence, knowledge and quality of life was also assessed in this study.

METHOD: This pre and post intervention study was carried out among 100 patients diagnosed with schizophrenia enrolled under the Home Care Team in Hospital Bahagia Ulu Kinta from September 2012 to September 2013. Standardized data collection forms were used to collect baseline data from the patient during the first visit. After which, they were given structured counseling session. During second, third and fourth visits, patients were re-assessed with the same standardized forms. Additional information or counseling was given by pharmacist during each visit. The outcomes of patients were assessed.

RESULTS: Medication Adherence Rating Scale (MARS) showed an increase in adherence at 6-months follow-up compared with mean baseline [9.58±0.95 vs 8.19±1.59 (p<0.05)]. Mean percentage of doses taken at the end of the study was 92.00% as compared to baseline, 62.09% (p<0.05). There was a significant improvement of patient’s knowledge at 6-months compared to mean baseline [7.64±0.57 vs 5.24±1.54 (p<0.05)]. For the patient’s quality of life, ‘social’ and ‘family’ components achieved improvement after 6 months follow up, at 0.52±1.53 (p<0.05) and 0.48±1.59 (p<0.05) respectively. There was no significant difference on the ‘work’ component, 8.43±4.44 (p>0.05).

CONCLUSION: HMR program significantly increased patient’s medication adherence, knowledge and the ‘social’ and ‘family’ component of quality of life after 6 months.

ID No.: NMRR-12-691-13067
Keywords: home medication review, schizophrenia, adherence, quality of life

EFFECTIVENESS OF ASTHMA MTAC SERVICE IN ASTHMA CONTROL IMPROVEMENT
(EASI STUDY)

K.C. Irwinder¹, K.K. Kong¹, S.H. Phua¹, Y.L. Yeo¹, S.L. Lee², L.T. Pee³
¹Department of Pharmacy, Hospital Duchess of Kent, Sandakan
²Department of Pharmacy, Hospital Sultanah Aminah, Johor Bahru
³Department of Pharmacy, Klinik Kesihatan Jinjang

INTRODUCTION: Asthma Medication Therapy Adherence Clinic (AMTAC) has been set up in Duchess of Kent Hospital since November 2008. However, the impact of this service has not been studied yet.

OBJECTIVES: To demonstrate the improvement of asthma control among AMTAC patients.

METHOD: This was a quasi experimental study which was conducted over a period of 18 months from February 2011 to August 2012. Asthma patients (n=30; 15 from each arm) who fulfilled the inclusion criteria were recruited using convenience sampling from 2 pharmacy institutions respectively: Outpatient Clinic Sandakan and Duchess of Kent Hospital. Asthma Control Test (ACT), a validated 5-item questionnaire designed to determine the patient’s level of control of asthma in past 4 weeks was completed. The ACT scores were then compared between the AMTAC (intervention group) and the usual pharmacist care group (control group).

RESULTS: The baseline characteristics of study patients in term of gender, age, level of education, smoking status, smoking pack years, asthma duration years, awareness of trigger factors, inhaled corticosteroid daily dose and level of treatment were compared for intervention group and control group. The statistical tests showed no difference between these two groups except for level of treatment (p=0.001). The independent samples t-test showed a significant improvement in the ACT between the intervention group (M=22.27, SD=1.83) and the control group (M=16.47, SD=3.62), t(20.7)=5.53, p<0.001, 95% CI 3.62, 7.98. This study demonstrated similar outcome from many other studies conducted at other setting.

CONCLUSION: The present finding suggested AMTAC has a positive impact to the asthma control improvement.

ID No.: NMRR-11-698-8488
Keywords: asthma MTAC, asthma control, ACT, effectiveness
COMPLEMENTARY AND ALTERNATIVE MEDICINE (CAM) USE AND THE IMPACT ON MEDICATION ADHERENCE AMONG DIABETIC PATIENTS IN SIBU HOSPITAL: A PRELIMINARY REPORT

Department of Pharmacy, Hospital Sibu

INTRODUCTION: Complementary and alternative medicine (CAM) includes herbs, supplements and various alternative practices. Pattern of CAM use among diabetic patients in East Malaysia is unknown.

OBJECTIVES: 1. To investigate the pattern of CAM use among diabetic patients; 2. To compare medication adherence between CAM and non-CAM users.

METHOD: This was a cross-sectional study that recruited diabetic patients in Sibu Hospital from March to July 2013. Face-to-face interview based on a structured questionnaire was carried out with patients (n=131) who met the inclusion criteria. Medication adherence was measured using a validated 8-item Morisky's scale.

RESULTS: In total, 22.9% of diabetic patients in Sibu Hospital were CAM users. Most commonly used category of CAM was herbs (19.1%). Among the herbs, Misai Kucing (Orthosiphon Stamineus Benth) was most often used (32.3%), followed by GlucosCare® (19.4%) which consists of Gymnema Sylvestre and Camellia Sinensis. Study showed association between CAM use with higher educational level, friends' recommendation, and assumed safety and efficacy. Non-disclosure rate was high in this study. 90.3% of CAM users did not inform their prescriber of their use of CAMs. 83.9% of CAM user perceived health improvement after CAM use. There was no significant difference in patient's adherence towards conventional medications between CAM and non-CAM users (P=0.127).

CONCLUSION: One-fifth of diabetic patient used CAM and most of them did not disclose this to their prescribers. Further study with larger sample size is needed to identify impact of CAM use towards medication adherence and to evaluate the safety and efficacy of commonly used herbs.

ID No.: NMRR-12-1170-14443
Keywords: complementary and alternative medicine, medication adherence, diabetes

ASSESSMENT OF OSTEOPOROTIC PATIENTS’ ADHERENCE AND KNOWLEDGE ON ALENDRONATE THERAPY

L.H. Ooi, S.F. Teh, S.N. Lee, P.P. Lim, L.Y. Liew
Department of Pharmacy, Hospital Seberang Jaya

INTRODUCTION: Alendronate is commonly used in Hospital Seberang Jaya for the treatment of osteoporosis. Adherence to therapy is vital for optimal therapeutic benefit. Besides, correct method of administration is important to minimize the side effects. Hence, it is essential to ensure patients’ adherence and correct method of administration.

OBJECTIVES: This study aimed to assess patients’ adherence and knowledge towards alendronate therapy and to investigate the association between adherence with patient’s demographic data, duration of therapy, side effects of therapy and knowledge level.

METHOD: A cross-sectional survey was carried out from September to November 2013 at Outpatient Pharmacy, Hospital Seberang Jaya. A total of 140 patients were recruited via convenience sampling method. Survey was conducted through face-to-face or phone interview with a validated questionnaire. The questionnaire consisted of adherence assessment adopted from Adherence Evaluation of Osteoporosis Treatment (ADEOS) questionnaire and seven additional questions to assess patients’ knowledge on alendronate therapy. If the ADEOS adherence index ≥20, there is a high probability of persistence whereas adherence index ≤16 indicate high probability of treatment discontinuation in the following 9 months.

RESULTS: Among the patients, 37.1% had adherence index ≥20 while 20% had adherence index ≤16. Majority of them (71%) answered all the seven questions on knowledge of alendronate therapy correctly. Among the seven questions, only 1 question has been answered correctly by all patients which was the question regarding the drink to be used during alendronate administration. However, none of the variables (patient’s demographic data, duration of therapy, side effects of therapy and knowledge level) was significantly associated with the adherence to alendronate therapy.

CONCLUSION: This study showed that more than one third of the patients had good adherence towards alendronate therapy. Majority of the patients had excellent knowledge on alendronate therapy. Nevertheless, effort shall be continued to ensure better outcome in the future.

ID No.: NMRR-13-1288-16491
Keywords: osteoporosis, alendronate, adherence evaluation of osteoporosis treatment (ADEOS) questionnaire
COST-EFFECTIVENESS STUDY OF PANTOPRAZOLE AND ESOMEPRAZOLE IN THE TREATMENT OF UPPER GASTROINTESTINAL BLEEDING AT HOSPITAL TAIPING

S.J. Choo1, S. Asrul2, P.P. Soo1, S.J. Rathika1, M.F. Siti Hajar3, W.O. Wan Azuati1, X.Y. Beh1, R. Umasangar1
1Pharmacy Department, Hospital Taiping
2School of Pharmaceutical Sciences, Universiti Sains Malaysia
3Surgical Department, Hospital Taiping

INTRODUCTION: Upper gastrointestinal bleeding is a life threatening emergency which requires urgent assessment and pharmacological management. In Malaysia, the clinical practice guideline recommends proton pump inhibitors as the mainstay therapy for upper gastrointestinal bleeding. However, there are no published head-to-head cost effectiveness comparison between pantoprazole and esomeprazole.

OBJECTIVES: To evaluate the clinical and cost effectiveness of pantoprazole and esomeprazole in the treatment of upper gastrointestinal bleeding, from the health care payer perspective.

METHOD: This was a head-to-head comparison trial. Thirty one patients were recruited and randomly assigned into pantoprazole (n=17) and esomeprazole (n=14) group. Clinical effectiveness was determined by the duration of treatment until bleeding stops and the occurrence of re-bleeding event. The costs included medications, hospital stay, consultation, laboratory investigation and others that were appropriate. The primary outcomes were cost effectiveness ratio and incremental cost effectiveness ratio for one bleeding-free day and re-bleeding event averted between pantoprazole and esomeprazole.

RESULTS: The cost per patient for pantoprazole and esomeprazole regimen was MYR4,817.60 and MYR4,745.74 respectively. Esomeprazole achieved earlier bleeding-free day (2.07 days vs 2.3 days), and also averted more re-bleeding event (100% vs 82.35%) than pantoprazole. The incremental cost effectiveness ratio of esomeprazole over pantoprazole was – RM312.43 to achieve one bleeding free-day and – RM4.07 to avert one re-bleeding event. Therefore, esomeprazole is a dominant therapy. Sensitivity analysis showed that the cost effectiveness values were most sensitive to shorter duration to achieve bleeding-free day as well as reduction of blood transfusion cost.

CONCLUSION: Preliminarily, esomeprazole was more cost effective compared to pantoprazole in the treatment of upper gastrointestinal bleeding, in terms of achieving earlier bleeding-free day and averting re-bleeding event. A randomized control study with greater sample size is urged to prove the preliminary result.

ID No.: NMRR-12-851-12943
Keywords: cost effectiveness, pantoprazole, esomeprazole, upper gastrointestinal bleeding

PATIENT RESPONSES TOWARDS VARIATIONS IN LOVASTATIN APPEARANCES DUE TO SWITCHING BETWEEN GENERIC BRANDS IN HOSPITAL SULTANAH BAHIYAH (HSB)

Pharmacy Department, Hospital Sultanah Bahiyah, Alor Setar

INTRODUCTION: Consumers’ knowledge and understanding of generic medicines is the determinant factor in promoting the extensive use of generic medicines over branded medicines. Medical professionals are firmly believed as the indispensable characters in educating and guiding consumers towards generic substitution.

OBJECTIVES: To evaluate patients’ responses and perceptions towards variations in tablet lovastatin’s physical appearance due to generics switching.

METHOD: A cross-sectional observational study was conducted via phone interview by using a validated structured questionnaire, from July to October 2013. This involved adult patients who received same dose of lovastatin throughout year of 2012, and excluded those who cannot recall the switching. Data was analyzed using SPSS version 16.0. Chi-square test was used to evaluate the associations between responses and perceptions with socio-demographic data.

RESULTS: A total of 280 patients completed this study. About 98.9% of them continued to take tablet lovastatin after the switching. More than 50% of respondents perceived that the tablets were equivalent in terms of safety, physical quality, swallowability, and attractiveness. There was no association between these perceptions and socio-demographic data, with exception to attractiveness – significantly associated with education level (p=0.001) and years on lovastatin (p<0.001). About 63.9% of respondents were explained by pharmacists about the variations, yet only 52.5% of them rated the explanation as average and above.

CONCLUSION: Our study showed that majority patients in HSB continued to take lovastatin tablets despite the change in physical appearance, with perceptions that the tablets were equivalent. There was no association between their perceptions and demographic data, with exception to attractiveness. Pharmacists play an important role in providing awareness to patients on this issue. However, the quality of education given needs to be improved.

ID No.: NMRR-13-263-15377
Keywords: brand switching, generic medicine, lovastatin
PROSPECTIVE OBSERVATIONAL STUDY: ASSESSMENT OF PHARMACIST AND PHYSICIAN-MANAGED WARFARIN CLINIC BY COMPARING TIME SPENT TO STABILIZE INR VALUE

V.Y. Chang, A. Azura, Y. Noorazlinda, S.F. Lee, J. Siti Rahmah
Department of Pharmacy, Hospital Melaka

INTRODUCTION: The beneficial outcomes of warfarin therapy are dependent upon achieving and maintaining an optimal INR therapeutic range. There is rising evidence that pharmacist-managed warfarin clinic achieved better INR control than the physician-managed warfarin clinic. Pharmacist-managed warfarin Medication Therapy Adherence Clinic (MTAC) was established in Hospital Melaka since 2007 to deliver effective counseling on warfarin therapy. Then, in early July 2011, Warfarin MTAC in Hospital Melaka was entrusted in providing continuous monitoring of patients’ INR results and managing warfarin dosing.

OBJECTIVES: To compare time spent to stabilize patient’s INR value between pharmacist-managed and physician-managed warfarin clinic for newly started patients with warfarin.

METHOD: This prospective observational study was conducted in Medical Specialist Clinic in Hospital Melaka. A total number of 100 patients were included (50 patients under pharmacist-managed versus 50 patients under physician-managed). Pharmacist-managed group was patients who were followed up at warfarin MTAC from July 2011 onwards, whereas physician-managed group was patients who were followed up at warfarin clinic prior to July 2011. Survival Analysis was applied to analyze the time spent to stabilize INR value between these two groups.

RESULTS: Mean age for pharmacist-managed group was 59 years old whereas physician-managed group was 54.9 years old (p=0.131). The most indication for warfarin in both groups was atrial fibrillation (67%). The median time for INR to get stabilize was statistically significant between both groups. The time taken to get first time stabilization of INR under pharmacist-managed was 57 days (SD=9.03) whereas physician-managed took 105 days (SD=10.05) with p<0.001.

CONCLUSION: Pharmacist-managed warfarin MTAC spent shorter duration to stabilize INR value compared to physician-managed group.

ID No.: NMRR-12-331-11214
Keywords: medication therapy adherence clinic (MTAC), warfarin, INR, survival analysis

HEALTH-RELATED QUALITY OF LIFE IN PATIENTS RECEIVING METHADONE THERAPY

M.P. Siti Norfatihah, W.L. Yee
Pharmacy Department, Hospital Hulu Terengganu

INTRODUCTION: Methadone has been widely used as a substitution therapy for drug addiction in opioid dependence individuals and also as a potential therapy to improve health-related quality of life (HRQoL).

OBJECTIVES: To evaluate the impact of Methadone Maintenance Therapy (MMT) on HRQoL at baseline versus 6 months, 6 months versus 12 months and throughout this one year study and to compare baseline HRQoL with different education levels and HIV status.

METHOD: Respondents from Hospital Hulu Terengganu completed WHOQOL-BREF measure at baseline, 6 months and 12 months after participating in this programme. The questionnaire contained 4 domains with 26 items using a Likert-type scale (1-5); higher score indicating a better HRQoL. Data was analysed via SPSS version 17; employing descriptive statistics and non-parametric tests.

RESULTS: A total of 66 Malay males participated (single=53.8%; at least PMR qualification=57.6%; employed=90.9%; addiction period at least 11 years=65.2%; negative HIV status=54.5%). After 6 months of MMT, significant improvements were shown in all HRQoL domains (p<0.05). However, no significant difference of HRQoL profiles was detected in the subsequent 6 months.Our findings revealed improvement for all HRQoL domains throughout this one year study. Across all WHOQOL-BREF dimensions, no significant difference was detected according to different education levels and HIV status (p>0.05). Nonetheless, respondents who possessed at least SPM qualification tended to exhibit comparatively better HRQoL.

CONCLUSION: The MMT programme implemented for the rural Terengganu population has been considerably effective and successful in providing treatment for opioid abusers based on the HRQoL outcomes with respect to the results of this study.

ID No.: 17228
Keywords: health-related quality of life, methadone maintenance therapy, opioid dependence
OP24 RETROSPECTIVE DRUG USE EVALUATION OF CEFTRIAXONE IN HOSPITAL DUCHESS OF KENT IN YEAR 2012

B.K. Leong¹, Y. Logeswary², A. Braveena³, S.H. Phua¹, S.L. Lee⁴
¹Department of Pharmacy, Hospital Duchess of Kent, Sandakan
²Department of Pharmacy, Hospital Keningau
³Department of Pharmacy, Klinik Kesihatan Shah Alam
⁴Department of Pharmacy, Hospital Sultanah Aminah, Johor Bahru

INTRODUCTION: Hospital Duchess of Kent (HDOK) recorded the highest Defined Daily Dose (DDD) per 100 admissions (38.23) for ceftriaxone among hospitals in Malaysia in 2010. This calls for an evaluation on the adherence of prescribing ceftriaxone against the audit criteria.

OBJECTIVES: To evaluate the compliance level of ceftriaxone use in HDOK in 2012.

METHOD: A total of 708 in-patients received ceftriaxone in 2012 at HDOK. The subjects were selected by census sampling. By inclusion and exclusion criteria, 304 subjects were selected. Data collection forms were designed based on validated pre-determined audit criteria by American Society of Hospital Pharmacists (ASHP). The data collection forms were modified according to National Antibiotic Guideline 2008, Guide to Antimicrobial Therapy in the Adult ICU 2012, Sanford Guide to Antimicrobial Therapy 2012 and to include patient’s demographic data. Evaluation criteria include justification of drug use, process criteria and outcome measures.

RESULTS: The appropriateness rates were relatively high (78% correct indication and 76% correct dose and duration) although it did not meet the threshold of 100%. Only 3 out of 8 process criteria met the threshold values (complete blood count with differential obtained within 48 hours before initial dose; vital signs monitored at least 3 times daily until patient becomes afebrile, at least once daily thereafter during therapy; and serum creatinine or urinary creatinine clearance obtained once weekly during therapy). Of the process criteria, a lack of culture and sensitivity prior to initial ceftriaxone dose registered the lowest adherence to the audit criteria (62%). 77% of ceftriaxone cases showed positive clinical improvement after being on the antibiotic.

CONCLUSION: About 78% of ceftriaxone cases were given for the right indication, 76% the right dose and duration. The appropriateness of process criteria range from 62 to 99%, with only 3 criteria reached threshold level set by ASHP.

ID No.: NMRR-13-522-16380
Keywords: retrospective drug use evaluation, ceftriaxone

OP25 AN EVALUATION ON THE EFFECTIVENESS OF THE MCISAAC SCORING RULES IN THE MANAGEMENT OF CHILDREN DIAGNOSED WITH SORE THROAT IN PAEDIATRIC GENERAL WARD, HOSPITAL KULIM

T. Saravanapriya¹, I. Baharudin¹, G. Sheila²
¹School of Pharmaceutical Sciences, Universiti Sains Malaysia
²Paediatric Department, Hospital Kulim

INTRODUCTION: Sore throat is one of the most common complaints in paediatrics, resulting in millions of physician office visit or hospital admission each year throughout the world. Sore throat is a frequent indication of antibiotic prescription in the community, resulting in significant healthcare costs and increasing antimicrobial resistance due to inappropriate use of antibiotics. It is estimated that 50% to 80% of sore throat are caused by viral infections, while Group A β-Hemolytic Streptococcus (GABHS) to be the cause in 5% to 36% of the cases. As the precise clinical diagnosis of GABHS pharyngitis is difficult, Ministry of Health Malaysia, recommended that the clinician’s decision on sore throat management, to be based on the McIsaac Scoring System for improving the efficiency of the treatment.

OBJECTIVES: To evaluate of the effectiveness of McIsaac Scoring in reducing unnecessary throat swab culture, empirical antibiotic usage and to monitor the compliance rate to this scoring system.

METHOD: A retrospective bed head tickets review was conducted in the paediatric general ward of Hospital Kulim from June to December 2012. A total 116 bed head tickets were involved, divided into two groups; Group A – before the implementation of McIsaac rules and Group B – after the implementation of McIsaac rules, where comparison was done using Fisher’s Exact Test and Chi-Square method.

