

Research Conducted by DRUM

Research Title	An Investigation into Perioperative Antibiotic Use during Lower Segment Caesarean Sections (LSCS) in Four Hospitals in Oman
Arabic Title	
Domains/Directorate	Directorate of Rational Use of Medicines, Ministry of Health
Aims /Objective	To investigate the prescribing patterns for antibiotics used perioperatively in various surgical procedures
Research type /Design	Retrospective exploratory study
Target Population /Groups	Female patients at 4 major hospitals who had undergone emergency or elective Caesarean sections
Sample type & size	510 or approximately 20% of the annual number of LSCS surgeries. Patients were selected from the total LSCS surgery records at each facility by a systematic random sampling method
Data collection tools/period	Use of the Hospital Al Shifa health information system or Patients' Medical Records. Study started in 2005 until 2008 MS Excel used for data entry and analysis
Major findings	<ul style="list-style-type: none"> • Only 1 hospital had written guidelines for the use of antibiotics in these surgeries • None of the 4 hospitals used the MoH guidelines from 1998 • Each hospital used a different protocol • A second generation cephalosporin was the most common agent used • Metronidazole was commonly added to the regimen in most cases • Majority of patients received 3 doses of antibiotics • One hospital routinely gave 5 days of prophylaxis and used 3rd generation cephalosporins
Publication (journal, conference, workshop)	Gunn B, et al. OMJ. 24, 179-183 (2009); doi:10.5001/omj.2009.35 Results presented at MOGP workshops

Research Title	Monitoring of Patients on Atypical Antipsychotics in Oman. Are they Receiving Proper Pharmaceutical Care?
Arabic Title	
Domains/Directorate	Directorate of Rational Use of Medicines, Ministry of Health
Aims /Objective	To discover what types of monitoring & precautions are taken with patients on the antipsychotic olanzapine considering its potential diabetogenic effects
Research type /Design	Retrospective investigational study
Target Population /Groups	The total population of patients receiving antipsychotic therapy with the atypical antipsychotic olanzapine
Sample type & size	704 patients. Final study group was 359 patients at 2 of the largest hospitals. This was a prospective study of a total population. The study was stopped as it became obvious that almost none of the monitoring parameters were being checked on a regular basis.
Data collection tools/period	Patient files or patient records from the Hospital Information Al Shifa system. MS Excel was used to create database and conduct calculations
Major findings	In spite of the dangerous side effects and potential economic burden of iatrogenic disease only a minority of patients had <ul style="list-style-type: none"> • Weight checked initially followed by regular monitoring • Random or fasting blood glucose measured • Lipid profile checked at least annually In addition: <ul style="list-style-type: none"> • A large number of co-meds are given • Combined treatment with conventional antipsychotics was found to be common • Little or no evidence of “washout” between the treatments • Too many patient proxies collect medicine for patient so patients are not monitored • It was noted that some patients also on Lithium therapy had no blood level results annotated in their record
Publication (journal, conference, workshop)	Unpublished Report submitted to higher authorities in MoH ICIUM Conference in Alexandria Egypt 2011

Research Title	Prescribing of Salbutamol Syrup in 5 Primary Health Centres
Arabic Title	
Domains/Directorate	Directorate of Rational Use of Medicines, Ministry of Health
Aims /Objective	Salbutamol syrup is the least desirable form of the medicine due to lack of efficacy and increased side effects. Its use has been increasing disproportionately throughout the Sultanate. There are pockets of high use and other facilities where little or none is used. The criteria for its use needed to be investigated
Research type /Design	Survey and clinical audit of retrospective random sample
Target Population /Groups	Five Primary Health Care Facilities (PHC) all in Wilayat A'Seeb, Muscat governorate
Sample type & size	A total of 494 cases were audited from the 5 facilities. A systematic random sampling method was used to draw a sample from all patient prescribed salbutamol syrup at each facility
Data collection tools/period	MS Excel was used to record all data Calculations were done using Excel and by transferring coded data to SPSS v 14.00. The survey was conducted in 2007
Major findings	<ul style="list-style-type: none"> • Salbutamol syrup is mainly used in children • It is often prescribed for children under 2 years which is an unlicensed indication in most countries • Salbutamol syrup is largely used as a placebo for patients (especially children) with acute respiratory infections • The dosage and frequency prescribed is often sub-therapeutic • The duration of use is very variable and usually 3 – 5 days • Salbutamol syrup is often co-prescribed with cough mixtures, analgesics and/or antihistamines • Antibiotics are infrequently co-prescribed • Many respiratory examinations are described as “wheezes” or bilateral rhonchi which would normally be an indication for salbutamol • There are very few cases diagnosed as asthma • Syrup is often prescribed after nebulisation with salbutamol alone or in combination with ipratropium. • On rare occasions an additional salbutamol inhaler (MDI) is prescribed
Publication (journal, conference, workshop)	Unpublished Report submitted to higher authorities in MoH ICIUM Conference in Alexandria Egypt 2011

