Name: NUR WAHIDA BINTI ZULKIFLI
Title: ASSESSMENT OF PHARMACISTS, PUBLIC AND GENERAL RETAILERS
PERSPECTIVES, AWARENESS AND KNOWLEDGE OF REGISTERED
DRUGS AND UNREGISTERED DRUGS IN KLANG VALLEY
Supervisor: PROF. DR. NOORIZAN ABD AZIZ (MS)
            PROF. DR. YAHAYA HASSAN (CS)
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The aims of this study were to explore pharmacists’ perception towards the
contribution factors for the existence of unregistered drugs in the market,
the reasons for the public to select the unregistered drugs, to determine the
association between the awareness of general retailers and the offences as
well as to develop and validate a knowledge tool towards registered drugs
and to identify the association with the knowledge of the public and socio-
demographics. This study used the action research concept. Three types
of participants were involved; pharmacist, public and general retailers and
the setting around Klang Valley area. Two different semi-guided and face-
to-face interviewed and purposive selection criteria were used to explore
the pharmacist (n=16) and public (n=21) perception. The retrospective
data (n=1441) from inspection report in Selangor was used to determine the
association of awareness and offences amongst general retailers. The
instrument constructed by analysing the specific literature in the area of
registered drugs information in Malaysia. Then the involvement of expert
panel (n=10) expertise to validate the content and public (n=10) for the
reproducibility. Then, followed by the pilot test (n=100), and continued with
a final survey (n=466) by using a convenient sample. The reproducibility
obtained via the intraclass correlation coefficient by using the test-retest
method. Internal consistency assessed using Cronbach’s alpha and construct
validity used exploratory factor analysis. The thematic content analysis for
both of the perceptions identified pharmacists’ perception (25 themes) and
publics’ perception (7 themes). The majority of the pharmacists believed
that low health literacy is one of the primary reasons of the contributing
factors for the existence of unregistered drugs. Moreover, the majority of
the public believed that the reason they select the unregistered drugs is
because of the familiarity of the products and appearance of the packaging.
Instead, a majority of the public who did not select the unregistered drugs
believed the absence of certain characteristics of the packaging and the
authorised sticker. In total, only 32.9% of general retailers were aware of
registered drugs and 67.1% general retailers were not aware of registered
drugs. The result showed there was an insignificant association (p=0.226)
between awareness and offences. The final version of the questionnaire
had 12 questions which divided into five areas of information that needed
for educating the consumer on registered drugs. This questionnaire had
a clarity index of 8.78 ± 0.51. The intraclass correlation coefficient was
0.96, and Cronbach’s alpha, 0.866. Factor analysis revealed five factors
associated with the knowledge areas. The final survey conducted and the
final scores compared with the socio-demographic participants showed that
age, race, the level of education and occupation significantly associated
with levels of knowledge except for gender (p=0.485). This study has
found that by exploring and investigating pharmacist, public and general
retailers regarding these issues give a convergent answer that the main
contributor of the unregistered drugs is the low level of knowledge and
awareness towards registered and unregistered drugs. Thus enhancement of
consumers’ knowledge is one of the leading solutions that government can
improve in the future.

Name: ROSLIANA BT. ROSLI
Title: PREDICTORS FOR DRUG UTILIZATION AND DRUG RELATED PROBLEMS
IN HOSPITALIZED NEONATES
Supervisor: PROF. DR. NOORIZAN ABD AZIZ (MS)
            PROF. DR. MOHAMED MANSOR MANAN (CS)

Despite complex pharmacotherapy management in neonates, the
epidemiology of drug utilization, drug related problems (DRPs) and their
predictors in hospitalized neonates in Malaysia are unknown. Thus, the aims
of this study were to examine the drug utilization profile, DRPs and their
predictors in hospitalized neonates. A systematic review was conducted prior
to the actual study to determine the prescribing patterns and methodologies
used for reporting drug utilization in hospitalized neonates. Two projects were
undertaken under this study. Project I was conducted at Hospital Sultanah
Aminah, Johor Bahru. Project I was carried out in Medical Record Office
(retrospective) and neonatal intensive care unit (NICU) and neonatal wards
(prospective). Patients’ medication charts, ward notes and laboratory data
were reviewed daily and progress of the selected patients in the ward were
documented. Logistic regression was used to analyse potential risk factors
associated with use of ≥ 5 drugs and DRPs occurrence. As Adverse Drug
Reaction (ADR) is a subset of DRPs, Project II was carried out at National
Pharmaceutical Regulatory Agency (NPRRA) using the data from the national
pharmacovigilance database, QUEST2 system to examine the characteristics
and prevalence of ADRs in neonates in contrast to other paediatric population.
The systematic review revealed that neonates are exposed to a high number
of drugs, with antimicrobials being the most predominantly prescribed. Various methods have been used to quantify drug consumption
in neonates but no study from Malaysia was identified. In project I, a
total of 302 neonates were included in the study. The majority of neonates
admitted to NICU and neonatal wards were preterm (63.2%, n=191) and
LBW infants (64.6%, n=195). On average, the neonates were admitted for
28.4 days and there were 2715 drugs documented. Antimicrobials for systemic use (n=1235, 45.5%) were the most commonly prescribed
drugs, with benzylpenicillin (n=293) and gentamicin (n=275) being the
most predominant. Number of diagnoses or problems was found to be a
significant predictors for neonates to be prescribed with ≥ 5 drugs. In
total, 768 DRPs were identified for 265 patients, whom had at least one
ADR. The overall incidence of DRPs was 87.7% and treatment safety
which relates to adverse drug events had the highest frequency amongst
the reported problems, 67.1% (n=515). A retrospective analysis of ADRs
reports received by the national pharmacovigilance centre in project II
found that antibacterial for systemic use were commonly associated with
ADRs in Malaysian children with majority of them manifested through skin
reactions. ADRs reported for neonates was lower than other children
age categories. Inappropriate dose, 60.0% (n=572) and drug selection
21.4% (n=204) were the common causes for DRPs identified. The number
of drugs prescribed was the only potential risk factor that was found to be
significant for the occurrence of DRPs. Neonates are exposed to high
number of drugs and are at risk of developing DRPs. Pharmacists should
set priority for the preterm and LBW neonates who have multiple diagnoses
and prescribed with multiple drugs in order to minimize the risks of DRPs
and subsequently improve efficiency of clinical pharmacy services.