RESULTS: There was a significant (p<0.05) reduction of 40% in unnecessary throat swab culture, 26.5% in redundant antibiotic usage and 22.1% in overall antibiotic usage. The compliance rate to this scoring was only 45% before being enforced at Hospital Kulim, but later improved to 67.9% (p<0.005).

CONCLUSION: McIsaac rules is an effective tool in the management of sore throat in children diagnosed with sore throat.

ID No.: NMRR 12-1332-14161
Keywords: Group A β-Hemolytic Streptococcus (GABHS), McIsaac Scoring, sore throat
THE EFFECTIVENESS OF ADULT EPILEPSY-MEDICATION THERAPY ADHERENCE CLINIC (EPI-MTAC) IN HOSPITAL TUANKU AMPUAN NAJIH (HTAN), KUALA PILAH

L.S. Kong, C.K. Teng, M. Adibah, A. Zetty Faeza, Norsyafalina, C.J. Tan, N. Basariah
Pharmacy Department, Hospital Tuanku Ampuan Najihah, Kuala Pilah

INTRODUCTION: Pharmacist involvement in adult Epilepsy-Medication Therapy Adherence Clinic (Epi-MTAC) is imperative because of its common occurrence, narrow therapeutic and safety margins of anti-epileptic medications and complications of medication non-adherence. Therefore, the effectiveness of Epi-MTAC by pharmacists must be verified.

OBJECTIVES: To evaluate the effectiveness of adult Epi-MTAC in HTAN.

METHOD: A two-phase study was conducted which involved subjects who had at least 3 visits and 6 months follow-up. First phase (2009 to 2013) was conducted retrospectively. Data for pre- and post-Epi-MTAC recruitment of subjects’ on anti-epileptic adherence, seizure frequency, and prescriber’s acceptance of pharmacists’ intervention were collected. Data was retrieved from the Medical Out-Patient Department (MOPD), Epi-MTAC records and Therapeutic Drug Monitoring (TDM) unit. Second phase (August 2012-December 2013) was conducted prospectively, in which subjects’ satisfaction with MTAC service (before and after provision of epilepsy tool kit) and quality of life (QOL) were assessed.

RESULTS: Significant (p<0.05) improvements were found in post-Epi-MTAC recruitment in terms of anti-epileptic adherence and mean seizure frequency per month. Subjects were found to be satisfied with the Epi-MTAC service. However, there was no significant increase in mean satisfaction score after the new epilepsy tool kit was provided. There was a small improvement in subjects’ QOL between baseline and after at least 6 months in Epi-MTAC. High acceptance of Epi-MTAC pharmacists’ interventions by the prescribers was achieved. A positive outcome was seen from the impact of Epi-MTAC pharmacists’ interventions in TDM request with result interpretations.

CONCLUSION: The adult Epi-MTAC in HTAN was shown to be effective in various aspects. By active collaboration between prescribers and patients, Epi-MTAC would be noteworthy in ensuring the quality of drug and disease management in epilepsy patient.

ID No.: 11-05030014-13-03
Keywords: Epilepsy-Medication Therapy Adherence Clinic, epilepsy, adherence, seizure frequency

COST-EFFECTIVENESS ANALYSIS (CEA) OF ANTIHYPERTENSIVE DRUGS IN PATIENTS WITH TYPE 2 DIABETES MELLITUS IN LAHAD DATU HOSPITAL

J.Y.H. Voo1, B. Samsia1, T.Y. Tang2
1Department of Pharmacy, Hospital Lahad Datu
2Department of Pharmacy, Pusat Bekalan Farmasi Negeri Sabah

INTRODUCTION: Hypertension in Type 2 diabetes mellitus (T2DM) is a prevalent non-communicable disease that leads to morbidity and mortality. Malaysian Statistics on Medicines reported that RM508 million was spent for antihypertensive drugs purchase in public and private sectors in 2008. There is a need for efficient selection of antihypertensive due to the escalating costs of drugs and scarce resources available.

OBJECTIVES: To determine the cost-effectiveness of different classes of antihypertensive drugs and evaluate adherence to current Malaysian Clinical Guidelines for antihypertensive agents use in diabetics.

METHOD: This was a retrospective review from May 2010 to April 2011 evaluating outpatients record with T2DM in Lahad Datu Hospital. All T2DM outpatients whose blood pressure (BP) controlled with antihypertensive for more than 3 months were included in the study. Costing was undertaken from providers’ perspectives. Direct costs such as drug acquisition costs, laboratory costs and salaries of health professionals were included. The Incremental Cost-Effectiveness Ratio (ICER) was determined by comparing the extra monthly mean cost of two antihypertensive alternative groups to the additional proportion of diabetics with controlled BP.

RESULTS: A total of 135 patients were included in the analysis. Of all, 30 and 42 patients received ACE Inhibitors (ACEIs) as monotherapy or combination therapy respectively. This was in concordance with the guidelines. In this group, 63 patients (46.67%) achieved ideal BP control of less than 130/80 mmHg. ACEIs monotherapy (0.045) were the most cost-effective drugs to control BP among diabetics followed by Calcium Channel Blockers (CCBs) (0.081). In addition, double combination of ACEIs and diuretics (0.084) and triple combination of ACEIs, CCBs and Beta Blockers (0.12) were the most cost-effective.

CONCLUSION: The most cost-effective therapies were ACEIs used either as monotherapy or combination therapy. Utilisation of both regimen in hypertensive patients with T2DM are consistent with evidence-based clinical practice guidelines.

ID No.: NMRR-13-437-16561
Keywords: cost-effectiveness analysis, antihypertensive in Type 2 diabetes mellitus, ACE Inhibitors
001

KNOWLEDGE AND ATTITUDE TOWARDS ANTIBIOTIC USAGE: A CROSS-SECTIONAL STUDY IN HOSPITAL SLIM RIVER, MALAYSIA

Department of Pharmacy, Hospital Slim River

INTRODUCTION: Appropriate knowledge and attitude towards antibiotic usage is important to prevent bacterial resistance to antibiotics.

OBJECTIVES: The objective of the study was to evaluate knowledge and attitude towards antibiotic usage among patients attending Hospital Slim River.

METHOD: A cross-sectional study involving 428 respondents was conducted at Outpatient Pharmacy, Mini Pharmacy, Medical Ward, Orthopaedic Ward and Surgical Ward in Hospital Slim River from May to August 2013. A three-part questionnaire was used to collect demographic characteristics of the respondents and their knowledge and attitude towards antibiotic usage. Only fully completed questionnaires were analyzed. Chi-square test was used to determine the association of demographic characteristics with knowledge and attitude. Spearman correlation was used to examine the relationship between knowledge level and attitude score. In all statistical analysis, a p-value of less than 0.05 was considered statistically significant.

RESULTS: Majority of the respondents (54.2%) had moderate level of knowledge regarding antibiotics usage. Most respondents (86.9%) knew antibiotics can be used to kill bacteria. However, nearly half of the respondents mistakenly believed that antibiotics can treat viral infections (46.5%) and can stop fever (47.7%). About 69.4% understood the need to complete the full course of antibiotic when their symptoms are improving and 70.3% knew that overuse of antibiotics can cause antibiotic resistance. Majority of the respondents (58.4%) had positive attitude. Nevertheless, only 57.2% agreed to continue taking antibiotics when they start feeling better. 47.7% would not take antibiotics when they get a cold and 50.2% would not expect antibiotics to be prescribed for common cold symptoms. Positive correlation (p<0.001) was noted between knowledge level and attitude score. Ethnicities (p<0.001), educational level (p<0.001) and monthly income (p<0.001) contributed significantly to knowledge and attitude towards antibiotic usage.

CONCLUSION: Targeted antibiotic awareness campaigns should be carried out to improve the misconceptions among the specific group of identified in this study.

ID No.: NMRR-13-832-15287
Keywords: antibiotic usage, attitude, knowledge

002

A MULTI-CENTRE CROSS SECTIONAL STUDY AMONG NON POISON WHOLESALERS ON SALES OF COUNTERFEIT MEDICINAL PRODUCTS AND THE AWARENESS ON PRODUCT REGISTRATION IN MALAYSIA

I. Mazlan1, I. Dalı1, S. Manzatul Azrul Azrie1, B. Rahman1, S. Mohammad Rizalmazli1, Z. Aimi1, S. Affarizan2, O. Fadli Noor2, A. Nor Azizah3, A.S. Sareh Safwan5
1Pharmacy Enforcement Division, Bahagian Perkhidmatan Farmasi, Ministry of Health Malaysia
2Pharmacy Enforcement Branch, Jabatan Kesihatan Negeri Kelantan
3Pharmacy Enforcement Branch, Jabatan Kesihatan Negeri Pahang
4Pharmacy Enforcement Branch, Jabatan Kesihatan Negeri Johor
5Pharmacy Enforcement Branch, Jabatan Kesihatan Negeri Perak

INTRODUCTION: Counterfeit medicines are a big problem globally and identified as a serious threat to public health. A counterfeit medicine is one which is deliberately and fraudulently mislabeled with respect to identity or source. Counterfeiting can apply to both branded and generic products.

OBJECTIVES: The first objective of this study was to determine the percentage of counterfeit medicinal products which penetrated the supply chain through licensed wholesalers for non poison controlled medicines. Whereas, the second objective was to study the awareness of these wholesalers with regard to counterfeits and unregistered medicinal products.

METHOD: A multi-centered, cross sectional and descriptive study was conducted via wholesale premises inspections between March to May 2012. A questionnaire-based interview was also carried out on each wholesaler during inspection. The inclusion criteria were non poison wholesaler premises that are licensed with Drug Control Authority as well as products that have both the MAL registration number and Meditag® Hologram. Out of total 440 non poison wholesalers, 48.9% (n=215) were chosen and inspected at random. Four sets of forms were used in data collection by Pharmacy Enforcement Officers. Those data were then analyzed using SPSS version 20.

RESULTS: Inspection on 215 non poison wholesalers found that 1.4% (n=3) were selling counterfeit products. Out of 3209 medicinal products that were inspected, 0.16% (n=5) products were counterfeit and 0.75% (n=24) products were unregistered. The wholesalers’ awareness showed that 96.7% (n=208) were aware that medicinal products sold in Malaysia have to be registered with the Ministry of Health.

CONCLUSION: There was awareness among wholesalers on counterfeit products and the necessity of product registration. However, a substantial percentage of counterfeit and unregistered medicinal products still penetrated the supply chain of non poison wholesalers. Therefore, awareness campaigns and strict adherence to anti-counterfeiting measures are urgently required.

ID No.: 19234
Keywords: awareness, counterfeit medicines, registration of medicine
BELIEFS ABOUT GENERIC MEDICINES AMONG PATIENTS AT A DISTRICT PUBLIC HOSPITAL IN MALAYSIA

Z.Y. Wong1, M.A. Hassali2, A.H. Yahaya1, F. Saleem2
1Pharmacy Department, Hospital Teluk Intan
2Discipline of Social and Administrative Pharmacy, School of Pharmaceutical Sciences, Universiti Sains Malaysia

INTRODUCTION: Beliefs of patients about generic medicines are important determinants in patients' acceptance of generic medicine and growth of the generic market.

OBJECTIVES: The study aims to assess patients' beliefs about generic medicine in the public hospital setting by using the Malaysian version of Generic Medicine Scale.

METHOD: Cross sectional study design was adopted to conduct this study. The Malaysian Generic Medicine Scale was administered to convenience sample of 300 patients visiting outpatient pharmacy department in a district public hospital, Hospital Teluk Intan between 1st October 2013 and 31st October 2013.

RESULTS: 202 (67.3%) patients responded to the survey. Most of the respondents (70.8%) asked doctors about their medication. More than half of the respondents (57.4%) did not have health insurance. 49% of the respondents know what generic medicine is. Respondents showed a moderate belief in the efficacy of generics (mean=3.02, SD=0.96, range 1-5) and moderate belief in the similarity of generics (mean=3.39, SD=0.94, range 1-5). 53.5% of the respondents believe that efficacy of generics is the same as branded original medicines. However, about 40% believe that generic medicines take a longer time to be effective. In terms of quality, only 23.3% believe that generic medicines are of lower quality. 32.2% believe that generic medicines are cheaper because they are less efficacious. However, most of them (68.8%) know that the packaging of generic medicines is different from branded original medicines.

CONCLUSION: Knowledge of patients in Malaysia about generic medicine has increased throughout the years. Patients in public hospital setting have moderate belief in similarity and efficacy of generic medicines.

ID No.: NMRR 13-35-14876
Keywords: patient's beliefs, generic medicine, public hospital

KNOWLEDGE, ATTITUDE AND PERCEPTION TOWARDS SMOKING AMONG HEALTHCARE WORKERS IN NEGERI SEMBILAN

A. Zainatulhaya1, V. Chin2, F. Siti Fariza2, H. Nurliah4, L.H. Tan3, M.D. Noor Azmina8, Q. Sean I7, T. Eunice7, W.M.S. Wan Abd Muiz2
1Department of Pharmacy, Klinik Kesihatan Jelebu
2Department of Pharmacy, Klinik Kesihatan Kuala Pilah
3Department of Pharmacy, Klinik Kesihatan Juasshe
4Department of Pharmacy, Klinik Kesihatan Astana Raja
5Department of Pharmacy, Klinik Kesihatan Senawang
6Department of Pharmacy, Klinik Kesihatan Port Dickson
7Department of Pharmacy, Klinik Kesihatan Bandar Sri Jempol
8Department of Pharmacy, Klinik Kesihatan Senawang

INTRODUCTION: Tobacco is a major cause of increased morbidity and mortality in the world. Healthcare workers play an important role in tobacco use prevention because they are considered as model by patients.

OBJECTIVES: To assess knowledge, attitude and perception, and readiness to quit among healthcare workers in Negeri Sembilan.

METHOD: A multicenter cross-sectional study using validated self-administered questionnaire was carried out and distributed to 2,000 subjects from 6 hospitals in Negeri Sembilan. The questionnaire collected information on demographic characteristics, job setting, knowledge, attitude and perception toward smoking, and readiness to quit smoking among smokers. Data obtained was compiled and analysed using SPSS version 19.0. P-value less than 0.05 is considered stastically significant.

RESULTS: A total of 1,110 out of 2,000 healthcare workers consented and completed the questionnaires. About 67.5% (n=749) were females. Majority of them (84.2%, n=935) were non-smokers. Most of the respondents (76.8%, n=852) had high knowledge regarding consequences of smoking and had favourable attitude and perception towards smoking cessation. Majority of the respondents support for the ban of smoking in government health setting 96.3% (n=1069). About 97.4% (n=1,081) agreed that hospital and healthcare centers should be smoke free zone. Most of the respondents (85.6%, n=1,308) agreed that smoking cessation programme is an important programme and need to be continued. Out of 136 smokers, 88.2% (n=120) are ready to quit smoking.

CONCLUSION: Most healthcare workers had high knowledge, positive attitude and perception toward smoking cessation. Healthcare workers should provide health counseling especially on smoking cessation through education and awareness campaigns.

ID No.: NMRR-12-1090-11828
Keywords: tobacco use, smoking cessation, attitude, knowledge
DEVELOPMENT OF LIPOPHILIC CATIONIC 64CU-BIS(DIPHOSPHINE) COMPLEXES FOR MYOCARDIAL PERFUSION

C.A.H. Mohd Khairul Najah¹, P.J. Blower², M. Ma²
¹Department of Pharmacy, Hospital Putrajaya
²Division of Medical Sciences, St. Thomas’s Hospital

INTRODUCTION: Lipophilic cationic radiotracers are well established as myocardial perfusion agents imaging due to their ability to be taken up within myocardial cells. The radiolabeling potential of copper-64 (half-life=12.7 hour) with diphosphine-based ligands has been demonstrated previously as a lipophilic cationic 64Cu-bis(diphosphine).

OBJECTIVES: This study deals primarily with radiosynthesis, identification and initial biological evaluation of 64Cu-bis(diphosphines) complexes.

METHOD: A series of 64Cu-bis(diphosphine) complexes has been synthesised and chemically characterised, and initial in vivo studies evaluated by MicroPET scanner.

RESULTS: Results showed radiosynthesis of 64Cu-bis(diphosphine) complexes were rapid (<5 min) with high radiochemical yield (>90%) and acceptable serum stability, suitable for imaging. MicroPET scan and biodistribution studies on a murine model showed the uptake of the 64Cu-bis(diphosphine) complexes in non-target organs with high liver uptake. Nevertheless, biodistribution of [64Cu(L4)2]+ (L4=1,2-bis[2-ethoxyethyl]phosphine) showed significant heart to blood and muscle uptake ratio (8:1 and 12:1, respectively).

CONCLUSION: Although, the statistical power of this study is very limited and myocardial uptake is not evident in PET scan images, the biodistribution study is nonetheless informative, warranting continued studies on 64Cu-bis(diphosphines) complexes.

Keywords: Lipophilic Cationic Radiotracer, Myocardial Perfusion Agent, 64Cu-bis(diphosphine)

A REVIEW ON PRESCRIBING ERRORS OF PEDIATRIC PRESCRIPTIONS IN AN OUTPATIENT PHARMACY DEPARTMENT (OPD), HOSPITAL KEMAMAN

A. Athirah Nabilah, Y.L. Khoo, H. Mohd Hasbullah, M. Khairunnisa, A. Masliana, W.A.M. Wan Zanariah
Pharmacy Department, Hospital Kemaman

INTRODUCTION: Prescribing errors are particularly common in pediatrics where dose calculations are complicated and small errors can cause significant harm. Pediatric prescribing is a complex area involving intricate dosing calculations thus enhancing the potential for medication errors.

OBJECTIVES: The objectives are to 1) evaluate prescribing errors in pediatric prescriptions at the outpatient pharmacy department (OPD); 2) observe the outcome of prescribing pattern after pharmacist intervention; and 3) identify the common types of prescribing errors.

METHOD: This is a cross-sectional study where it employs an intervention. The study sample collected prescriptions from OPD including the Emergency Department in Hospital Kemaman, over a period of 1 month each, pre- and post-intervention. Paediatric Dosing Guideline and Reminder Notes were distributed to the respective units after the pre-data analysis as the interventional tools. The significant errors in the prescription were reviewed and analyzed by using SPSS version 20.0.

RESULTS: Of 1376 prescriptions (pre, n=580; post, n=797), 694 (50.4%) were male and 682 (49.6%) were female. The most paediatric prescriptions came from the age group between 2 to 12 years (67.7%) whereby patients younger than 1 month age accounted for approximately 1.1% of the total prescriptions. The maximum number of medicines prescribed in a single prescription was 7, with the mean of 3 medicines per prescription. For the pre-study, errors occurred in 216 prescriptions requiring more than 1 corrections, while for the post-study the number of errors were reduced to 105 (13.2%). The most common types of prescription errors encountered were significantly reduced after the intervention was carried out (p<0.05).

CONCLUSION: Findings implicate a reduction of almost 25% in prescription errors over time, suggesting that pharmacist interventions are undeniably crucial in treatment management.

ID No.: 16756
Keywords: prescription error, paediatric, pharmacist intervention
KNOWLEDGE, ATTITUDE AND PRACTICE OF ANTIBIOTIC PRESCRIBING AMONG MEDICAL OFFICERS AT PUBLIC HEALTHCARE FACILITIES IN THE STATE OF KEDAH, MALAYSIA

W.L. Tan 1, M. Noor Syahireen@Siti Rahmah2, I. Shahfini2, A. Zuraidah3
1Clinical Research Centre, Kedah
2Pejabat Kesihatan Daerah Kubang Pasu
3Pejabat Kesihatan Daerah Kuala Muda

INTRODUCTION: Antibiotic resistance is a rising problem in Malaysia. Cheong et al verified high antibiotic prescribing rate for upper respiratory tract infection and inappropriate choice of antibiotics in Malaysia.

OBJECTIVES: Our main objective is to study knowledge, attitude and practice of antibiotic prescribing among medical officers in Kedah, Malaysia. We also compared differences in frequency of antibiotics prescribing and knowledge score between doctors practicing for 4 years or less, and more than 4 years.

METHOD: A cross sectional survey using a self-administered validated questionnaire was conducted in all outpatient departments of public health clinics and hospitals in Kedah from June to December 2013.