Research Title	Changing Antibiotic Prescribing at a Major Hospital
Arabic Title	
Domains/Directorate	Directorate of Rational Use of Medicines, Ministry of Health Khoula Hospital, Al Wattaya, Ministry of Health
Aims /Objective	To investigate, conduct an intervention and monitor the outcome of attempts to change an antibiotic policy
Research type /Design	An ongoing multiple intervention to change practices in prescribing of antibiotics
Target Population /Groups	Major hospital in Oman. All specialities prescribing and using antibiotics
Sample type & size	Not applicable. Time series multiple intervention
Data collection tools/period	Monitoring of antibiotic use over a 5 year period (2001 – 2006). Face to face discussions with key stakeholders. Focussed group presentations and discussions with specialists
Major findings	With guidance, the hospital came up with their own protocols for antibiotic prescribing in each specialist area of care: orthopaedics, neurosurgery, ICU, burns unit, obstetrics and gynaecology. Other factors which could have had an influence: <ul style="list-style-type: none"> • Hospital gained autonomy • Clinical pharmacists started in 2005 • Problems with <i>Acinetobacter baumannii</i>
Publication (journal, conference, workshop)	Unpublished To be presented to the ICIUM conference in Alexandria Egypt, April 2011

Research Title	Medicine Utilisation and Trend Analysis in the Public Sector of Oman																																																					
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Domains/Directorate	Directorate of Rational Use of Medicines, Ministry of Health																																																					
Aims /Objective	To study the pattern of use of medicines within the MoH facilities and including Royal Hospital																																																					
Research type /Design	Trend Analysis																																																					
Target Population /Groups	All governmental facilities including Royal Hospital																																																					
Sample type & size	National																																																					
Data collection tools/period	<p>Raw utilisation data were supplied by the DGMS and IT Directorate in Royal Hospital.</p> <p>Total consumption of appropriate medicines in milligrams was converted to Defined Daily Doses (DDD) as defined by the ATC/DDD classification system of the WHO Collaborating Centre for Drug Statistics Methodology.</p> <p>DDD per 1000 Population per day was the major parameter calculated for each drug</p> <p>MS Excel was used for the main drug database and for the creation of pivot tables and pivot charts</p>																																																					
Major findings	<table border="1"> <thead> <tr> <th colspan="2">Positive Trends</th> </tr> </thead> <tbody> <tr> <td>In MOH Omeprazole is not being overused in preference to H2 blockers but ratio is declining - 2006 (1:15) - 2009 (1:4). At RH the ratio is 2:1 in favour of the PPI</td> <td></td> </tr> <tr> <td>LMW Heparins have now overtaken heparin use and more so at RH</td> <td></td> </tr> <tr> <td>Aspirin (low dose) use is increasing in line with global trends for primary prevention of cardiovascular events At RH there is a decline in aspirin consumption</td> <td></td> </tr> <tr> <td>Clopidogrel use has been increasing in specialist cases and dipyridamole use remains steady. 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Research Title	The Use of Medicines in Oman – Public Knowledge, Attitude And Practice
Arabic Title	استعمال الأدوية في عمان- معرفة ومواقف وممارسات المجتمع
Domains / Directorate	Directorate of Rational Use of Medicines (DRUM) Ministry of Health
Aims / Objective	To identify the common problems of medicine use in the community in Oman
Research type / Design	A prospective, cross-sectional public KAP survey
Target Population / Groups	Patient or their care-takers on exit from primary health care centers in all the health regions
Sample type & size	Convenient sampling (6,675 respondents interviewed in 75 primary health care centers)
Data collection tools/period	A written pre-tested questionnaire forms for structured interview / 2006-2007
Major finding	<p>In general there was a lack of knowledge about the appropriate use of medicines and inadequate attitudes & beliefs towards the use of medicines in the community, e.g.</p> <ul style="list-style-type: none"> • 66% visited multiple facilities on the same date for the same complaint • 51% failed to go for follow up to the same health facility • 39% didn't accept non-drug therapy • 43% didn't ask the health providers where to store their medicines at home • 70% stopped taking their medicines when symptoms disappeared • 61% didn't realize that injections are the riskiest dosage form • 54% had definite colour and taste preference • 68% never consulted dispenser when practicing self-medication • 55% stored their medicines in a fridge • 41% keep left-over medicines for future use
Publication (Journal, Conference, Workshop)	<ul style="list-style-type: none"> • SQU Med J, Aug 2009; 9:124-31. • Pharmacological newsletter of the DRUM, Sep 2007; 3(2):2-4 • Ministry of health Oman website) (http://www.moh.gov.om/nv_menu.php?fNm=ports/report.htm.) • 4th International pharmacy conference 25-26/11/2008, Muscat, Oman • Several national and regional workshops organized & conducted by DRUM for doctors, pharmacists, assistant pharmacists, health educators and health supporting groups