RESULTS: A total of 100 participants completed the questionnaire (response rate 84.8%). Mean knowledge score on antibiotics was 5.31±1.19 (95% CI 5.06, 5.54). 45% of the respondents prescribed antibiotics more than once daily. Awareness level on antibiotic resistance was high among the respondents (56%). Three-fourths admitted that patient’s demand for antibiotics affects prescribers’ decision to prescribe antibiotics. The most frequently used source of information on antibiotics was the internet (89%). 66% of our respondents prefer local antibiotic guidelines compared to international. There was a significant difference in frequency of antibiotic prescribing between doctors who had practiced 4 years or less and doctors practicing more than 4 years (p=0.036). However, there is no significant difference in mean knowledge score between these two groups of doctors (p=0.720).

CONCLUSION: Knowledge score on antibiotics is moderate among our doctors while prescribing is frequent. Training and courses on antibiotic prescribing are needed to strengthen their knowledge on antibiotics in the future.

ID No.: NMRR-13-765-16460
Keywords: knowledge, attitude, practice, antibiotic prescribing

PATTERN OF PRESCRIBING ERROR IN OUTPATIENT SETTING AT SIBU HOSPITAL

M.C. Chieng, W.W. Sia, E.H.L. Ha, S.R. Ting
Department of Pharmacy, Hospital Sibu

INTRODUCTION: Medication errors can occur at any stage, from prescribing, dispensing to administration, of which prescribing error is the focus in this study.

OBJECTIVES: The objective of this study was to elucidate the prevalence and pattern of prescribing error in outpatient setting, Sibu Hospital.

METHOD: This was a cross-sectional study which involved retrospective review of new prescriptions received in outpatient pharmacy from June to September 2011. Prescriptions with error(s) were identified and errors were classified with respect to the nature of error(s), including incomplete prescriptions, incorrect or inappropriate regimen, and unacceptable medication abbreviation and brand name. The frequency and types of prescribing errors were determined.

RESULTS: In total, 65.1% prescriptions had at least one prescribing error. The highest type of prescribing error was the use of unacceptable medication abbreviation and brand name. Among all prescribing errors, 0.2% was contributed by prescriptions containing high alert medications (HAMs). Electronic prescribing (Teleprimary Care) demonstrated significant reduction (error rate=19.45%) compared to manual prescribing (error rate=49.97%) in medical and paediatric clinics, p<0.05.

CONCLUSION: Prescribing error rate was high in this study. The most common type of error was unacceptable abbreviation and brand name which was potentially preventable. Communication and co-operation between prescriber and pharmacist play a vital role in a concerted effort to minimize prescribing error.

ID No.: NMRR-11-941-10757
Keywords: prescribing error type, outpatient
**MYSELF**: MULTI-SOURCE FEEDBACK PROGRAMME FOR EVALUATION OF PROVISIONAL REGISTERED PHARMACIST AT PUBLIC HOSPITALS IN MALAYSIA

G.V. Doris¹, F. Nurfadilla¹, M.P. Choy²
¹Pharmacy Department, Hospital Raja Permaisuri Bainun, Ipoh
²Clinical Research Centre, Hospital Taiping

INTRODUCTION: Multi Source Feedback (MSF) program refers to obtaining feedbacks of an individual’s performance from superiors, peers and subordinates. MSF offers a multi-faceted overview of the person's performance instead of a single person evaluation. Currently, Provisionally Registered Pharmacists (PRPs) are assessed by one assessor with emphasis on technical ability. With evaluations done only at the end of the training, PRPs may not be aware of the area for improvement, especially interpersonal skills.

OBJECTIVES: The purpose of this study is to evaluate the PRPs’ performances based on a MSF program.

METHOD: PRPs were assessed using a standardised form every three months by three reviewers; pharmacist, pharmacist assistant and PRP. The form was modified from the Burford et al. The identities of all assessors were kept confidential. The completed assessments were collected at specified date. The feedbacks were then conveyed to the PRPs by the site supervisor within a week to ensure that feedbacks are still relevant. The assessor’s feedback scores were averaged. The assessment remained confidential and only revealed to the Chief Pharmacist or Head of Unit when necessary.

RESULTS: Three hospitals in Perak completed the study with total participation of 32 PRPs. The hospitals are Hospital Raja Permaisuri Bainun Ipoh (HRPB), Hospital Slim River (HSR) and Hospital Seri Manjung (HSM) with 20, 7 and 5 PRPs respectively. Overall there is an increasing trend in the feedback scores over the study period. The average score for PRPs in HRPB increased from 34.2 to 35.9. The average score for HSR and HSM also increased from 34.5 and 34.9 to 37.0 and 36.3 respectively. The feedback for pharmaceutical care delivery, problem solving ability and personal attributes were also on a positive trend for all hospitals, albeit on a small scale.

CONCLUSION: MSF program can improve PRPs performance and may be used to evaluate PRPs in the future.

ID No.: NMRR-13-576-14835
Keywords: multi source feedback, provisional registered pharmacist, performance

KNOWLEDGE ON PARACETAMOL USAGE AMONG OUT PATIENTS IN HOSPITAL SULTAN HAJI AHMAD SHAH (HOSHAS), TEMERLOH

P.X. Leng, A.A. Nurul Wahida, S. Nurul Husna, W. Nurfaliyana
Department of Pharmacy, Hospital Sultan Haji Ahmad Shah, Temerloh

INTRODUCTION: Paracetamol is the commonest over-the-counter medication used in self-medication. However, it was associated with high incidence of overdose and was one of the common cause of acute liver failure in United Kingdom and United States. In Hospital Sultan Haji Ahmad Shah (HoSHAS), 86 cases of paracetamol poisoning were reported in 2012.

OBJECTIVES: The objectives of this study were to determine paracetamol usage, and to explore respondents’ knowledge on correct indications, dosage limits and potential toxicities of paracetamol.

METHOD: A descriptive, cross-sectional study was conducted at Farmasi Klinik Pakar (FKP), HoSHAS between 1st February 2013 till 30th June 2013. Sample was selected using convenience sampling. Respondents who consented to participate were asked to complete a set of questionnaires [adapted from Gilbertson et al (1996) and Stumpf et al (2007)] while waiting for their medications.

RESULTS: A total of 383 respondents were recruited in which majority of them were male (50.7%), Malay (86.4%) with the mean age of 34.26±10.72 years. About 61.3% of respondents reported paracetamol usage within the past 3 months with Panadol® as the commonest utilized product. Most of them reported receiving information regarding paracetamol from healthcare professionals. About 30% of respondents were able to identify three correct indications for paracetamol which were for pain, fever and headache. There was a significant association between educational background and knowledge of correct paracetamol indications (p=0.002). Less than one-quarter of respondents reported correct maximum daily dose and those from higher educational background were found to have lack of knowledge on maximum daily dose (p=0.002). As for the correct symptoms for paracetamol overdose, only 24.1% and 28.2% of respondents were able to recognize liver damage and sickness and vomiting, respectively.

CONCLUSION: Paracetamol is widely used for self-medication and most respondents still lack of knowledge about correct indications, dosage limits and potential toxicities of paracetamol.

ID No.: NMRR-13-775-15405
Keywords: paracetamol, indications, dosage limits, toxicity
A MULTI-CENTER STUDY ON DISCHARGE PRESCRIBING ERRORS AT GOVERNMENT HOSPITALS IN NEGERI SEMBILAN

S. Nurul Nadiah1, C.S.B. Choo1, M. Nursalina1, J.W. Lee1, S.L. Chan2, H. Nurdita2, M. Adibah1
1Department of Pharmacy, Hospital Tuanku Ampuan Najihah, Negeri Sembilan
2Department of Pharmacy, Hospital Tuanku Jaafar, Seremban
3Department of Pharmacy, Hospital Jempol

INTRODUCTION: Prescribing errors account for a substantial proportion of medication errors and cause most of the significant problems such as occurrence of adverse events and fatality to the patients. Studies have shown that medication errors and adverse drug reactions (ADRs) are always associated with incidence of adverse events in hospitals accounting for considerable morbidity, mortality and extra costs.

OBJECTIVES: To identify the prevalence of prescribing errors on discharge medications from adult medical disciplines and to find the correlation between number of items and number of errors detected per prescription.

METHOD: A non-experimental, cross-sectional study was conducted among patients discharged from medical wards of Negeri Sembilan’s government hospitals. All patients fulfilling the inclusion criteria were recruited. Any medications errors and the interventions made were recorded in CP3 forms. Data was analyzed using SPSS.

RESULTS: Descriptive statistics were produced for a wide range of variables relating to number of items and number of errors. Out of 2,511 prescriptions, pharmacist had identified 561 prescribing errors (22.3%). The most common type of errors was incomplete duration (25.8%), followed by inappropriate dose (16.6%). All interventions done by pharmacists were accepted by prescribers. The mean number of items per prescription was 4.5 (SD=2.8) while the mean number of errors per prescription was 0.26 (SD=0.8). Correlation between the number of items and number of errors per prescription was weak (|r|=0.047) but significant (p=0.02).

CONCLUSION: Most of the prescribing errors are preventable. Therefore, measures need to be implemented to prevent it, such as building good co-operation between healthcare practitioners and practising e-prescribing by the physician, which further improve patient’s pharmaceutical care.

ID No.: 91-05000001-12-05
Keywords: discharge patients, prescribing error, government hospitals

KNOWLEDGE, ATTITUDE AND PRACTICE OF ANTIBIOTICS USE IN CHILDREN WITH UPPER RESPIRATORY TRACT INFECTION AMONG CAREGIVERS’ IN KOTA BHARU HEALTHCARE CLINICS

M.Z.A. Suraida1, N.N. Nazirah2, O. Fatin Nor Atikah3, R. Noradlina2, Y.Y. Foo4
1Department of Pharmacy, Klinik Kesihatan Kedai Lalat, Kelantan
2Department of Pharmacy, Klinik Kesihatan Bandar Kota Bharu
3Department of Pharmacy, Klinik Kesihatan Pengkalan Chepa
4Department of Pharmacy, Klinik Kesihatan Kubang Kerian

INTRODUCTION: Upper Respiratory Tract Infections (URTIs) are common in children and viral in etiology. In most cases will resolve spontaneously within one to two weeks. The usage of antibiotics to treat this condition was noted to be inappropriately high on a worldwide scale which can lead to promote antibiotic resistance.

OBJECTIVES: To determine caregivers’ knowledge, attitude and the practice of antibiotic in children with URTI

METHOD: A Knowledge-Attitude-Practice questionnaire was distributed to caregivers with children who diagnosed with URTI and prescribed with antibiotics, conducted within 2 weeks involving 10 clinics.

RESULTS: 26.5% of caregivers believed that URTIs are self-cured and fever was found to be the most common symptoms for parental expectation to use antibiotics. 26.5% caregivers will seek medical advice before given any antibiotic to their child but 27.4% of caregivers will change to another physician if no antibiotic given. Most of the caregivers 73.5% will give their child antibiotic without medical advice and 18.8% caregivers prefer to give their child the same antibiotics as prescribed before if their children are having same symptoms.

CONCLUSION: Caregivers have poor trusted relationship with the prescribers and prefer to give their child antibiotics without medical advice, indicating that caregivers have poor knowledge in antibiotics which had lead to antibiotic misuse. More educations are needed to improve caregivers’ general knowledge in antibiotics usage

ID No.: 17161
Keywords: knowledge, attitude and practice, antibiotics, caregivers, Upper Respiratory Infection
0013 KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS METHADONE MAINTENANCE THERAPY AMONG PHARMACISTS IN MELAKA MINISTRY OF HEALTH FACILITIES

Y.K. Ku, S. Umi Solehah, Y. Noorazlinda, C.Y. Yau
Department of Pharmacy, Hospital Melaka

INTRODUCTION: Methadone Maintenance Therapy (MMT) has proven to be an effective therapy for opiate dependence. Research has shown that knowledge and attitude of staff on drug treatment towards the provision of MMT service could affect treatment success.

OBJECTIVES: This study was to evaluate the level of knowledge, perception and attitude towards MMT service, as well as the practice of pharmacists who serve MMT patients in Ministry of Health (MOH) facilities. These are compared among different facilities, demographic groups and the frequency of contact with MMT patients.

METHOD: A questionnaire-based cross-sectional survey was conducted from April to September 2013 among all pharmacists in Melaka MOH facilities. Abstinence-Oriented scale (AO), Methadone Knowledge Scale and practice scale were used as the measurement tools.

RESULTS: Questionnaire response rate was 82.4% (n = 98). The median knowledge score was 5 (IQR=6) out of 17, suggesting that pharmacists' knowledge of MMT is still inadequate. Overall median AO score was 3.5 (IQR=1) which indicates pharmacists' tendency towards abstinence-oriented policies. Meanwhile, pharmacists' practice in the provision of MMT service was generally in line with current guidelines, with a median score of 4.5 (IQR=1) out of 5. The difference in median knowledge score was significant between pharmacists who work in Klinik Kesihatan and Hospital (8 vs 5; p<0.01). Pharmacists who have daily contact with MMT patients were also found to be more knowledgeable than those who work with the patients occasionally (8 vs 5; p<0.01).

CONCLUSIONS: Poor knowledge and a higher orientation to abstinence rather than maintenance therapy indicate that the best practices of MMT are still poorly disseminated among the pharmacists who deliver this service, highlighting the needs for continuing education and training in this area.

ID No.: NMRR-13-583-15943
Keywords: methadone maintenance therapy, knowledge, attitude, practice

0014 COMPARING POINT OF CARE DEVICES FOR INTERNATIONAL NORMALISED RATIO TESTING WITH STANDARD LABORATORY METHODS AT A HOSPITAL BASED ANTICOAGULATION CLINIC

G.V. Doris, W.K. Foong, C.Y. Choo, P. Huzaini
Pharmacy Department, Hospital Raja Permaisuri Bainun, Ipoh

INTRODUCTION: Warfarin is still the most common oral anticoagulant for the prevention of stroke in atrial fibrillation, valvular heart disease and treatment of deep vein thrombosis and pulmonary embolism. Frequent International Normalized Ratio (INR) testing is required for patients on warfarin. POC devices could greatly help shorten patient's waiting time to see a medical officer or pharmacist as it is a less invasive and fast producing result method in INR testing. POC devices have shown acceptable accuracy and can be used in clinical settings. However each POC devices have shown difference level of performances in comparisons studies done.

OBJECTIVE: The aim of the study is to compare the INR values measured on two POC devices by a reference laboratory method.

METHOD: Patients were recruited from the hospital's anticoagulant clinic from August 2013 till September 2013. The patients' had their usual INR measurements by a reference laboratory method using ACT TOP 500, via venopuncture. The patients were then randomly recruited to have their INR measured with either CoaguChek XS® or INRatio® via finger prick blood drop. This was done within an hour of venopuncture.

RESULTS: A total 156 patients were recruited. More than half (55.1%) of the patients were on warfarin for the prevention of stroke in atrial fibrillation. The mean age was 59 ± 13 years and 55.8% of the patients were male. INR value measured with CoaguChek XS® and INRatio® had strong correlation with laboratory INR measurements with correlation coefficient, rho, 0.942 (p<0.001) and 0.819 (p<0.001) respectively. However, CoaguChek XS® had almost perfect level of agreement with standard laboratory methods for all categories of INR (weighted kappa index of 90.1%, 95% CI 0.825, 0.978) while INRatio® had only moderate agreement (weighted kappa index of 54.0%, 95% CI 0.405, 0.676). INRatio® also overestimates the INR value higher than CoaguChek XS®. The mean difference between INR values of the laboratory and INRatio® was 0.3 INR units and 0.04 INR units for CoaguChek XS®.

CONCLUSION: INR values measured by the Coaguchek XS® were more strongly correlated and had higher degree of agreement with the laboratory INR values compared to the INRatio®.

ID No.: NMRR-12-975-13172
Keywords: INR, POC, Coaguchek XS®, INRatio®
KNOWLEDGE, ATTITUDE & PRACTICE (KAP) OF CANCER PATIENTS TOWARDS ANTIEMETIC MEDICATIONS: HRPZ II EXPERIENCE

A.I. Nazif Salihin¹, O. Noor Haslina¹, N.M. Ilmi¹, A. Nor Anita²
¹Department of Pharmacy, Hospital Raja Perempuan Zainab II, Kota Bharu
²Department of Obstetrics & Gynecology, Hospital Raja Perempuan Zainab II, Kota Bharu

INTRODUCTION: Chemotherapy-induced nausea and vomiting (CINV) is the most dreaded side effect of cancer treatment. However, it can be prevented with the correct use of antiemetic medications (AEMs). Patients' knowledge regarding AEMs will promote positive attitude & practice, which eventually will enhance their compliance to the prescribed regimen.

OBJECTIVES: To assess cancer patients’ knowledge, attitude & practice towards AEMs by age, comorbidity, duration of chemotherapy, status, gender, race, educational level and income.

METHOD: A cross sectional study of adult cancer patients receiving chemotherapy in Hospital Raja Perempuan Zainab (HRPZ) II was conducted from April to July 2013. Patients receiving chemotherapy in Ward 26 and Ward Mawar were selected through convenience sampling method. 5-points Likert scale questionnaires were used to assess patients’ KAP towards AEMs.

RESULTS: Among the 70 patients recruited, 39 (56%) were ≤ 50 years old and 31 (44%) were above 50 years old. Of these 17 patients received ≤ 3 cycles of chemotherapy, and 53 patients received more than 3 cycles. By demographic, 8 (11.4%) were single and 62 (88.5%) were married and most are female (88.5%). Majority were at higher educational level (74%, 52/70) and high income group (53%, 37/70). Most cases encountered were breast cancer (37.1%), followed by colorectal, ovarian, lymphoma and sarcoma (21.4%, 17.2%, 8.6% and 5.7%, respectively. 41 patients (58.6%) were educated by nurses regarding AEMs, followed by doctors, pharmacists and self-reading. Generally from our findings, all patients showed good KAP towards AEMs. However, only age had significant effect on patients KAP towards AEMs where younger patients showed better knowledge (3.89±0.32) compared to elderly (3.69±0.47).

CONCLUSIONS: Overall, cancer patients under this study showed good knowledge, attitude and practice towards AEMs. Younger age demonstrated better knowledge regarding AEMs.

ADHERENCE OF PHARMACY PERSONNEL TO STANDARD OPERATING PROCEDURE IN MEDICATION DISPENSING

Pharmacy Department, Hospital Sultanah Bahiyah, Alor Setar

INTRODUCTION: Good dispensing practices ensure that an efficient mechanism of drug dispensing to the right patient, right drug in the correct dosage and quantity with clear instructions. A clear written instruction on dispensing process will ensure effective and safe dispensing process.

OBJECTIVES: We assessed the extent to which dispensing process was in compliance with the standard operating procedure (SOP) at Outpatient Pharmacy. Practice and attitude of pharmacists and pharmacist assistants were assessed concurrently.

METHOD: Ten prescriptions received from 10am-12noon and 2pm-3pm at every stages of dispensing procedure; registration, allocation, filling, labelling and dispensing were observed on working days for one month period (April 2013). Process from each stage was compared with the standard operating procedure. Standard of compliance to all procedures of every stages were set 100%. A self-administered questionnaire was used to evaluate practice and attitude of pharmacy personnel.

RESULTS: Total of 300 prescriptions were checked at each stages. At registration counter, 69% and 79% of prescriptions were identified for patients’ name and identification number, respectively. At filling stage, 76.33% prescriptions were found with an identifiable initial from the filling personnel on the token number. Medications prepared for 78% prescriptions were counter-checked for correct patient, drug, strength and quantity. Almost all the prescriptions were found being dispensed according to SOP. A lack of time (66.7%) and forgetfulness (44.4%) were the reasons pharmacy personnel are not compliant to certain processes.

CONCLUSION: Compliance level of pharmacy personnel to SOP on dispensing process is not satisfactory. Measures should be taken to strengthen compliance to SOP procedures among pharmacy personnel to ensure patient safety.
A MULTI-CENTER CROSS SECTIONAL STUDY ON SALES OF MEDICINAL PRODUCTS IN TANAH RANCANGAN FELDA, MALAYSIA

I. Mazlan¹, I. Dali¹, S. Manzatul Azrul Azrie¹, B. Rahman¹, S. Mohammad Rizalmazli¹, Z. Aimi², S. Affarizan², O. Fadli Noor², A. Nor Azizah³, A.S. Sareh Safwan⁴, M.R. Nursyilla Roziana⁴

¹Pharmacy Enforcement Branch, Jabatan Kesihatan Negeri Perak
²Pharmacy Enforcement Branch, Jabatan Kesihatan Negeri Perak
³Pharmacy Enforcement Branch, Jabatan Kesihatan Negeri Perlis
⁴Pharmacy Enforcement Division, Bahagian Perkhidmatan Farmasi, Ministry of Health Malaysia

INTRODUCTION: All medicinal products sold in Malaysia have to be registered with the Ministry of Health (MoH). However, there were evidences of sales and possession of unregistered medicinal products in retail premises in FELDA Settlement in Pahang, Terengganu and Kelantan based on a pilot study conducted in 2008. This incident could have occurred due to unavailability of community pharmacies in these settlements.

OBJECTIVES: This study was conducted in FELDA Settlement nationwide to ascertain the pattern of medicinal products sales and the awareness of the retailer on aspects pertaining unregistered medicinal products.

METHOD: A multi-centered and cross sectional descriptive study was conducted via premise inspections and structured questionnaires between April 2012 and Jun 2012. The questionnaires were pre-tested before being used officially in the study. 48% (n=155) out of 323 FELDA Settlements in Malaysia were chosen at random. Five sets of forms were used to collect the data. Those data collected by Pharmacy Enforcement Officers were then analyzed using SPSS v20 software.

RESULTS: Inspection on 568 premises found that 35.6% (n=202) premises were involved in possession and sales of unregistered medicinal products. Out of 7005 products that were inspected, 16.0% (n=1123) products were unregistered. The most unregistered products found were traditional products comprising of 48.6% (n=546). The retailers’ awareness showed that 56.7% (n=322) were aware that medicinal products sold in Malaysia have to be registered with MoH. However, there is no significant association between level of education of the retailer with sales and possession of unregistered medicinal products (p=0.095).

CONCLUSION: Although there were awareness among the retailers’ on the necessity of product registration, but still a substantial percentages of unregistered medicinal products available in retail premises in FELDA Settlements. Therefore, there is need for more pro-active approaches in conducting awareness campaigns to enrich consumer and retailers’ knowledge on the usage of registered medicinal products.

ID No.: 19233
Keywords: unregistered medicinal products, FELDA settlements, pharmacy enforcement, awareness

PREVALENCE OF PRESCRIBING ERROR IN MANUAL METHOD OF PRESCRIBING AT HOSPITAL RAJA PERMAISURI BAINUN IPOH

C.T. Chang, K. Nalini, O. Harveen Kaur, K. Nur Izzati
Pharmacy Department, Hospital Raja Permaisuri Bainun, Ipoh

INTRODUCTION: The occurrence of prescribing error in manual method of prescribing caused time wastage and potential harm to patients. This study could be used as a baseline in future, to compare with prescribing error in computerised method of prescribing.

OBJECTIVES: This study was aimed to determine the prevalence of manual prescribing error in order to raise awareness among prescribers and reduce the rate of prescribing error.

METHOD: A cross-sectional study was conducted, involving all prescriptions received in the outpatient pharmacy department (OPD), mini pharmacy and the ambulatory care centre (ACC) pharmacy. A self-designed data collection form was used to collect the data. This study was conducted for five working days in duration of three weeks period.

RESULTS: A total of 461 prescription errors were detected from a total of 11,009 new prescriptions at the end of the study. 80.5% of the prescriptions were filled in the outpatient pharmacy department, 15.6% from the mini pharmacy and 3.9% in the ACC pharmacy. 52.4% was error of omission and 39.3% was error of commission. The highest number of errors was found in emergency department with 16.26%, second highest seen in medical department with 11%, third highest in dermatology department with 9.3%. From the type of error of omission, the highest error of omission was frequency, with 48.3%, followed by duration 19.8% and quantity 9.1%. From the type of error of commission, the highest error of commission was wrong dose with 50%, followed by duration with 19.6%, and frequency with 18.6%.

CONCLUSION: Error of commission and omission can be reduced if doctors are made aware of the usual method of prescribing certain drugs according to the clinical practice. The use of computerized prescription order, which is completed with the drugs available, strengths and duration is expected to reduce these errors in future.

ID No.: NMRR-12-397-11335
Keywords: manual prescribing, error, outpatient pharmacy
INTRODUCTION: Widespread of antibiotics prescribing in primary healthcare clinics for upper respiratory tract infections (URTIs) are excessive and unnecessary because of their viral aetiology.

OBJECTIVES: The aim of this study was to evaluate practices and self confidence towards antibiotic prescribing among prescribers in the district of Kota Setar, Kedah, Malaysia.

METHOD: A cross-sectional descriptive survey design was adopted to conduct the study. All prescribers from 10 healthcare clinics located in Kota Setar, Kedah, Malaysia were targeted for the study. A pre validated questionnaire was used for data collection. The study results were analyzed descriptively using SPSS version 20.0.

RESULTS: Out of 83 prescribers, 57 responded to the survey with a response rate of 68.7%. The gender distribution of the cohort was almost equal with mean age of 32.61±6.48 years. Thirty five (61.4%) of the respondents were medical officers and 47 (84.2%) were working at outpatient units. Although majority (n=47, 85.9%) of the prescribers were confident with their knowledge towards antibiotics, 32 (56.2%) faced difficulties in selecting the correct antibiotic for their patients. Consequently, 43 (75.5%) of the respondents relied on the opinion of their colleagues towards accurate antibiotic prescription for their patients. Fifty five (96.4%) of the respondents reported conferences and seminars as the major source of information towards antibiotic followed by information provided by their peers (N=53, 92.9%). Past prescribing experiences (98.2%), local prescribing culture at the relative institutes (70.1%), fear of adverse clinical outcomes (64.9%), and perceived patients’ demands for antibiotics (38.6%) were reported as major influencers of antibiotic prescribing by the study respondents.

CONCLUSION: Poor confidence and negative attitude towards antibiotics prescribing was reported among the study respondents. Successions of medical education are hereby recommended to develop confidence and certainty among the prescribers towards antibiotic use in Kota Setar, Kedah, Malaysia.

ID No.: NMRR-13-1231-16769
Keywords: practices, self confidence, antibiotic, prescribers

INTRODUCTION: The pharmacy profession is currently experiencing major changes in practice development. Job satisfaction seems to be indicator for person’s motivation and productivity. For pharmacists, shortage of personnel and increase in demand for services are the factors that increase their stress in workplace. At some point, the workplace stress translates into increasing chances for errors and decreasing in job satisfaction.

OBJECTIVES: To study the level of job satisfaction and level of stress among pharmacists working in government hospitals and health clinics in Negeri Sembilan.

METHOD: Questionnaire was adapted from one previously used in United States (US). Following minor amendments and piloting, the survey was distributed by mail to all registered pharmacist in Negeri Sembilan. Data were analyzed using SPSS.

RESULTS: The overall response rate was 61.2% (n=79). Most pharmacists have a moderate level of job satisfaction (Mean=70.44, SD=9.32). Overall mean scores were significantly higher for pharmacist working in health clinic (73.95) than hospital pharmacist (67.20) with p=0.001. Work sector and current area of practice significantly influence their job satisfaction. In terms of stress level, hospital pharmacists significantly have a higher stress level (Mean=87.97, SD=11.999), compared with health clinic pharmacists (Mean=81.62, SD=16.06). The top factors contributing to stress in health clinics and hospitals were feeling ultimately responsible for patient outcomes (71.79%) and fearing that a mistake will be made in patient’s treatment (85%), but both p-values were insignificant.

CONCLUSION: Hospital pharmacists have a higher stress level and lower job satisfaction as compared to pharmacists in health clinics.

ID No.: 11-05030014-13-02
Keywords: job satisfaction, stress level, pharmacists
0021  KNOWLEDGE, ATTITUDE AND PERCEPTIONS OF PHARMACISTS IN GOVERNMENT SERVICE TOWARDS ADVERSE DRUG REACTION REPORTING IN KELANTAN

M. Nor Akila, W.H. Tan, Y. Aziani, X.E. Teo
1Jabatan Farmasi, Klinik Kesihatan Bandar Kota Bharu
2Farmasi, Klinik Kesihatan Chik 3
3Jabatan Farmasi, Hospital Gua Musang

INTRODUCTION: Medication safety plays an important role in ensuring patient’s therapeutic outcome. Any unwanted, negative consequence after the administration of a medication is termed adverse drug reaction (ADR). Pharmacists play an important role in ensuring ADR is being reported to the Malaysian Adverse Drug Reaction Advisory Committee (MADRAC).

OBJECTIVES: To investigate the knowledge, attitude and practices (KAP) of pharmacists in government service in Kelantan regarding adverse drug reaction (ADR) reporting.

METHOD: A cross sectional questionnaire based study was carried out on all government hospital and health clinics pharmacists between August 2013 and October 2013. All pharmacists in government facilities in Kelantan were included.

RESULTS: Out of 163 questionnaires given out, a total of 102 questionnaires were returned. The majority of pharmacists were female (84.3%) and had below 10 years experience in practising pharmacy (88.2%). 56.9% were from hospitals and the remaining from health clinics. Only half of the respondents (54.9%) had reported ADR in the past one year. The overall knowledge of ADR reporting for the respondents fell into the high (59.8%) and medium (40.2%) category while 50% of respondent achieved high score in the attitude section of the questionnaire. Years of practice had a significant effect on the number of ADR reporting. Pharmacists working above 20 years submitted more ADR reports in the past 1 year (16.67±28.87) compared with pharmacists working below 10 years (3.12±3.35, p<0.05) and pharmacists working between 10-19 years (2.67±2.60, p<0.05). However, years of practice did not influence the attitude of pharmacists in ADR reporting. The main factor influencing non-reporting was lack of time.

CONCLUSION: The pharmacists are aware of ADR and the importance of their reporting. However, lack of reporting was clearly evident. Creating awareness about ADR reporting and making it more convenient may improve the rate of reporting.

ID No.: NMRR-13-710-16732
Keywords: reporting, pharmacist, knowledge, attitude, perceptions and practices (KAP)

0022  PREVALENCE OF HIGH ON-TREATMENT PLATELET REACTIVITY TO ASPIRIN IN PATIENTS WITH STABLE CORONARY ARTERY DISEASE

1Department of Pharmacy, Pusat Jantung Hospital Umum Sarawak, Kota Samarahan
2Clinical Research Centre, Hospital Umum Sarawak
3Department of Cardiology, Pusat Jantung Hospital Umum Sarawak, Kota Samarahan

INTRODUCTION: Aspirin is the most common antiplatelet agent used for the treatment of coronary artery disease (CAD). Despite its wide usage, there is concern regarding aspirin resistance (AspR).

OBJECTIVE: The objective of this study was to determine the prevalence of high on-treatment platelet reactivity (HOTP), reflecting AspR, defined by aspirin reaction unit (ARU) > 550 after aspirin treatment in stable CAD patients.

METHOD: Retrospective data collection was done from 15 July to 14 August 2013 at the outpatient cardiac clinic. Medical records of patients with stable CAD who received daily doses of 75mg Acetylsalicylic Acid (UniAspirin® 300mg) or 100mg Acetylsalicylic Acid (Glypirin® 100mg) were screened. Patients who were on aspirin treatment for at least a month, compliant to their medications with 8-item Modified Morisky Scale of 6 to 8 and platelet reactivity measured by VerifyNow® were included in the study.

RESULTS: Out of 164 patient medical records screened, 60 were included in the study. All patients were male with a mean age of 54.3 (11.2) years and mean BMI of 26.5 (4.2) kg/m2. 46.7% of the patients were Malay, 33.3% Chinese, and 20.0% non-Malay Bumiputera. Prevalence of established cardiovascular risk factors was high: hypertension (63.3%), dyslipidemia (40.0%), diabetes mellitus (33.3%) and 13.3% are current smokers. 66.7% had a history of percutaneous coronary intervention (PCI) and 33.3% implanted with at least one drug eluting stent (DES). The mean platelet reactivity was 430.8 (63.9) ARU. There is no significant difference between the mean ARU of UniAspirin® group [n=30, 439.0 (80.8)] and Glypirin® group [n=30, 422.5 (40.6)], (p=0.321). Of 60 patients, 6.7% was found to be AspR and all of them received 75mg of UniAspirin

CONCLUSION: The prevalence of HOTPR in stable CAD treated with aspirin is low. However, given the clinical presentation of CAD, a larger study of HOTPR to aspirin is warranted.

ID No.: NMRR-13-1392-16990
Keywords: aspirin resistance, coronary artery disease, VerifyNow®
A SURVEY ASSESSING KNOWLEDGE AND PERCEPTION OF PATIENTS TOWARDS GENERIC MEDICINES IN HOSPITAL SEBERANG JAYA (HSJ)

C.Y. Lim1, P.C. Leong1, T.F. Teoh1, A.H. Alisah1, A.A.H. Mohamed2, G.N. Chua3
1Department of Pharmacy, Hospital Seberang Jaya
2Discipline of Social and Administrative Pharmacy, Universiti Sains Malaysia

INTRODUCTION: Medicines dispensed in the Malaysian government sector are mostly generic medicines and they are given free to all patients. However, there are widespread beliefs among the public that the innovator drugs are better or safer than their generic counterparts.

OBJECTIVES: To evaluate knowledge and perceptions of patients towards generic medicines in HSJ.

METHOD: A cross-sectional survey had been conducted among patients in HSJ. Potential participants were chosen using convenience sampling methods. The validated questionnaires were distributed to the respective patients visiting HSJ between the age of 18 to 60 years old after obtaining their verbal consent for participation, and were collected on the spot by the distributor. Data was analysed using appropriate descriptive statistics using SPSS version 16.

RESULTS: As many as 420 respondents had participated in the survey. Analysis of the response from the collected forms yielded 414 usable forms. Of the 414 respondents, 27.8% stated that the quality of generics is higher, 43.7% agreed that both is equal, while 29.5% stated the quality of generics is lower than the branded counterparts. In terms of effectiveness, 25.6% stated that generics is higher, 45.9% stated that both are equal, and 28.5% agreed that generics are less effective than the branded medicines. More than 75% of patients surveyed agreed that health authorities should inform or promote the availability of cheaper brand or low cost generic medicines to consumers. Lower confidence of patients on issues surrounding quality, effectiveness, safety and side effects of generic drugs may be due to lack of introduction regarding generic medicines from healthcare professionals.

CONCLUSIONS: This survey showed that there is a gap in patients’ knowledge and understanding about generic medicines. Patients’ negative views about the safety, efficacy and quality were found to be the main barrier for improving utilisation of generics in the Malaysian public health system.

ID No.: NMRR-12-445-10843
Keywords: generic medicines, knowledge, perception, patients

THE ASSOCIATION OF THROMBIN AND FACTOR XA WITH THE TIME IN THERAPEUTIC RANGE IN PATIENTS ON LONG TERM WARFARIN THERAPY

M.S.H. Lim1,2, L. Anubah1, L.L. Tong1,2, M. Melissa1, S. Yanti1,2, T.K. Ong1, A.Y.Y. Fong1,2
1Department of Pharmacy, Pusat Jantung Hospital Umum Sarawak, Kota Samarahan
2Clinical Research Centre, Hospital Umum Sarawak

INTRODUCTION: Thrombin and Factor Xa are located downstream in the coagulation cascade and are affected by warfarin anticoagulant therapy. Time in therapeutic range (TTR) reflects the quality of anticoagulation over time. The association between these biomarkers and TTR has not been previously studied in our population.

OBJECTIVES: This study aims to determine the association of thrombin and factor Xa with TTR in long term warfarin treated patients with atrial fibrillation.

METHOD: We enrolled 188 patients with atrial fibrillation on at least one year of warfarin therapy. Patients with poor TTR (<66%) were categorised into Group 1 while those with good TTR (≥66%) into Group 2. Plasma levels of thrombin and Factor Xa were determined by enzyme linked immunosorbent assay (ELISA)

RESULTS: There were 102 (54.3%) patients in Group 1. The age, ethnicity, and atrial fibrillation risk factors in both groups were equally distributed. Proportions of INR readings in the sub-therapeutic, therapeutic and supra-therapeutic range were 39.6%, 43.7% and 16.7% in Group 1 (p<0.05). Plasma thrombin levels were significantly higher in Group 1 [median (IQR); 513.7 (302.4,1107.5)ug/ml vs 374.0 (226.8,647.4)ug/ml, p=0.002]. There were significant correlations between plasma thrombin levels with TTR (r=-0.165, p=0.024). Female gender was associated with higher levels of thrombin (p<0.001). Lower levels of plasma thrombin levels were found in patients with hypertension, diabetes mellitus and coronary artery disease (all p<0.05). A significant increase in thrombin levels in patients with BMI<25 [mean (SD); 788.7 (532.7)ug/ml vs 549.3 (437.5)ug/ml] was found. There were no significant correlations between Factor Xa with TTR, gender, hypertension, diabetes mellitus, coronary artery disease risk factors and BMI.

CONCLUSION: Thrombin levels, but not Factor Xa, correlates well with TTR status. Higher levels were found in those with poor TTR, female gender and BMI less than 25, suggesting that thrombin may be a candidate marker to reflect anticoagulation control in our population.

ID No.: NMRR-12-82-10952
Keywords: time in therapeutic range, warfarin, Factor Xa, thrombin
STUDY ON KNOWLEDGE AND USE OF SUBLINGUAL GLYCERYL TRINITRATE AMONG PATIENTS WITH ACUTE CORONARY SYNDROME IN HOSPITAL SULTAN HAJI AHMAD SHAH, TEMERLOH

D. Revathy, M. Nor Azila, T. Nur Fahelin, S. Nurul Husna, M.T. Siti Masyitah, K.S. Phuan
Department of Pharmacy, Hospital Sultan Haji Ahmad Shah, Temerloh

INTRODUCTION: Acute coronary syndrome (ACS) is a clinical spectrum of ischemic heart disease ranging from unstable angina, non-ST-elevation myocardial infarction to ST-elevation myocardial infarction which occurs due to blockage of coronary artery. Angina is the most common symptom of ACS which can be self-managed with sublingual glyceryl trinitrate (SGTN).

OBJECTIVES: This study aimed to determine knowledge and usage of sublingual glyceryl trinitrate among patients with ACS in HoSHAS.

METHOD: A prospective, cross-sectional study was conducted in medical wards of HoSHAS between February to June 2013. Patients who fulfilled inclusion and exclusion criteria will be selected as sample using universal sampling. The patients who agreed to participate were interviewed face-to-face by using validated questionnaire comprising of 15 set of questions (adapted from Michelle et al. 2009).

RESULTS: 101 patients were recruited where majorities were male (61.4%), Malay (83.2%) with mean age of 57.46±9.66. 85.1% reported that SGTN can be used in the event of acute attack of chest pain but less than half patients understand how it works. Alarmingly, only 22.8% knew that SGTN can be taken 5-10 minutes prior to predictable physical activities which can trigger chest pain. 82.2% are knowledgeable regarding dosing limitations and 51.5% answered correctly regarding time lapse before consuming another SGTN. Only 27.7% of patients were aware regarding expiry date of SGTN and 63.4% patients reported that SGTN can only be used up to eight weeks after container was opened. There was a significant association between knowledge score of SGTN with age group and education level.

CONCLUSION: ACS patients in HOSHAS still lack of knowledge about SGTN usage. More frequent reinforcement of education especially in areas of preventive uses of SGTN as well as dose limitation and sequencing are required.
P1 KNOWLEDGE, ATTITUDES AND PRACTICE REGARDING THE USE OF ANALGESICS AMONG DOCTORS IN A TERTIARY PUBLIC HEALTH INSTITUTION

J.Y.M. Chan, I.Y.Y. Chieng, Z.Y. Yong, S.F. Chai, S.C.N. Wong, S. Siti Fairuz, J. Khadijah
Department of Pharmacy, Sarawak General Hospital

INTRODUCTION: Analgesics are commonly prescribed by doctors for pain and the rational use of analgesics is a challenge. Certain populations have higher risks for adverse effects from the use of analgesics, for example, the risk of renal toxicity in chronic kidney disease patients taking analgesics. Adequate knowledge and the ability to translate it into practice is vital in ensuring safe and effective pain management.

OBJECTIVES: To assess the level of knowledge, attitude and practice of doctors regarding the use of analgesics.

METHOD: A cross-sectional survey was conducted from June to September 2013 at Sarawak General Hospital, Kuching, using convenience sampling. One hundred thirty four doctors completed a self-administered questionnaire that was content-validated and pilot-tested. Data was analyzed using Statistical Package for the Social Sciences (SPSS) version 17.0. Differences were considered significant if p<0.05.

RESULTS: The mean total knowledge score was 6.74 (SD=2.11) with 73.0% of respondents having moderate knowledge (scored 5-9 points out of a total of 14 points). One-third of the specialists (33.3%) had good knowledge as compared to 15.8% of the medical officers and 6.2% of the house officers. Only 35.1% of respondents knew the suitable options of analgesics for renally impaired patients with creatinine clearance less than 30ml/min. Three-quarter of the respondents (77.5%) agreed that kidney function should be monitored in patients who regularly took analgesics. However, only 54.5% had been monitoring their kidney function in practice. A low but significant correlation was observed in doctors who agreed that patients taking analgesics on a regular basis should have their kidney function monitored, who actually monitored their patients’ kidney function (r=0.441, p<0.001).

CONCLUSION: This study showed that the doctors have average knowledge with acceptable attitude and practice on the use of analgesics.

ID No.: NMRR-13-735-16551
Keywords: analgesics, knowledge, attitude, practice

P2 PATIENT SATISFACTION AND MEDICATION ADHERENCE EVALUATION IN HIV MTAC, HOSPITAL SUNGAI BULOH

T. Siti Noor Adila1, S. Gnanasan1, N. Abd Aziz1, P.L. Lua2
1Faculty of Pharmacy, Universiti Teknologi MARA
2Centre for International Affairs, Universiti Sultan Zainal Abidin

INTRODUCTION: Measurement of adherence and patient satisfaction with HIV medication therapy adherence clinic (HIV MTAC) service is important in evaluating the provision of service. Less is known whether patient satisfaction affects medication adherence among HIV/AIDS patients.

OBJECTIVES: To assess patient satisfaction with the HIV MTAC service and to investigate the relationship between patient satisfaction and adherence to the HAART medication.

METHOD: A descriptive cross-sectional study was carried out at Hospital Sungai Buloh using Patient Satisfaction with Pharmaceutical Care Questionnaire (PSPCQ) (20 items with 5-point Likert scale with total score between 60-100 indicating satisfaction) and eight-items Modified Morisky Medication Adherence Scale (MMAS). A total of 288 patients on HAART and who had received the HIV MTAC counselling at least once were recruited. Data were analysed using SPSS version 21, using the descriptive and non-parametric tests.

RESULTS: The majority were males (83.0%), aged between 30-39 years (38.5%), Malay (54.2%), had tertiary level education (47.2%), and were employed (81.9%). Almost 79% have been diagnosed with HIV for more than 6 months and 64.9% were on HAART for more than 6 months. About 88.2% of the respondents were found to be satisfied with HIV MTAC service (88.2%) with mean±SD score was 73.7±14.2 and 44.4% of them had high adherence score (score=8). However, there were no significant association (r²=2.283, p>0.05) between patient satisfaction and medication adherence and the correlations were poor and insignificant (r²=0.060, p>0.05).

CONCLUSION: Patients were moderately satisfied with the HIV MTAC service and the adherence level was below 50%. Further improvement of the service is needed to achieve better satisfaction and adherence. Although the findings did not show any significant association between patient satisfaction and medication adherence using the general questionnaires, HIV specific instruments to measure adherence and satisfaction might be more valuable in exploring HIV MTAC pharmacist contribution in adherence education among HIV/AIDS patients.

ID No.: NMRR-13-525-16592
Keywords: patient satisfaction, adherence, HIV medication therapy adherence clinic, pharmaceutical care
PARENTAL PERCEPTION AND BELIEFS ABOUT CHILDHOOD ASTHMA

N. Radhiatul Mardhiyah, I. Lailatul Munirah, O. Siti Rohaizah, Y.L. Lew, Z.Y. Ong
Department of Pharmacy, Hospital Sultan Haji Ahmad Shah, Temerloh

INTRODUCTION: Asthma is a common chronic disease and a major public health problem, especially among pediatric population. Despite improved treatment regimens, the prevalence and hospitalisation due to asthma are still increasing.

OBJECTIVES: To assess beliefs, knowledge, and perceptions of parents toward asthma in children and its management.

METHOD: This is a cross-sectional study which includes patients aged 1 to 12 years old who were diagnosed with asthma and received treatment in the paediatric wards of Hospital Sultan Haji Ahmad Shah (HOSHAS) from February-June 2013. A validated questionnaire consisting mainly of closed-ended questions was used. The method of sampling was universal sampling in which samples were taken once a patient was admitted into the ward during the study period.

RESULTS: A total of 51 parents were involved in this study. Majority of them were female (74.5%), came from urban area (62.7%) and employed (56.9%) with mean age of 32.67±5.88. A total of 35 parents (68.6%) believed asthma was hereditary while only 5.9% thought it was contagious. The most common trigger factor reported was dust (58.8%), while other triggers were smoke (49%), weather (27.5%), food (23.5%), viral infection (9.6%), exercise (5.9%) and fur (2%). There was a significant difference in the acceptance of the label of asthma (p=0.024) between parents who received education from a physician on their children’s medication (87.5%) and those who did not (59.3%). About 10 parents (19.6%) believe that inhalers may cause addiction, while 13.7% and 11.8% were worried about side effects of inhaler and steroids respectively.

CONCLUSION: Parents of children with asthma still had considerable misperceptions about the use of inhalers and the safety of inhaled corticosteroids. To improve asthma care in children, it is necessary to provide adequate education to parents.

ID No.: NMRR-13-717-15381
Keywords: childhood asthma, steroids, inhaler

THE IMPACT OF DEPRESSIVE SYMPTOMS ON MEDICATION ADHERENCE AND GLYCAEMIC CONTROL IN TYPE 2 DIABETES MELLITUS IN HOSPITAL KAJANG

M.Z. Nor Marliza¹, A.A. Noorizan², K. Mahmathi²
¹Department of Pharmacy, Hospital Kajang
²Faculty of Pharmacy, Universiti Teknologi Mara Puncak Alam

INTRODUCTION: Diabetic mellitus is a chronic disease which requires constant attention to control the glucose level to targeted range. However, adherence status could influence the degree of glycaemic control. Several factors had been found to be the predictor of non-adherence to the medication. One of the predictors of non-adherence was depressive symptoms that were experienced by diabetic patient. In Malaysia, there are limited local studies done regarding the prevalence of depression among diabetic patient and its association with adherence and glycaemic control.

OBJECTIVES: To explore the impact of depressive symptoms on medication adherence and glycaemic control in type 2 diabetes patient

METHOD: This is a cross-sectional study conducted from August to November 2013. A total of 165 patients were succesfully interviewed with the ‘Center for Epidemiologic Studies Depression Scale’ (CESD) and ‘Morisky Medication Adherence Scale’ (MMAS) questionnaires.

RESULTS: About 40% (n=56) of the participants experienced depressive symptoms and about 83.6% (n=110) of them were not fully adherent to the medication. Median (IQR) of CESD score in poor glycaemic control group 9.6 (3.3) was not significantly different with good glycaemic control group 8.5 (3.2). Patients with high adherence to medication had a better median (IQR) HbA₁c value than patient with moderate adherence (7.6 (2.8) versus 8.6 (3.3); p=0.045). Depressive symptoms have significant negative correlation (p<0.001) with medication adherence. As the depressive score increased, adherence to medication decreased. Medication adherence was also correlated with the glycaemic control (p<0.001). Lower adherence status had led to higher HbA₁c level.

CONCLUSION: Depressive symptoms were definitely having an impact on medication adherence but not on the glycaemic control. However, medication adherence status could influence the degree of glycaemic control.

ID No.: NMRR-13-529-16505
Keywords: depressive symptoms, medication adherence, glycaemic control, HbA₁c
INTRODUCTION: Opioid dependence is a cluster of physiological, behavioral, and cognitive phenomena in which the use of opioid takes on a much higher priority in opioid-dependent persons. Methadone Maintenance Treatment (MMT) reduces harms associated with illicit drug use by providing equitable access to methadone, counselling, primary health care and other community-based services. However, the use of MMT have some limitation. Patients are more interested to obtain methadone, did not wish to engage in counselling or psychosocial intervention and have tendency for drug abuse in most of the patient.

OBJECTIVES: To explore the impact of MMT on quality of life (QoL) of opioid-dependent persons in Hospital Sultan Haji Ahmad Shah (HoSHAS), to determine the effectiveness of MMT in reducing the frequency of injecting and to investigate effectiveness of MMT in reducing criminal behavior.

METHOD: A cross-sectional study was conducted from January to March 2013 at MMT clinic, HoSHAS. Selection of sample was based on the specified inclusion and exclusion criteria. The instrument used to assess the QoL was the WHOQOL-BREF questionnaire.

RESULTS: A total of 100 patients were involved in this study. Most of the patients were male (98%), age between 30 to 39 years old (40%), employed in full time job (48%) and HIV carrier (47%). Statistically significant improvements in all four domains of WHOQOL-BREF were found. There were physical domain (p<0.01), psychological domain (p<0.01), social domain (p<0.01) and environmental domain (p<0.01). For the past one month, 83% of respondents had not hit up (i.e. injected any drugs); 86% of respondents had not committed to a property crime; 88% of respondents had not sold drug; and 88% of respondents had not committed to a crime involving violence.

CONCLUSION: MMT improves the QoL of opioid-dependent persons and substantially leads to improvement in treatment outcomes including abuse drug use, social functioning, and criminality.

ID No.: NMRR-13-537-15340
Keywords: opioid dependence, methadone maintenance treatment, health, quality of life

INTRODUCTION: The annual incidence of septic shock is increasing. Septic shock has become one of the main causes of death among hospitalised patients. Inappropriate initial antimicrobial therapy is associated with increased fatal outcome.

OBJECTIVES: To determine the mortality rate of delay in appropriate antimicrobial therapy initiation in septic shock and to identify the predictors that influence the outcome.

METHOD: A retrospective cohort study was conducted in intensive care unit of a teaching university hospital. A total of 43 patients with septic shock were included in the analysis after considering inclusion and exclusion criteria. The definition of timely appropriate antimicrobial therapy in septic shock was based on previous studies.

RESULTS: The average age of 43 patients with septic shock was 66.9±10.4 years. The average APACHE II score was 25±7.9. Majority of them had respiratory infections (62.8%), followed by gastrointestinal (18.6%) and genitourinary (18.6%) infections. The most common microorganisms documented were Klebsiella (14.0%), Escherichia coli (14.0%) and Staphylococcus aureus (11.6%). Out of 43 patients, 44.2% received antimicrobial therapy appropriately. Overall survival rate was higher in patients who received appropriate antimicrobial therapy than those who did not (57.9% versus 16.7%; p=0.005). The time of antimicrobial therapy initiation was a good predictor of treatment outcome (β=0.430, p=0.004) and it became a stronger predictor when APACHE II score was concurrently taken into consideration (β=0.435, p=0.002).

CONCLUSION: Early initiation of appropriate antimicrobial therapy in hypotension secondary to septic shock in needed to lower mortality rate.

ID No.: UKM1.5.2.5/244/NF-013-2013
Keywords: antimicrobials, septic shock, intensive care unit, hypotension
CORRELATION OF PHENYTOIN LEVEL WITH RHABDOMYOLYSIS AND THROMBOCYTOPENIA IN CRITICALLY ILL PATIENTS WITH HYPOALBUMINAEMIA

A.K. Rahela1, S.C. Loo1, S.Y. Ang1, S. Norirmawathi1, M.T. Hannah1, E.L. Bay1, Wee Leong L.2, R. Shanthi2
1Department of Pharmacy, Hospital Sungai Buloh
2Department of Anesthesiology, Hospital Sungai Buloh

INTRODUCTION: Phenytoin is widely used for traumatic brain injury patients in Intensive Care Unit (ICU) of Hospital Sungai Buloh (HSgB). Phenytoin has been reported to induce rhabdomyolysis, where there is a breakdown of muscle fibres resulting in raised creatine kinase (CK) level. In addition, phenytoin is known to induce thrombocytopenia, a rare but serious haematological adverse effect.

OBJECTIVES: To evaluate the impact of sub-therapeutic or toxic levels of phenytoin on rhabdomyolysis and thrombocytopenia. Other factors that may affect phenytoin level were also investigated.

METHOD: Medical records of 70 patients admitted to Intensive Care Unit of HSgB prescribed with phenytoin from October 2011 to May 2012 were retrieved. A total of 61 patients with hypoalbuminemia (albumin<35g/L) were identified for inclusion. CK, platelet, albumin and phenytoin levels were collected and data was analyzed using chi-square test.

RESULTS: The mean (SD) age of 61 patients was 31.8 (8.7) years (range: 20 to 57 years). The subjects had traumatic brain injury, subarachnoid haemorrhage or epilepsy. Sub-therapeutic (less than 40µmol/L) and toxic level (more than 80µmol/L) of phenytoin were associated with an increased CK level compared with the normal phenytoin level, however, it was not statistically significant (p>0.05). Toxic level of phenytoin, relative to sub-therapeutic and normal levels, was significantly associated with thrombocytopenia (platelet less than 100x109/L; p<0.05). Very low albumin level (less than 20g/l) was significantly associated with phenytoin toxicity (p<0.05).

CONCLUSION: Rhabdomyolysis is easily affected by other factors, thus CK is not a strong indicator to predict phenytoin level. Thrombocytopenia and very low albumin level may play a role in predicting phenytoin toxicity.

ID No.: 16771
Keywords: phenytoin, hypoalbuminemia, rhabdomyolysis, thrombocytopenia

PATIENT-REPORTED OUTCOMES (PROS) OF LONG TERM ANTICOAGULANT THERAPY IN HOSPITAL SULTAN HAJI AHMAD SHAH, TEMERLOH

M.T. Siti Masyitah1, S.Z. Sharifah Nur Sazlin1, H. Yahaya2, G. Shubashini2
1Department of Pharmacy, Hospital Sultan Haji Ahmad Shah, Temerloh
2Faculty of Pharmacy, Universiti Teknologi MARA

INTRODUCTION: The efficacy of anticoagulant drugs in prevention of clots formation in blood vessel was well documented. However, it causes some limitations in patients' daily life due to strict monitoring requirement to prevent risk of bleeding.

OBJECTIVES: To determine patient’s perception towards anticoagulant therapy with regards to treatment expectation, convenience, treatment satisfaction and their association with INR control.

METHOD: This is a cross sectional study conducted in medical out-patient clinic, Hospital Sultan Haji Ahmad Shah. A total of 94 patients who were on long term anticoagulant therapy and aged more than 18 years were successfully completed the ‘Perception of Anticoagulant Treatment Questionnaire’ (PACT-Q) at the anticoagulation clinic during their medical follow up, from August to November 2012.

RESULTS: Majority of the patients were female (56.4%), Malay (83%), married (89.4%) and aged more than 60 years old (48.9%). More than half of the patients were not working (55.2%) or a retiree (16%). Only 28.7% were a full-time employee. Patients were found to have high expectation to their therapy and the expectation level was almost similar across differences in demographic variables including age, gender, race and employment status. Patients reported high level of convenience and treatment satisfaction with score more than 80. Patients’ race was found to be the only variable that showed significant association with their convenience level.

CONCLUSION: Patients’ expectation, convenience and satisfaction level towards anticoagulant therapy were relatively high. The high score was an indicator for patients’ acceptability and adaptability towards their treatment. Patients’ INR control which are either poor, moderate or good were not associated with their convenience and satisfaction level.

ID No.: NMRR-12-532-12337
Keywords: patient-reported outcome, anticoagulant, treatment satisfaction, INR control
EVALUATION OF THE EFFECTIVENESS OF METHADONE MAINTENANCE TREATMENT (MMT) FOR THE REDUCTION OF HEROIN RELAPSE IN PENANG

P.S. Ong¹, P.C. Lim¹, R.S. Ng¹, T.F. Teoh², A.K. Sarah¹, M.I. Zuhaila³, A.K. Noraini⁴
¹Pharmacy Department, Hospital Pulau Pinang
²Pharmacy Department, Hospital Seberang Jaya
³Pharmacy Department, Hospital Bukit Mertajam
⁴Deputy Director of Health Office (Pharmacy)

INTRODUCTION: Pharmacists have been working in collaboration with doctors in Methadone Maintenance Treatment (MMT) program to reduce and eliminate opiate abuse. However, there is limited data on the treatment outcome.

OBJECTIVES: To evaluate the MMT outcome and to identify the average methadone maintenance dose and compliance. We also compared heroin relapse rate and methadone dose between subjects receiving MMT for different years. Besides, we aimed to investigate the correlation of methadone dose with heroin relapse rate, methadone dose with compliance and compliance with heroin relapse rate.

METHOD: A multi-centre, retrospective, observational study was conducted in Penang that involved seven government institutions. Records from 1st April 2011 until 31st March 2012 of subjects aged above 18 years, on methadone maintenance dose and in the MMT program for a minimum of a year were retrieved and selected. Then, the records were reviewed and data was collected using data collection form. The MMT outcome was assessed by using heroin urinalysis, whereas compliance was evaluated based on days of receiving methadone under direct observation.

RESULTS: A total of 312 subjects (47%) from 664 records had stopped opiate abuse. The mean methadone maintenance dose was 56.4mg and compliance rate was 95.9%. There was no difference in heroin relapse rate between subjects in MMT regardless of treatment duration. However, as the duration in MMT increased, the dose of methadone decreased significantly (p<0.01). Mean dose of methadone reduced significantly from 61.2mg to 52.3mg among subjects in MMT for 12 to 24 months and more than 36 months respectively. Although heroin relapse rate reduced when compliance improved, it was insignificant (p=0.47). Methadone dose was positively correlated with heroin relapse rate and compliance respectively (p<0.01).

CONCLUSION: MMT program had successfully assisted almost half of the subjects to achieve heroin free urine. Longer duration of treatment was needed to reduce the dose and relapse rate.

ID No.: NMRR-12-1004-13031
Keywords: methadone maintenance treatment, heroin relapse rate

PREDICTOR OF ADHERENCE TO CALCIUM CARBONATE AS PHOSPHATE BINDER AMONG DIALYSIS PATIENTS IN HOSPITAL RAJA PEREMPUAN ZAINAB II

N.I. Nik Azlean¹, A.R. Sudarwaty², S.A. Nasriq², I.N. Husna²
¹Department of Pharmacy, Hospital Tanah Merah
²Department of Pharmacy, Hospital Raja Perempuan Zainab II, Kota Bharu

INTRODUCTION: Patients with end stage-renal disease (ESRD) are at risk of cardiovascular disease and bone disorder due to hyperphosphatemia. Treatment with phosphate binders is associated with improves survival among hemodialysis patients. However, poor adherence is common in these patients which can lead to inadequate control of serum phosphorus concentrations.

OBJECTIVES: To determine the predictor of adherence on calcium carbonate as phosphate binder among hemodialysis patients in HRPZ II.

METHOD: A cross sectional study was conducted at hemodialysis unit of HRPZ II targeting only on patients taking calcium carbonate as phosphate binder. All responders were assessed based on their adherence to the medication using Modified Morisky scale.

RESULTS: About 21 out of 44 patients (48.0%) reported non-adherence towards calcium carbonate. Mean phosphate level was significantly lower in patients with good adherence (p= 0.034) as compared to patients with poor adherence. Gender, education level, and marital status did not significantly influence medication adherence. However, unemployed or pensioner patients are more compliant compared to employed patients (p=0.027). Mean pill burden and duration of hemodialysis were not significantly different between adherence and non-adherence group. There was a significant difference between mean age of adherence and non-adherence patients (p=0.004).

CONCLUSION: Employment status, age and phosphate level of the patients were the predictors of adherence on calcium carbonate as phosphate binder among hemodialysis patients in HRPZ II. Unemployed or pensioner and older patients show more compliance towards the medication.

ID No.: 15832
Keywords: calcium carbonate, hemodialysis, phosphate binder
ECONOMIC EVALUATION OF HEPATITIS C MANAGEMENT IN HOSPITAL SULTANAH BAHIYAH

Pharmacy Department, Hospital Sultanah Bahiyah, Alor Setar

INTRODUCTION: Hepatitis C virus infections have been a burden to the healthcare systems worldwide. Due to its high drug acquisition cost and inconsistent efficacy, concerns have arisen regarding the values of hepatitis C treatment.

OBJECTIVES: To determine the economic burden of hepatitis C management from local payer’s perspective.

METHOD: A cross-sectional retrospective study was conducted on patients who had completed their hepatitis C anti-viral treatment and those receiving palliative care from 2010 to 2013. In addition, anti-viral treatment arm was subdivided into Pegasys® and Pegintron® group for cost-effectiveness analysis (CEA). The total costs calculated included the cost of medications, personnel, diagnostic laboratory tests, diagnostic imaging, blood transfusion and hospitalization.

RESULTS: Of 108 patients screened, only 61 (56.5%) had met the inclusion criteria and were recruited. 73.8% had received a regimen containing the combination of peginterferon injection (Pegasys® or Pegintron®) and ribavirin (Copegus® or Rebetol®) for a variety of treatment duration, ranging from 9 to 42 weeks while 26.2% were receiving palliative care. Medications (88.3%) had taken up the largest portion of the expenditure, followed by laboratory tests (7.4%) and personnel (2.6%). Cost/patient treated with Pegasys®+Copegus® and Pegintron®+Rebetol® was MYR27,668.58 and MYR26,241.28 respectively. Cost-effectiveness ratio (CER) for Pegasys® group was MYR37,389.98/patient while CER for Pegintron® group was MYR43,018.50. Incremental Cost-Effectiveness Analysis (ICER) calculated is MYR10,979.23 per successful treatment.

CONCLUSION: The total cost of hepatitis C treatment per patient in a Malaysian general hospital is RM20,477.08. In the treatment of Hepatitis C, the use of Pegasys®+Copegus® combination is more cost effective than Pegintron®+Rebetol® with the ICER of MYR10,979.23. A review should be done on the medication usage as it constituted the highest proportion of the cost.

ID No.: NMRR-13-1103-17261
Keywords: hepatitis C cost, peginterferon

GENERIC MEDICINES: ASSESSMENT OF THE KNOWLEDGE AND PERCEPTION AMONG HEALTHCARE PROFESSIONALS IN HOSPITAL SULTANAH BAHIYAH (HSB)

Pharmacy Department, Hospital Sultanah Bahiyah, Alor Setar

INTRODUCTION: Consumers see generic medicines as an opportunity to access cheaper medicines, while governments see the opportunity to achieve the same health outcomes for patients at a lower cost. Clinicians, on the other hand, have mixed views regarding the role of generic medicines. Pharmacy department constantly received complaints from prescribers regarding the efficacy of generic medicines. Hence, product complaint and adverse drug reaction reporting were increased.

OBJECTIVES: To assess the knowledge and perception towards generic medicines among the healthcare professionals in HSB. Knowledge and perception may contribute to prescribing pattern, usage and subsequently reduce the overall healthcare cost.

METHOD: A postal cross-sectional survey with an 18 items questionnaire was distributed among 522 participants (doctors, pharmacists and nurses) in Hospital Sultanah Bahiyah, from January 2012 to March 2013 to assess their knowledge towards generic medicines and perception pertaining to generic medicines utilization.

RESULTS: Majority of the subjects were female (77%) with age range 23-30 years old (56%). Total score for knowledge on generic medicine among pharmacist was significantly higher compared to doctors and nurses (3.41; 1.82; 2.72; p<0.01). Even though the knowledge about generic medicine is low among the doctor’s group, this group showed strong support to the substitution of the innovator drugs with generic. The knowledge on generic medicine was found to be significantly associated with the perception on the practice of Generic Substitution (GS).

CONCLUSION: Education and awareness on generic medicines are important to improve prescribing pattern, usage and subsequently reduce the overall healthcare cost.

ID No.: NMRR-12-1382-11197
Keywords: generic drugs, innovator drugs
**P13**

**THE IMPACT OF STRUCTURED SELF-MONITORING BLOOD GLUCOSE (SMBG) ON THE GLYCEMIC CONTROL OF TYPE 2 DIABETIC PATIENTS**

N.R. Nurhamizah, H. Nazariah, J.Y. Phang, M. Nordin, M.N. Nadiah
Department of Pharmacy, Hospital Putrajaya

**INTRODUCTION:** Diabetes mellitus is a common disease leading to significant mortality and morbidity. Apart from managing diabetes mellitus in terms of medications, structured Self-Monitoring Of Blood Glucose (SMBG) has an important role in disease control and improvement. A structured self monitoring of blood glucose involving health care professionals providing proper education of diabetes and support towards patient in their self management of diabetes has been increasing important in diabetes control.

**OBJECTIVES:** To compare glycemic control between structured and non-structured SMBG on the glycemic control of type 2 diabetes mellitus and to determine the relationship between frequency of SMBG and HbA1c.

**METHOD:** A prospective study was conducted at the out-patient pharmacy department of Hospital Putrajaya and recruited 40 patients who were randomly selected into structured and non-structured SMBG group. After recruitment, structured and non-structured SMBG group received baseline education, result interpretation and application for insulin dose adjustment and had their baseline HbA1c level measured. The structured SMBG group were followed up on a monthly basis to aid patient disease management and were compulsory to perform 3 days of SMBG. The non-structured SMBG group on the other hand were to perform SMBG according to their convenience and had no monthly follow up.

**RESULTS:** Patients recruited in the SMBG structured group had shown a significant reduction in the HbA1c from the baseline by 1.30% (95% CI 0.2, 2.4). In contrast, in the non-structured group, HbA1c has increased by 0.11% (95% CI -0.1, 0.8). The frequency of SMBG in both structured and non-structured SMBG group seen no significant effect on HbA1c in both intervention SMBG (p=0.910) and non-intervention SMBG (p=0.784).

**CONCLUSION:** Structured SMBG has positive effect on HbA1c control of type 2 diabetes mellitus patients, however the frequency of SMBG has no significant effect on HbA1c.

ID No.: 15904
Keywords: Type 2 diabetes mellitus, self monitoring of blood glucose, HbA1c

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**P14**

**PHARMACEUTICAL INTERVENTIONS IN FEMALE MEDICAL WARDS, KUALA LUMPUR HOSPITAL**

M.T. Hadijah1, A. Rosmaliah1, K. Fateha1, M. L. Nurkhodrulnada1, M.S. Pang1, P.S.H. Vun1, J. Nurul Ashikin1, L. Lim1, C.Z. Chew1, Z. Nur Wahida1, M.I. Fauziah1, I. Ainun1
1Department of Pharmacy, Hospital Kuala Lumpur
2University Malaya Specialist Centre
3Jabatan Kesihatan Negeri Selangor

**INTRODUCTION:** Ward pharmacists play an important role by providing pharmaceutical care in clinical settings. However, the significance of pharmaceutical interventions has not been evaluated in Hospital Kuala Lumpur, the largest tertiary hospital in Malaysia.

**OBJECTIVES:** To identify drug classes commonly requiring interventions, determine the most frequent type of pharmaceutical intervention and to evaluate the clinical significance of the interventions based on severity of outcome.

**METHOD:** A retrospective study was conducted through a review of interventions documented in the Pharmacist Work-up of Drug Therapy (PWDT) reports. It was conducted over a period of three weeks in April 2012 involving three female medical wards. Type of interventions were classified according to the Manual of Clinical Pharmacy, Pharmaceutical Services Division. Drugs were classified based on the British National Formulary classification. Data was evaluated by two independent reviewers to rank the clinical significance of each intervention. The degree of agreement (Kappa) between reviewers was analysed using SPSS version 20.

**RESULTS:** A total of 67 completed interventions were analysed. The most frequent type of intervention was related to inappropriate dose or frequency 43.2% (n=29), followed by inappropriate choice of drug 38.8% (n=26). Class of drugs requiring most interventions were antibiotics 37.3% (n=25), followed by nutritional and blood 16.4% (n=11) and cardiovascular drugs 13.4% (n=9). With moderate agreement (Kappa=0.41) between the two reviewers, 57 out of 67 interventions had clinical significance with 3% classified as catastrophic, 13.4% major, 37.3% moderate and 31.3% minor possible clinical outcomes.

**CONCLUSION:** Ward pharmacists provide significant pharmaceutical interventions especially in drug dosage adjustments with antibiotics being the major drug class of concern. Further studies should be conducted to quantify the economic significance of interventions made by ward pharmacists.

ID No.: NMRR-12-985-13943
Keywords: pharmaceutical intervention, ward pharmacist
EARLY ONSET NEONATAL SEPSIS PATHOGENS IN MALAYSIAN HOSPITALS: DETERMINING THE EMPIRC ANTIBIOTIC

A.I. Nazedah1, Mohamed Mansor Manan2
1Department of Pharmacy, Hospital Sungai Buloh
2Department of Pharmacy Practice, Faculty of Pharmacy, Universiti Teknologi MARA

INTRODUCTION: Treatment of suspected early onset neonatal sepsis (EONS) in neonatal intensive care unit (NICU) is essential. However, information regarding EONS pathogens may vary between regions. Although global perspective showed that Group B Streptococcal (GBS) is the most common pathogen, widespread uses of intrapartum antibiotics change the pathogens pattern towards gram negative microorganism especially E. coli.

OBJECTIVES: To describe the pathogens isolated in EONS prior to empiric antibiotics administration.

METHOD: Records of 899 neonates born in three general hospitals in year 2009 until 2012 were retrospectively reviewed. Only neonates with blood cultures prior to empiric antibiotics administration and within 72 hours of life were included.

RESULTS: A total of 734 (82%) cases had documented blood culture report were included. Proven EONS (as confirmed by positive blood culture) was presented in 22 (3%) neonates. Majority isolated with gram positive organisms, 17 (2.3%). Common gram positive organism isolated was Coagulase negative staphylococci (7), followed by Bacillus sp. (5) and Streptococcus pneumonia (2), and only one case isolated with GBS, Streptococcus spp. and Enterococcus sp. Meanwhile, only five cases isolated with gram negative organism [Stenotropomonas (xantho) maltophi (1), Haemophilus influenza (1), Spingomonas paucimobilis (1), Enterobacter gergoviae (1) and E. coli (1)]. A total of 286 (39%) cases were exposed to intrapartum antibiotic and 21.4% of them were administered prior to delivery. Penicillin (n = 6) showed the highest reported resistance rate, followed by ampicillin (n=5), gentamicin (n=2) and cefotaxime (n=1). Isolated pathogens were sensitive to either one or more antibiotics tested.

CONCLUSION: Proven EONS remains uncommon in Malaysia and the effect of intrapartum antibiotics still required continuous surveillance. However, this review gave additional information regarding isolated pathogens and it can be used to determine treatment choice in managing suspected EONS.

ID No.: NMRR-11-975-10283
Keywords: early onset neonatal sepsis, pathogens, gram positive, gram negative

LONG-TERM OUTCOMES OF CHILDREN BORN TO WOMEN WITH EPILEPSY

M.S. Noor Wahida, A.R. Ab. Fatah
School of Pharmaceutical Sciences, Universiti Sains Malaysia

INTRODUCTION: Over the past decades there has been a rising concern that exposure to antiepileptic drugs (AEDs) in utero may have permanent effects on cognition, behaviour and academic achievement in exposed children.

OBJECTIVES: The primary objective was to determine medical outcomes of children born to women with epilepsy (WWE). The secondary objectives were to determine outcomes of pregnancy and drug management during their pregnancies.

METHOD: We retrospectively reviewed medical records of WWE who gave birth at Hospital Raja Perempuan Zainab II (HRPZII) between January 2005 and December 2011. Data were collected for obstetric complications and AED treatment. Subsequently, we reviewed medical/pediatric records of their children who visited the hospital thereafter. Data were collected for any medical complaints at the hospital after birth.

RESULTS: We identified 47 WWE who gave birth at HRPZII between 2005 and 2011. One WWE was not on drug treatment, and five were documented to be non-compliant. Seven medical records were missing. Data were extracted from the remaining 34 records. We identified four children who obtained follow-up treatment at the hospital. The reasons for hospital visits were developmental delay (n=2), febrile seizure and anemia (n=1), and acute gastroenteritis (n=1). Three of them were exposed in utero to sodium valproate (VPA) and the other to phenytoin. 58.8% of these women developed obstetric complications such as hypertension, gestational diabetes mellitus, threatened abortion, and anemia during their pregnancies. 76.5% had normal vaginal deliveries. All WWE were on AED treatment; 52.9% monotherapy and 47.1% polytherapy. VPA was prescribed in 55.9% of these women.

CONCLUSION: In our setting, long-term health complication such as developmental delay does occur among children exposed to in utero AED. Taking into account current evidence about this association, our observation underscores the need to optimise AED treatment in WWE who are planning to have children.

ID No.: NMRR-12-1011-13959
Keywords: antiepileptie drugs, pregnant women, epilepsy
P17  
COST ANALYSIS OF THE EXTEMPORANEOUS PREPARATION OF FOLIC ACID 1MG/ML SYRUP IN SUNGAI BULOH HOSPITAL OUT-PATIENT PHARMACY DEPARTMENT WITH THE USE OF EITHER SIMPLE SYRUP OR X-TEMP SUSPENSION AS A SUSPENSION VEHICLE

Y.L. Hing, M.S. Roshayati, C.C. Lee, B. Shamala  
Pharmacy Department, Hospital Sungai Buloh

INTRODUCTION: Folic Acid (FA) syrup is most commonly prepared by utilizing simple syrup (RM16.50/3.6L) as suspending vehicle but with short shelf life (14 days). There another suspending vehicle exists which is X-TEMP suspension (RM50/L) with longer shelf life (60 days). Shorter shelf life of suspending vehicle will lead to frequent refills, increasing workload, and increasing consumption of consumables thereby causing increases in overall cost of preparations. Thus, a cost analysis study conducted to determine which suspending vehicle would offer the lowest overall cost.

OBJECTIVES: To determine the direct cost and indirect cost associated with the use of simple syrup and X-temp as a suspension vehicle to prepare FA syrup, which will both be factored in to estimate the overall cost of a bottle of dispensed FA syrup.

METHOD: It is cross-sectional cost analysis study by doing cost calculations based on direct cost (prices of various paraphernalia and personnel labour costs) and indirect cost (lost opportunity cost and transportation cost). The price of paraphernalia was obtained from Pharmacy Inventory Management and personnel labour cost to prepare and dispense Folic Acid syrup were calculated based on a time recording form. However, a set of questionnaire was distributed to patients who have been started on Folic Acid syrup using simple syrup then continued with X-TEMP for the next visits in order to obtain indirect costs.

RESULTS: The frequency of refill is 2 times per month for simple syrup but 1 times per month for X-TEMP. So, the overall cost of making Folic Acid syrup with simple syrup as suspending vehicle is RM675.12/patient/year which would be approximately 2 times higher than that of X-TEMP which costs RM358.92/patient/year.

CONCLUSION: Folic Acid syrup made by using X-TEMP as suspending agent is more cost saving than simple syrup.

ID No.: 18076  
Keywords: folic acid, extemporaneous preparation, cost analysis

P18  
ADVERSE DRUG REACTIONS AMONG PATIENTS WITH RHEUMATOID ARTHRITIS

M.N. Najwa1, H. Yahaya2, K. Mahmathi2, M.A. Norliza1  
1Klinik Kesihatan Serendah, Pejabat Kesihatan Daerah Hulu Selangor  
2Faculty of Pharmacy, Universiti Teknologi Mara

INTRODUCTION: Adverse drug reaction (ADR) occurs frequently in hospitalised patients, and is a cause for hospital admissions. Local data on adverse drug reactions among outpatients, particularly in patients with rheumatoid arthritis (RA) is lacking. Hence monitoring ADRs in ambulatory care patients is important since a significant risk of adverse drug effects were found in these patients.

OBJECTIVES: This study aimed to estimate the prevalence of ADRs in the adult patients with rheumatoid arthritis and to determine their characteristics.

METHOD: A cross-sectional study was conducted at a tertiary Rheumatology Centre, by convenient sampling of ambulatory care patients. All suspected ADRs were identified by retrospective patients’ medication chart review throughout treatment in the centre. ADR characteristics, including causative drugs and affected organ system were recorded.

RESULTS: 248 patients were recruited. The patients’ mean age was 53.0 (SD=12.14) and 213 (85.9%) patients were female. A total of 58 ADRs were detected in 52 patients. The prevalence of ADRs was 21% and the rate was 23.4 events per 100 patients. Disease-modifying anti-rheumatic drugs implicated in ADRs by 45 (77.6%) events. Common affected organ systems were skin, liver and gastro-intestinal tract which accounted for 31 (53.4%), 9 (15.5%) and 6 (10.3%) events, respectively. Patients with history of drug allergy or previous ADR were found to be five times more likely to develop an ADR than those who did not have ADR.

CONCLUSION: Adverse reactions related to drug are significant in adult outpatients with RA. Previous experience of ADRs, including drug hypersensitivity is a risk factor for an ADR to reoccur in these patients.

ID No.: NMRR-12-740-12255  
Keywords: adverse drug reactions, rheumatoid arthritis, prevalence, ambulatory care
CLIENT SATISFACTION TOWARDS PHARMACY ENFORCEMENT SERVICES IN SARAWAK

P19

C.Y. Ting, J.L.L. Lau, S.T. Sim
Sarawak Pharmacy Enforcement Branch, Jabatan Kesihatan Negeri Sarawak

INTRODUCTION: Quality has always been at the crux of all kinds of services to ensure the clients’ expectations were met. Several scholars had shown that service quality and customer satisfaction are closely related, and that an increase in one is likely to lead to a rise in the other.

OBJECTIVES: This cross-sectional study assessed the quality of services provided by Sarawak Pharmacy Enforcement Branch through evaluating the satisfaction level of Type A and Type B license holders towards the services provided. It also examined the factors that influence the satisfaction level of clients toward the services.

METHOD: A self-administered questionnaire was developed through panel of experts and validated through pilot test. Fourteen items of services with factor loading more than 0.4 were included and categorized into licensing services, inspection services and general services (Cronbach’s alpha value was 0.769, 0.722 and 0.870 respectively).

RESULTS: A total of 140 completed questionnaires were collected with an overall response rate of 45.3% (43.1% of Type A License Holders; 47.7% of Type B License Holders). As a whole, 96.3% of respondents in this survey evaluated the services provided as satisfactory. Study also revealed that the characteristics of clients that affect the satisfaction level were type of license holder, job status, ethnicity and location of premise. Among the services provided, the clients were most satisfied with the licensing services but were least satisfied with the inspection services due to inconsistent advice given by pharmacy enforcement officers.

CONCLUSION: This study concluded that the services provided by Sarawak Pharmacy Enforcement Branch were satisfactory and four characteristics of clients that affect the satisfaction level were type of license holder, job status, ethnicity and location of premise. In addition, inconsistent advice given to clients had shown to be the main factor in lowering the satisfaction level towards inspection services.

ID No.: NMRR-113-145-14878
Keywords: client satisfaction, pharmacy enforcement services

EXPLORATION OF KNOWLEDGE AND PRACTICE AMONG DOCTORS IN THE USAGE OF ACID SUPPRESSANT THERAPY AT A TERTIARY PUBLIC HEALTH INSTITUTION: A CROSS-SECTIONAL SURVEY

P20

A.G.H.K. Tan1, A.L. Oh1, H.S. Phan2, S.S.N. Tan1, K.M. Thian1, J.S.Y. Chung1, R.K.W. Yeo1, A.R. Ridhwan1
1Department of Pharmacy, Hospital Bau
2Department of Pharmacy, Hospital Umum Sarawak

INTRODUCTION: Acid suppressants are widely used in conditions ranging from stress ulcer prophylaxis (SUP) to peptic ulcer disease. The trend of acid suppressant therapy in Malaysia has changed from predominantly histamine-2 receptor antagonist (H2RA) to proton pump inhibitor (PPI) from 2007 to 2008. This scenario is alarming since PPI has increased cost expenditure and are associated with various untoward consequences such as Clostridium difficile associated diarrhea, pneumonia, and osteoporosis.

OBJECTIVES: This cross-sectional survey was conducted to explore the knowledge and practice of doctors in the use of acid suppressant therapies and to ascertain if their knowledge is reflected in their daily practice.

METHOD: A questionnaire was developed and reviewed by two consultants before being subjected to reliability testing. 200 doctors were approached to administer the questionnaire. Data were analysed using descriptive statistic, generalized linear regression and Spearman’s rank correlation.

RESULTS: A 49.5% response rate was obtained (N=99). Our questionnaire showed moderate reliability (Cronbach’s Alpha=0.576). Results from knowledge questionnaire showed that mean knowledge score was 9.48 (SD=3.08) with 63.6% having moderate knowledge (scored 7-12 out of 18). Most of the questions answered incorrectly were related to the risks of PPI and H2RA usage. There was a significant relationship between working experience and knowledge score (p<0.001). The better knowledge scores of senior doctors could be attributed to having more clinical experience in prescribing acid suppressants and patient monitoring. A positive correlation of r=0.453, p<0.001 was obtained whereby doctors who thought that PPI was not always the first choice in SUP would have prescribed H2RA.

CONCLUSION: Knowledge of acid suppressants among doctors was at best acceptable, with senior doctors faring better. Translation of knowledge into practice however was barely satisfactory. Improvement in knowledge could contribute to better prescribing practice.

ID No.: NMRR-13-692-15966
Keywords: proton pomp inhibitors, histamine-2-receptor antagonist, knowledge, practice
P21

ANTIBIOTIC USE, EXPENDITURE AND OUTCOMES AT KAJANG HOSPITAL: THE IMPACT OF ANTIBIOTIC-MEDIFACT PROGRAM

S. Sarah Diyana, A.G. Farizan, K. Zaiton, L.L. Lim, T.C. Ling, R. Anitha, C.P. Yee, A. Zarif Naim
Pharmacy Department, Hospital Kajang

INTRODUCTION: In 2010, among ten government hospitals in Selangor, Kajang Hospital was reported to be the ‘top users’ for 6 types of antibiotics and had the highest expenditure for antibiotics. These may indicate excessive and inappropriate usage of antibiotics.

OBJECTIVES: The purpose of this study was to evaluate the impact of a multidisciplinary antibiotic program (Antibiotic-MEDIFACT) on the antibiotic consumption, expenditure and bacterial resistance.

METHOD: The program was formed in June 2011 with 4 strategies: Standard antibiotic order forms with preauthorization requirements for 9 restricted antibiotics, education, audits and feedbacks. Use of antibiotics was recorded in DDD per 1000 patient-days. To avoid overestimation of the intervention due fluctuation in drug prices, average cost of each antibiotic dosage form and average bed occupancy over 3 years of the study period were obtained. Bacterial resistance rates were recorded based on antibiogram laboratory data.

RESULTS: The intervention was associated with a significant reduction of use of Cefoperazone/Sulbactam (p=0.007), Ceftriaxone (p=0.019) and Vancomycin (p=0.007). Usage of Cefuroxime, Meropenem, Imipenem, Pipercillin/Tazobactam and Polymyxin B were reduced but it was not statistically significant. Total reduction in antibiotic expenditure was MYR268,069.60 and reduction in expenditure of 9 restricted antibiotics was RM15768 per month in post intervention period (95% CI MYR6,259, MYR25,278; p=0.001). The frequency of Ceftazidime-resistant Pseudomonas aeruginosa strains decreased from 22% to 7% (p=0.04). The frequency of Polymyxin B-resistant Acinetobacter baumannii strains Pseudomonas aeruginosa strains and Escherichia coli strains decreased from 11%, 5% and 3% to 0%, 1%, and 1% respectively.

CONCLUSION: This results support the notion that a systematic antibiotic program executed by a multidisciplinary team has an evident impact on reduction of antibiotic use, expenditure, and bacterial resistance for optimizing antibiotic use in a hospital.

ID No.: NMRR-12-1399-11217
Keywords: multidisciplinary antibiotic program, consumption, expenditure, bacterial resistance

P22

IMPACT OF MEDICATION BELIEF TOWARDS MEDICATION ADHERENCE AMONG HYPERTENSIVE PATIENTS IN PRIMARY HEALTH CLINIC MINISTRY OF HEALTH

D. Nur Kamalah¹, A. Noorizan², G. Shubashini³
1Pharmacy Unit, Klinik Kesihatan Kajang, Pejabat Kesihatan Daerah Hulu Langat
2Pharmacy Faculty, Universiti Teknologi Mara, Puncak Alam
3Pharmacy Faculty, Universiti Teknologi Mara, Puncak Alam

INTRODUCTION: Non-adherence towards hypertensive treatment is the most significant reason for BP not achieving JNC-VII goals and may lead to inadequate BP control, increased health care costs, and increased cardiovascular disease and hospitalization rates. Belief about medicines seem to be an important indicator of adherence and a more influential predictor of medicine adherence than clinical or socio demographic variables.

OBJECTIVES: To describe patient’s beliefs about medication and investigate whether these beliefs will impact patient’s adherence towards medication.

METHOD: A cross-sectional study was carried out among eligible patients who came for scheduled appointment in Kajang Health Clinic between Augusts to November 2013. Belief about medication questionnaires (BMQ) was used to assess perception about hypertensive medications and medications in general. Morisky Medication Adherence Scale-8 (MMAS-8) was used to evaluate patients’ adherence.

RESULTS: A total 340 patients were involved in this study which comprised of 62.6% male and 37.4% female. 34.4% of patients had high adherence level. Majority of patients (90%) had strong belief (necessity belief) on the importance of taking medication for controlling their diseases while 54.1% had strong concern (concern belief) regarding the risk and adverse effect of medication. The result from BMQ specific showed that the mean necessity score (mean=18.90±5.42) slightly outweighs the concern score (mean=13.62±3.788). Majority of patients (73.2%) had higher necessity score as compared to concern score. Most of the total BMQ subpart had significant correlation with adherence level. Multivariate analyses identified several factors associated with high self-reported adherence including low concern (specific concern), BMQ general harm (< midpoint), race (Indian), marital status (married), hypertension status (uncontrolled hypertension).

CONCLUSION: Patient’s beliefs about specific medicines affect adherence level whereby those who had high concern scores demonstrated non adherence to medicines.

ID No.: NMRR-13-619-16573
Keywords: belief, adherence, hypertension, Morisky Medication Adherence Scale-8
THE EFFECT OF IRON CHELATING THERAPY ON HEALTH-RELATED QUALITY OF LIFE (HRQoL) IN PEDIATRIC THALASSEMIC PATIENT

L.P. Chong1, A. Nadiah1, A.R. Nurul Nadiah1, P.C. Chew2
1Department of Pharmacy, Hospital Melaka
2Department of Pharmacy, Klinik Kesihatan Bukit Rambai

INTRODUCTION: Thalassemia is a chronic hereditary disease in which patients with severe disease present with anaemia during their early life. Blood transfusions and desferrioxamine are the conventional therapy used in Malaysia. This is a psychosocial burden to patients especially for the young children.

OBJECTIVES: To determine the effect of iron chelating therapy on HRQoL among pediatric Thalassemic patient in Hospital Melaka.

METHOD: A cross-sectional study was conducted to study four dimensions of quality of life: physical, emotional, social, and school functioning among thalassemic patients receiving iron chelating agent between 2 and 18 years of age at Pediatric Daycare Clinic, Hospital Melaka from 1st March to 31st August 2013. HRQoL was measured using PedsQLTM 4.0 Generic Core Scale (English/Malay/Chinese version).

RESULTS: Fifty-six thalassemic patients treated with iron chelating agent were enrolled in this study, with response rate of 88.9%. The median (IQR) age of patients was 12(9) years old. Twenty three of the patients were treated with desferrioxamine, 28 with deferasirox and 5 with the combination of desferrioxamine and deferiprone. The median (IQR) of the total summary HRQoL score for desferrioxamine was 82.11 (16.37), deferasirox was 82.81 (25.63), and combination of desferrioxamine and deferiprone was 83.44 (20.5). There was no significant difference in HRQoL between iron chelating agents used, in term of physical functioning, emotional functioning, social functioning, school functioning and total summary HRQoL score (p>0.05). However, the median (82.81%) of total summary score of HRQoL of Deferasirox was found to be higher compared to Desferrioxamine (82.11%), while school functioning scored the lowest median HRQoL among all other domains and iron chelating agents.

CONCLUSION: In conclusion, Deferasirox was found to have higher median HRQoL compared to other iron chelating agents, however further investigation need to be carried out to determine the effectiveness of different iron chelating agents.

ARE ANTIBIOTICS USAGE JUSTIFIED IN PRIMARY CARE SETTING IN KLANG?

C.Y. Cheang, S. Norharlina, K.Z. Gan
Department of Pharmacy, Pejabat Kesihatan Daerah Klang

INTRODUCTION: Antibiotic prescribing in primary care clinics in Klang rose steadily between 2010 and 2012. In the year 2012, pharmacy expenditure for oral antibiotics accounted for 10% of the total clinic's budget. Respiratory tract infection is the most frequently treated disease in primary care setting.

OBJECTIVES: To study the antibiotics prescribing pattern in government primary care clinics in Klang; detailing the type of antibiotics used for the infections treated in primary care. This study further investigated the judicious use of antibiotics by prescribers in nonspecific upper respiratory tract infection (URTI).

METHOD: A total of 2,359 prescriptions with a diagnosis of infection from 24 to 28 June 2013 were collected from 10 government clinics. Prescriptions for nonspecific URTI were then randomly selected to review the appropriateness of antibiotic use based on the McIsaac Score, choice of antibiotics, and dosing.

RESULTS: The top three diagnoses were nonspecific URTI (62.2%), soft tissue injury (STI) (9.1%) and urinary tract infection (UTI) (9.5%). The antibiotic prescribing rate for nonspecific URTI was 27%, STI 85%, and UTI 83.9%. The most commonly prescribed antibiotics were amoxicillin (52.7%) for URTI, cloxacillin (89.1%) for STI, and cephalaxin (52.2%) for UTI. The most preferred choice of antibiotic for nonspecific URTI and UTI, deviates from local guidelines i.e. phenoxymethylpenicillin for URTI and trimethoprim for UTI. For non-specific URTI, 84.1% of patients prescribed with antibiotics had McIsaac score of <2 (antibiotic is likely to be not necessary). Also, 95.2% of patients were first-visit patients, indicating that the antibiotic delay strategy is not popular among prescribers.

CONCLUSION: This study revealed the choice of antibiotic for both URTI and UTI were inconsistent with local guidelines and that there was inappropriate prescribing in URTI. Besides adhering to prescribing guidelines, healthcare providers could have a collaborative effort to improve antibiotic prescribing.

ID No.: 16531
Keywords: antibiotics, primary care clinics, upper respiratory tract infection
P25 PATIENTS’ PERCEPTION TOWARDS DRIVE-THRU PHARMACY SERVICE IN HOSPITAL PULAU PINANG

K.H. Lim, S.Y. Phoon, A. Shanfah, S.T. Lee, P.C. Lim
Pharmacy Department, Hospital Pulau Pinang

INTRODUCTION: The Drive-Thru (DT) pharmacy service was introduced in 2008 at Hospital Pulau Pinang to improve service to patients. However, problems arise when patients fail to comply with the given appointment date. This may be attributed to varying perceptions towards DT pharmacy service.

OBJECTIVES: We aimed to evaluate patients’ perception and satisfaction towards DT pharmacy service and to determine factors contributing to failure to comply with the given appointment date.

METHOD: A cross-sectional survey using validated questionnaires was conducted among DT patients using systematic randomization sampling technique. The survey was conducted through telephone interview. The questionnaire consisted of 4 sections including demographic data, patients’ perception and satisfaction towards DT pharmacy service, and factors contributing to failure to comply with the given appointment date.

RESULTS: A total of 400 patients responded to the interview which rendered a response rate of 95.23%. Majority of the patients had good perception on DT pharmacy service as it shortened the waiting time to collect medicines (91.1%); it was easier to get their medicines compared to the conventional way (93.0%); convenient for the elderly in collecting medicines especially those with walking difficulties (98.5%); and DT pharmacy was easily accessible (82%). Factors which contributed to failure to comply with the given appointment date were forgetfulness (23.1%), busy working (20.3%), confusion with the date (16.1%), and still having medication at home (15.1%). Overall, 95.2% of the patients were satisfied with DT pharmacy service.

CONCLUSION: Most of the patients had good perception and were satisfied with DT pharmacy service. Identification of factors contributing to default of medication collection will help to improve the service further.

ID No.: NMRR-13-1294-15256
Keywords: drive-thru pharmacy, satisfaction, perception

P26 STUDY OF POLYMYXIN PRESCRIBING PATTERN IN A TERTIARY CARE HOSPITAL

K. Ros Sakinah¹, K.S. Thong¹, C.A. Khor¹, H.B. Ker²
¹Pharmacy Department, Hospital Raja Permaisuri Bainun, Ipoh
²Infectious Disease Unit, Hospital Raja Permaisuri Bainun, Ipoh

INTRODUCTION: In Hospital Raja Permaisuri Bainun (HRPB), lack of monitoring and unavailability of local guideline in the early years of polymyxin use cause its usage pattern unsure. Polymyxin usage in HRPB shows an increasing trend throughout the years.

OBJECTIVES: This study looked at the indication, usage pattern and outcome in patients who received polymyxin in HRPB.

METHOD: A retrospective study was conducted on patients who received polymyxin in HRPB from year 2009 until 2011. Patients were traced from their Registered Numbers on polymyxin bin cards. Their medical and medication records were traced from Record Unit and informations were collected as according to objectives using Data Collection Form. Data was analyzed using Stata/IC 11.1.

RESULTS: 91 patients were included in the study. The most prescribed polymyxin was from Critical care unit 54.94% (n=50). In 70.33% (n=64) of the cases, polymyxin was started as first line agent. The most common indication for polymyxin was ventilator-associated pneumonia (VAP) 63.73% (n=58). 63.83% (n=80) of the cultures were obtained from endotracheal tube. In 95.60% (n=87) of the cases, polymyxin was used to eradicate A. baumannii only. In 81.52% (n=75) of the cases, the bacteria targeted was sensitive to polymyxin only. For the outcome, 42.86% (n=39) completed treatment and discharged, 13.19% (n=12) completed treatment but died due to infection(s) and 5.49% (n=5) completed treatment but died due to other reason(s). 26.37% (n=24) did not complete the treatment and died due to infection(s), 4.4% (n=4) did not complete treatment and died due to other reason(s) and 7.69% (n=7) did not complete treatment but discharged from hospital.

CONCLUSION: In HRPB, polymyxin was most commonly prescribed by Critical Care unit and the most common indication was VAP. Polymyxin was mostly used as first line agent and majority of the organism targeted was MDR A. Baumannii. 42.86% of the patients completed polymyxin treatment and discharged.

ID No.: NMRR-11-121-8751
Keywords: polymyxin, prescribing pattern, Acinetobacter baumannii
INCIDENCE AND CAUSALITY IN ADVERSE DRUG REACTION-RELATED ADMISSION TO HOSPITAL: A SYSTEMATIC REVIEW

M. Siti Kamilah¹, H.M. Yvonne², P.S. Amudha²
¹Department of Pharmacy, Hospital Kajang
²College of Life Science and Medicine, University of Aberdeen

INTRODUCTION: Adverse drug reaction related hospitalization has related to the increase in the physical cost of treatment, admissions rates to get acute treatments, prolonged bed occupancy, as well as time and energy for the staff to accommodate the congestion.

OBJECTIVES: To assess the incidence of reported adverse drug reaction related admissions to hospitals including presentation in various hospital departments.

METHOD: A systematic literature review in Medline. Trial drugs, intentional drug overdosing, expert opinions, editorials as well as conference abstracts and non English papers were excluded. MeSH terms and keywords such as adverse drug reactions, drug toxicity, drug hypersensitivity were used. The review followed PRISMA statement guidelines. The data abstraction tool were used to extract the data and finally cross-reviewed by two assessors.

RESULTS: The median percentage for incidence rate was 5.5% that ranges from 0.1% to 53% according to the included studies. The median percentage of preventable adverse drug reaction related admissions was 63% ranging from 2.6% to 91%. Common drugs causing adverse drug reactions were antipsychotics (23.5%) followed by analgesics (12.4%) and cardiovascular agents (10.8%). Apparently, the body systems that were most affected by adverse drug reactions were gastrointestinal (12.2%), skin (11.4%) and circulatory system (10.2%). The Newcastle-Ottowa quality assessment scale by Wells et al (2009) was tested on 31 cohorts, 22 cross-sectional and five case control studies. Of the included studies, 82.2% scored a minimal five point and above and can thus be categorized as moderate to good study quality.

CONCLUSION: The findings suggest that the frequencies for the incidence rates of ADRs reported during hospital admissions were widely varied between eligible studies. The incidence rates have not changed significantly over the years despite the high rates of potential preventability.

Keywords: adverse drug reactions, drug hypersensitivity, drug toxicity, hospital admissions

COMPARISON OF LETROZOLE AND CLOMIPHENE CITRATE FOR INDUCTION OF OVULATION IN WOMEN WITH POLYCYSTIC OVARY SYNDROME

O. Ezazaya¹, P. Thomas¹, M.N. Natasha-Ain²
¹Pharmacy Unit, Hospital Sungai Bakap
²Faculty of Pharmacy, Universiti Kebangsaan Malaysia, Kuala Lumpur

INTRODUCTION: Polycystic ovary syndrome (PCOS) is manifested by anovulation, hyperandrogenism and polycystic ovaries. It is frequent cause of anovulation and accounts for up to 20% of female infertility. Cloimiphene citrate (CC) is the first-line treatment for induction of ovulation in anovulatory PCOS. Letrozole, a selective aromatase inhibitor has been introduced for this indication. Well-designed clinical trials have demonstrated that both letrozole and CC are able to promote follicle growth and maturation. Nevertheless, the data on the effect of these agents on ovulation rate and pregnancy rate are inconclusive and limited.

OBJECTIVES: This study investigated the effects of letrozole and clomiphene citrate (CC) for induction of ovulation in patients with polycystic ovary syndrome (PCOS).

METHOD: This prospective cross-sectional study was carried out in a tertiary hospital. A total of 30 patients with infertility associated with PCOS received either CC 100mg daily or letrozole 5mg daily, given for five days and underwent timed intercourse, were observed throughout the study. All the data were obtained from the patients’ medical records.

RESULTS: Average endometrium thickness was similar in both groups. The mean size of dominant follicle was also similar in both groups. Ovulation occurred in thirteen patients (92.86%) of letrozole group and in nine patients (56.25%) of CC group, which showed a statistically significant difference (p=0.040). However, similar pregnancy rate was observed in both groups (7.1% versus 6.25%, p=1.000).

CONCLUSION: In conclusion, our study demonstrated that the use of letrozole was associated with improved ovulation rate thus, it may be offer as an option for treatment of PCOS related with infertility.

ID No.: UKM1.5.3.5/244/NF-003-2013
Keywords: polycystic ovary syndrome, letrozole, clomiphene citrate, ovulation rate
KNOWLEDGE, ATTITUDE AND PRACTICE ON DRUGS FOR MINERAL AND BONES DISORDER IN HEMODIALYSIS PATIENTS IN HOSPITAL KUALA KRAI

M. Muhammad Affiq, I. Abidah, G. Nurul Fauzaniy, C.I. Nur Diyana, W.A. Wan Nor Azira, I. Nurul Azerah
Pharmacy Unit, Hospital Kuala Krai

INTRODUCTION: Mineral and bone disorder is one of the complications that arise from Chronic Kidney Disease. Awareness regarding knowledge, attitude and practice (KAP) in patient is important for patient’s compliance towards medications.

OBJECTIVES: This KAP surveys was conducted with the aim to know the level of knowledge, attitude and practice regarding drugs for mineral and bones disorder in haemodialysis patients.

METHOD: This cross sectional study involved all haemodialysis patients at Haemodialysis Unit in Hospital Kuala Krai from May 2013 to August 2013. KAP validated questionnaire was used for this purpose. We excluded patients that were on these medications for less than 6 months and patient that 100% depend on caregiver. Patients were group into good knowledge (score>70%), good attitude (score>3) and good practice (score>7) for each category. Data was analyzed using SPSS version 17.0.

RESULTS: Altogether, 41 patients were evaluated for this study. Majority of patients (95%) had good knowledge and 36.6% had good attitude. However, only 7.3% had good practice. There were significant associations between educational level and concomitant disease with attitude (p<0.05). There were weak positive associations found between knowledge and attitude (r=0.157), knowledge and practice (r=0.196), as well as attitude and practice (r=0.143).

CONCLUSION: We concluded that majority of patients had good knowledge but only 36.6% had good attitude. Unfortunately, only 7.3% had good practice. Therefore, our patients had good knowledge with moderate attitude but poor practices toward drugs for mineral and bone disorders.

IMPACT OF PHARMACISTS COUNSELING ON PATIENTS’ MEDICATION KNOWLEDGE IN HOSPITAL PULAU PINANG

A.S.C. Chuah, C.A.I. Foo, K.C. Yong, I.S. Ong, M. Sabita
Pharmacy Department, Hospital Pulau Pinang

INTRODUCTION: Pharmacists provide counseling to increase patients’ understanding towards medications and thus, improve compliance. However, there is not much local data on the impact of pharmacists counseling towards patients’ medication knowledge.

OBJECTIVES: We aimed to assess the impact of pharmacists counseling towards patients’ medication knowledge and to evaluate the association of patients’ education level and area of living with the knowledge. Correlation of number of medications prescribed with knowledge score was also determined.

METHOD: A prospective study to assess patients’ medication knowledge before and after counseling was conducted. Patients with chronic illness and had prescription with more than 4 medications were consented and included in the study. Selected patients were first assessed on their medication knowledge using a validated questionaire with a total score of 5. Then, the pharmacists provided counseling on the name, dose, time of administration, indication and duration of medications. After a month, the patients’ medication knowledge were reassessed.

RESULTS: A total of 103 patients participated. After pharmacists counseling, patients’ medication knowledge score improved significantly from 1.75 to 3.39 (p<0.01) regardless of their education level and area of living. However, patients with tertiary education had better knowledge before and after counseling (p<0.01). Although patients living in urban had better knowledge than rural area before counseling (p=0.02), the knowledge between these two groups of patients were comparable after counseling (p=0.10). There was an average of seven medications prescribed but the number of medications did not correlate with patients’ knowledge (p=0.44).

CONCLUSION: Above all, pharmacists counseling improved patients’ medication knowledge regardless of the education level, area of living and number of medications prescribed.

ID No.: NMRR-12-1420-14309
Keywords: pharmacists counseling, medication knowledge
SAFETY CULTURE AMONG PHARMACISTS AT HOSPITALS AND HEALTH CLINICS IN MALACCA

S. Srima Elina1, L. Mathumalar2
1Bahagian Perkhidmatan Farmasi, Jabatan Kesihatan Negeri Melaka
2Faculty of Pharmacy, Universiti Teknologi Mara, Puncak Alam

INTRODUCTION: The Malaysian Patient Safety Goals have been implemented recently in all government and private health facilities to improve patient safety issues in Malaysian healthcare system. Therefore, there is a need to understand safety culture among healthcare professionals.

OBJECTIVES: The objective of this study is to assess baseline safety culture among pharmacists at hospitals and health clinics in Malacca.

METHOD: A cross-sectional study was performed from September till November 2013, encompassing pharmacy department of three hospitals and health clinics under three district health offices in the state of Malacca. All pharmacists who fulfilled the inclusion criteria were included in the study. The Safety Attitudes Questionnaire (SAQ) was used to assess safety culture dimensions. Data was analyzed using SPSS version 21.

RESULTS: A total of 117 respondents completed the survey resulting in overall response rate of 83.6%. The overall safety culture mean score and the percentage of positive response (score >75) were 65.6±11.0 and 20.5% respectively. This study demonstrated statistically significant (p<0.05) differences in all safety culture dimensions between those who work in hospital and health clinic except for stress recognition. Statistically significant difference (p<0.05) was also observed between different working unit. Negative correlations were seen between reported medication errors and all safety culture dimensions. In contrast, positive relationship was developed between reported medication errors with stress recognition. Teamwork climate was the significant predictor factor for the number of reported medication error (p<0.05, R²=0.179). Age and health clinic institution were the significant predictor factors for overall safety culture mean score (p<0.05, R²=0.167).

CONCLUSION: The safety culture is crucial in improving medication and patient safety. Thus, every effort should be made to promote the safety culture to all healthcare professionals.

ID No.: NMRR-13-556-16533
Keywords: safety culture, pharmacist, Safety Attitude Questionnaire

NATIONAL SURVEY: EXPLORING JOB SATISFACTIONS AMONG HOSPITAL PHARMACISTS IN MALAYSIA

W.O. Wan Azuati1, M.A. Hassali2, Y.Ruhaiyem3, J.Y. Teoh1, C.H. Tan1, G.P. Sun1, A. Norulsaffia1
1Department of Pharmacy, Hospital Taiping
2School of Pharmaceutical Sciences, Universiti Sains Malaysia
3Bahagian Perkhidmatan Farmasi, Jabatan Kesihatan Negeri Perak

INTRODUCTION: Pharmacists turnover at hospitals was less been studied and past studies have found that the reason for leaving was the result of low job satisfaction. This study investigates the level of job satisfaction and intent to leave among government hospital pharmacists.

OBJECTIVES: This study aims to determine the level and contributing factors for job satisfaction among Malaysian hospital pharmacists in the Ministry of Health.

METHOD: This study was conducted using a self-administered, mailed questionnaire to all pharmacists in the Ministry of Health hospitals. The questionnaire consists of demographic characteristics, five facets of job satisfaction and intention to leave the current hospital due to dissatisfaction. Responses on the satisfaction were measured on a 5-point Likert-scale ranging from (1) very dissatisfied to (5) very satisfied and the average of the five responses was calculated. Data were analyzed using the SPSS statistical software.

RESULTS: A total of 2,188 questionnaires were distributed and 1,427 completed questionnaires were returned (65.22% response rate) and analysed. Findings of this study suggested that the hospital pharmacists were moderately satisfied with their job in all the five facets of job satisfaction, with mean satisfaction of 3.23 (SD=0.52). Respondents ranked pay and benefit, as well as working condition as the most important elements that influenced their job satisfaction. They have ranked “overtime compensation” and “facilities” as being “least satisfied” with mean satisfaction of 2.45 (SD=1.11) and 2.91 (SD=0.95). Amongst the respondents, 35% had reported intention to leave their current hospitals due to dissatisfaction. There is much higher incidence of having intention to-leave in younger age group, bigger hospital size, specialist hospital and single pharmacists.

CONCLUSION: Overall the hospital pharmacists were moderately satisfied with their job. Respondents perceived overtime compensation as unrewarding and the facilities provided less desirable.

ID No.: NMRR-12-474-11442
Keywords: job satisfaction, hospital pharmacist, intention to-leave
P33  ASSESSMENT OF HEALTHCARE PROFESSIONALS’ KNOWLEDGE ON INTERACTIONS OF WARFARIN WITH DRUGS, SUPPLEMENTS AND NUTRIENTS IN HOSPITAL AMPANG, MALAYSIA

Pharmacy Department, Hospital Ampang

INTRODUCTION: Warfarin is a highly effective anticoagulant in the management of thromboembolic disease. Anticoagulants are identified by the National Patient Safety Agency (NPSA) as one of four high risk medications that require multidisciplinary interventions to ensure its safe use. Besides, frequent drug and food interactions limit warfarin’s use due to potential fluctuations of INR.

OBJECTIVES: This study aims to evaluate healthcare professionals’ knowledge towards interaction of warfarin with drugs, supplements and dietary vitamin K in Hospital Ampang.

METHOD: Healthcare professionals were surveyed using a validated questionnaire that are comprised of Part I: Drug-Supplement Interactions with Oral Warfarin and Part II: Food Interactions with Oral Warfarin. The study sample included 127 healthcare professionals consisting of 82 physicians, 40 pharmacists and 5 dieticians based on proportional stratified sampling. This was a prospective study using a survey that took three months to complete.

RESULTS: The mean scores (±SD) on the overall test were 60.17±1.3 for dieticians, 55.43±10.1 for pharmacists and 44.6 ±8.1 for physicians, with 100 being the perfect score. Test results revealed that pharmacists scored significantly highest in Part I drug-supplement interactions with 45.62±13.3. For Part II food interactions, dieticians scored significantly highest with mean score of 84.5±1.1 (p<0.05). Physicians from Hematology Department scored significantly higher than physicians from the other departments for the Part I and overall scores (p<0.05). Besides, healthcare professionals were able to correctly identify Vitamin K rich food, scoring an average of 86-100 %.

CONCLUSION: Pharmacists and dieticians scored well in their respective areas of expertise, which is the drug and food interactions respectively, but did not perform so well in other areas. Physicians exhibited lack of knowledge in drug-nutrient interactions of warfarin. Thus, additional training and collaboration between expertises are vital to ensure optimal therapeutic outcomes.

ID No.: NMRR-13-662-17357
Keywords: warfarin, interaction, healthcare professional

P34  ATTITUDES AND PERCEPTIONS OF HEALTHCARE PROFESSIONALS TOWARDS CLINICAL PHARMACY SERVICES IN LAHAD DATU HOSPITAL (APHP-CPS)

A.C.L. Jong, N. Abdul Muin
Department of Pharmacy, Hospital Lahad Datu

INTRODUCTION: Clinical pharmacy is a health science discipline whereby pharmacists provide patient care that optimizes medication therapy, promotes health, wellness and disease prevention. The perceptions of healthcare professionals (HCPs) towards the clinical pharmacy services (CPS) in Lahad Datu Hospital (LDH) are remained unclear despite the establishment of CPS started in year 2009.

OBJECTIVES: To assess HCPs’ attitudes and perceptions towards CPS provided in LDH and to identify the obstacles that hinder the integration of clinical pharmacist into the primary healthcare team (PHT).

METHOD: A cross-sectional survey was conducted via validated structured questionnaires in LDH. A total of 210 questionnaires were distributed to all HCPs worked in LDH by using universal sampling method over 3-month period. The data collected were analysed using SPSS and presented using descriptive statistics.

RESULTS: A total of 206 HCPs (49 physicians and 157 nurses) completed the questionnaire; giving a response rate of 98.1%. The majority of HCPs (86.4%, n=178) perceived that the clinical pharmacist is an important integral part of the clinical ward team while 87.9% (n=181) of them believed that clinical pharmacists can help improve the quality of patient care in LDH. Moreover, 184 (89.3%) of respondents reported that clinical pharmacist is able to minimize medication error and improve patient therapy outcomes. Although most of the HCPs (88.3%, n=182) stated their willingness to cooperate with the clinical pharmacist, however, only about two thirds of the respondents (69.9%, n=144) agreed that there was increasing interest in CPS provided in LDH. Poor communication skills was perceived by the HCPs (28.2%, n=58) as the main problem that obstructs the integration of clinical pharmacists into the PHT.

CONCLUSION: Overall, HCPs in LDH have positive attitudes and perceptions towards CPS. There is a need to improve communication skills among clinical pharmacists for better integration into the PHT.

ID No.: NMRR-13-546-16814
Keywords: clinical pharmacy services, healthcare professionals, perceptions, attitude
THE EFFECT OF WARFARIN BRAND SWITCHING ON INTERNATIONAL NORMALIZED RATIO AND WARFARIN DOSE

W.M.E. Huang, C.S.L. Chew
Pharmacy Department, Hospital Sibu

INTRODUCTION: From 2011 till 2012, we underwent nationwide warfarin brand switching from Orfarin® to Apo-Warfarin®. Different brands differ in formulation and manufacturing process. Being a narrow therapeutic drug, we are unsure whether warfarin brands are interchangeable. Switching warfarin brands may lead to fluctuation in international normalized ratio (INR).

OBJECTIVES: The purpose of our study was to determine the percentage of INR changes after warfarin brand switching and the adjustment of warfarin dose required.

METHOD: Our cross-sectional study data was collected from Sibu Hospital patients who underwent warfarin brand switching from October 2011 to September 2012. We calculated changes in INR (%) before and after brand switching. We also determined the frequency and amount of warfarin dose adjusted to achieve target INR. Analysis was done to determine the association between changes in INR with age, gender, race, cigarette smoking, alcohol consumption, hepatic impairment and renal impairment.

RESULTS: A total of 387 patients under Anticoagulant Clinic follow-up were screened, 157 samples were included. 84.7% samples (n=133) had INR fluctuation documented after warfarin brand switching with percentage mean INR changes of 24.3 (P<0.001). Due to the INR fluctuation, 30.6 % (n=48) samples required 0.3mg dose adjustment (IQR 0.35) and two visits (IQR 2) to adjust their warfarin dose to achieve target INR after brand switching. Non-smokers had larger INR changes, 16.6% compared to only 2.8% in smokers after warfarin brand switching (Z=-2.411, P=0.016). No significant association between difference in INR with age, gender, race, alcohol consumption, hepatic impairment and renal impairment.

CONCLUSION: There were significant changes in INR after warfarin brand switching. Dose adjustments were needed to achieve target INR after brand switching. We strongly do not recommend brand switching. In unavoidable circumstances, INR monitoring for 1 to 2 weeks after brand change is needed to adjust warfarin dose in achieving target INR.

ID No.: NMRR-12-584-12999
Keywords: warfarin, brand switching, international normalized ratio

CLINICAL IMPACT OF EMPIRICAL ANTIFUNGAL THERAPY ON THE SURVIVAL FROM INFECTION IN CHEMOTHERAPY-INDUCED FEBRILE NEUTROPAenic ADULT PATIENTS

S.C. Chongt, P.T. Thomasa, K. Birinderc
aDepartment of Pharmacy, Hospital Ampang
bFaculty of Pharmacy, Universiti Kebangsaan Malaysia, Kuala Lumpur
cDepartment of Pharmacy, Pusat Perubatan Universiti Kebangsaan Malaysia, Kuala Lumpur

INTRODUCTION: Invasive fungal infections (IFIs) are severe complications in neutropaenic cancer patients. They often receive empirical antifungal therapy when fever does not resolve after 4 to 7 days of broad-spectrum antibiotics. High antifungal drug costs, the risk of unnecessary initiation of empirical antifungal drugs, changing epidemiology of IFIs and availability of new, effective and safer antifungal drugs prompt the need to re-evaluate the older paradigms for this strategy.

OBJECTIVES: To study the effect of empirical antifungal therapy on the survival from infection in persistent febrile, neutropaenic patients treated for haematological malignancies.

METHOD: This study was conducted retrospectively in Pusat Perubatan Universiti Kebangsaan Malaysia (PPUKM) by using pharmacy and patients’ medical reports.

RESULTS: 38 patients were enrolled in this study. 31 patients (81.6%) responded to empirical antifungal therapy while 7 patients (18.4%) did not respond. Survival at 30 days after the last dose of the antifungal drug was 92.1%. There was only 1 case of IFI-attributable mortality. Older patients (mean age 63±9 years) had poorer response compared to younger patients (42±15 years; p=0.001) (r=0.467, p=0.002). Patients who did not respond to empirical antifungal were associated significantly with prolonged neutropaenic period (19±4.5 days versus 10±7 days; p=0.001) (r=0.508; p=0.001) and severe neutropaenia (Absolute neutrophil count, 0.17±0.21 x109/L versus 0.57±0.31 x109/L; p=0.002) (r=-0.478; p=0.001). Amphotericin B (42.9%) was the most common empirically prescribed antifungal agent. However, almost half of the patient population treated with amphotericin B (11/38, 28.9%) experienced drug-related side effects. All patients recovered from the side effects when amphotericin B was switched to newer antifungal drugs.

CONCLUSION: These findings supported the need for empirical antifungal therapy. Age, neutropaenic period and neutrophil count affected clinical response to empirical antifungal therapy. Newer antifungal agents with better safety and tolerability profile should be considered as alternatives to conventional amphotericin B.

ID No.: NMRR-13-1051-18355
Keywords: empirical antifungal therapy, febrile neutropaenia, haematological malignancies, survival
## ORAL PRESENTATION CATEGORY

<table>
<thead>
<tr>
<th>Position</th>
<th>Clinical Pharmacy</th>
<th>Pharmacy Practice</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st</strong></td>
<td>LiTe-Care: Clinical Audit of Lipid Lowering Therapy (LLT) Comparing to Cost Awareness Model</td>
<td>Clinical and Economic Impact of Pharmacist-Run Medication Therapy Adherence Clinic (MTAC) versus Standard Care on Type 2 Diabetes Patients</td>
<td>The Distribution of Selected Counterfeit Products and the Awareness of Traditional Medicines Retailers on Such Products in Chow Kit, Kuala Lumpur</td>
</tr>
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<td></td>
<td>Institution: Hospital Queen Elizabeth, Sabah</td>
<td>Institution: Hospital Kuala Lumpur</td>
<td>Institution: Pharmacy Enforcement Branch, Kuala Lumpur &amp; Putrajaya</td>
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<td></td>
<td>Presenter: Yong Vee Sim</td>
<td>Presenter: Navin Kumar A/L Loganadan</td>
<td>Presenter: Adam Henry A/L Sivapatham</td>
</tr>
<tr>
<td><strong>2nd</strong></td>
<td>Minimizing Prescribing Errors in Paediatric Prescriptions from the Emergency &amp; Trauma Department, Hospital Sultanah Aminah, Johor Bahru (ETD HSAJB) Through Introduction of A Medication Dosing Guide</td>
<td>Comparison of a Portable Device and Conventional Laboratory Measure INR in Duchess of Kent Hospital, Sandakan</td>
<td>Validation of a Reverse Phase High Performance Liquid Chromatographic Method for Detection of Dexamethasone, Hydrocortisone Acetate and Betamethasone in Herbal Preparations</td>
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<td>Institution: Hospital Sultanah Aminah, Johor</td>
<td>Institution: Hospital Duchess of Kent, Sabah</td>
<td>Institution: National Pharmaceutical Control Bureau, Selangor</td>
</tr>
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<td></td>
<td>Presenter: Haliza binti Abd. Jalal</td>
<td>Presenter: Shim Yee Wei</td>
<td>Presenter: Hasniza binti Zaidan</td>
</tr>
<tr>
<td><strong>3rd</strong></td>
<td>Post Hemodialysis Rebound of Vancomycin Plasma Concentration: A Quasi Experimental Study Design in Queen Elizabeth Hospital</td>
<td>Association of Asthma Control with Medication Adherence and Quality of Life in Adult Asthma Patients in Hospital Melaka</td>
<td>Kajian Tahap Pengetahuan Penjawat Awam di Kota Kinabalu Mengenai Keperluan Ubat Berdaftar</td>
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<td>Institution: Hospital Queen Elizabeth, Sabah</td>
<td>Institution: Hospital Melaka</td>
<td>Institution: Pharmacy Enforcement Branch, Kota Kinabalu</td>
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<td>Presenter: Yew Sook Foon</td>
<td>Presenter: Suhada binti Ahad</td>
<td>Presenter: Zaimie binti Masrin</td>
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</tbody>
</table>

**OVERALL WINNER:**
Yong Vee Sim, Hospital Queen Elizabeth
Title - LiTe-Care: Clinical Audit of Lipid Lowering Therapy (LLT) Comparing to Cost Awareness Model
<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>1st</strong></td>
</tr>
<tr>
<td><strong>Analysis in the Occurence and Management of Breast Cancer in a District Specialist Hospital</strong></td>
</tr>
<tr>
<td>Institution: Hospital Selama, Perak</td>
</tr>
<tr>
<td>Presenter: Yean Yi Lyn</td>
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<tr>
<td><strong>2nd</strong></td>
</tr>
<tr>
<td><strong>The Prevalence and Awareness towards Hypertension Control among Healthcare Employees in the Kerian District, Perak</strong></td>
</tr>
<tr>
<td>Institution: Hospital Taiping, Perak</td>
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<tr>
<td>Presenter: Wan Azuati binti Wan Omar</td>
</tr>
<tr>
<td><strong>3rd</strong></td>
</tr>
<tr>
<td><strong>Evaluating De-Escalating Therapy for Carbapenems in Critical Wards in Hospital Sultanah Bahiyah</strong></td>
</tr>
<tr>
<td>Institution: Hospital Sultanah Bahiyah, Kedah</td>
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<tr>
<td>Presenter: Tan Zi Siang</td>
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<tr>
<td><strong>4th</strong></td>
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<tr>
<td><strong>Factors of Adverse Drug-Reactions (ADR) Under-Reporting and the Effect of ADR Promotion on the Number of ADR Reports Received in Hospital Putrajaya</strong></td>
</tr>
<tr>
<td>Institution: Hospital Putrajaya</td>
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<tr>
<td>Presenter: Aina Yazrin binti Ali Nasruddin</td>
</tr>
<tr>
<td><strong>5th</strong></td>
</tr>
<tr>
<td><strong>Drug Utilization Review (DUR) on Antidiabetic Drugs at Kuala Langat District Health Office</strong></td>
</tr>
<tr>
<td>Institution: Hospital Kuala Lumpur</td>
</tr>
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<td>Presenter: Mohd Dziehan bin Mustapa</td>
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Ministry of Health Malaysia

All Invited Speakers and Judges

All Contributors, for their support and contribution towards making this conference a success; and

All who have assisted in one way or another.
LOCATION PLAN

LEVEL 1

Level 1 Plan

LEVEL 2

Level 2 Plan

LEVEL 2 MEZZANINE

Level 2 Mezzanine Plan

LEGEND:

- ELEVATORS
- HOSE REEL
- FIRE EXTINGUISHER (ABC)
- ALAT PEMADAM API (ABC)
- (ABC)
- (CO²)