Research Title	Household Survey on Medicine Use in Oman
Arabic Title	مسح أسري حول استخدام الدواء في المجتمع في عمان
Domains / Directorate	Directorate of Rational Use of Medicines (DRUM) Ministry of Health
Aims / Objective	To assess the use & storage of medicines in the community & identifying related problems
Research type / Design	A prospective, cross-sectional household survey
Target Population / Groups	Households from urban & rural villages
Sample type & size	The locations were chosen by convenient sampling & the Households by random sampling. (1050 households from 12 villages in 6 Wilayat located in 4 health regions)
Data collection tools/period	A written pre-tested structured interview questionnaire along with direct observation / 2009
Major finding	In general the overall results suggest an inappropriate use of medicines among the community, e.g. <ul style="list-style-type: none"> • 44% households with chronic patients • 52.80% households using traditional medicines • 95.00% households who had medicines at home • 6 medicines was the average number per household • 45 medicines was the maximum number found in a household • 45.83% households with antibiotics • 10 was the maximum number of antibiotics found in a household • 15.15 % respondents who don't check the expiry date • 12.41% medicines in the households were already expired • 61.31% households keep left-over medicines • 31.64% medicines in homes were not in use • 92.05% medicines in homes inadequately labeled • 65.86% households didn't know the correct dosage
Publication (journal, Conference, Workshop)	<ul style="list-style-type: none"> • WHO website (http://apps.who.int/medicinedocs/documents/s17055e/s15e.pdf) • Pharmacological newsletter of the DRUM, May 2010,6(1):9-11 • Ministry of health Oman website) (http://www.moh.gov.om/nv_menu.php?fNm=ports/report.htm.) • Several national workshops organized & conducted by DRUM for doctors, pharmacists, assistant pharmacists, health educators and health supporting groups

Research Title	Prescribing Patterns of Nurses in Oman
Arabic Title	أنماط وصف الأدوية من قبل فئة التمريض في عمان
Domains / Directorate	Directorate of Rational Use of Medicines (DRUM) Ministry of Health
Aims / Objective	To investigate the current prescribing practices of nurses & identifying their prescribing rationality
Research type / Design	A retrospective, cross-sectional study based on WHO/INRUD prescribing indicators
Target Population / Groups	Prescriptions written by nurses at primary health care (PHC) facilities
Sample type & size	Systematic random sampling (1673 prescriptions written by nurses from 55 PHC facilities in all the health regions were studied)
Data collection tools/period	Forms designed according to WHO/INRUD recommendation / 2008
Major finding	In general there was inappropriate prescribing of medicines, e.g. <ul style="list-style-type: none"> • 2.2 medicines was the average number per prescription (range: 1.7-2.4) • 2 or > medicines found in large number of prescriptions • 54.19% medicines prescribed by generic name • 76.33% medicines prescribed from the Approved List of Medicines for Nurses • 30.96% of prescriptions containing antibiotics • 5.20% of prescriptions containing injectables • Most of the prescriptions did not contain the necessary basic patients' information (patient's address, sex, age/DOB, weight) • Some of the prescriptions did not contain the necessary medicine's information (strength, dosage forms, frequency & duration)
Publication (journal, Conference, Workshop)	<ul style="list-style-type: none"> • National workshop organized & conducted by DRUM for nurses representing all health regions

Research Title	Consultation & Dispensing Times at Primary Health Care Facilities in Oman
Arabic Title	وقت المعاينة وصرف الدواء في مرافق الرعاية الصحية الأولية بسلطنة عمان
Domains / Directorate	Directorate of Rational Use of Medicines (DRUM) Ministry of Health
Aims / Objective	To assess the current consultation & dispensing times as patient care indicators in the primary health care (PHC) facilities & its correlation with certain variables
Research type / Design	A prospective, cross-sectional study
Target Population / Groups	Outpatients who visited the facilities for consultation & those for whom medicines were dispensed on the day of the investigation
Sample type & size	Stratified random sampling (100 patients from each of 44 primary health centers in all the health regions of the country with total 4400 patients)
Data collection tools/period	Patient care form based on the one suggested by WHO/INRUD / 2008
Major finding	<p>In general the overall mean consultation & dispensing times were too short & below the average time that should be spent, e.g.</p> <ul style="list-style-type: none"> • The overall mean consultation time (CT) was 5.69 min (range: 2.00-12.90 min) • The overall mean dispensing time (DT) was 102.23 sec (range: 30.20-351.60 sec) • The more the average OPD visits (> 60) the shorter the mean CT (4.34 min) & DT (82.22 sec) • The least the average OPD visits (< 30) the longer the mean CT (6.91 min) & DT (127.56 sec) • The more the average number of medicines per prescription dispensed (> 3) the longer the mean DT (118.73 sec) • The least the average number of medicines per prescription dispensed (< 2.5) the shorter the mean DT (96.89 sec) • There was a difference in CT & DT seen between the results in the respective PHC facilities & among the regions • There was slight difference in CT & DT with regards to the location, class of prescriber & dispenser, & type of prescription
Publication (journal, Conference, Workshop)	<ul style="list-style-type: none"> • CT at PHC facilities in Oman: Pharmacological newsletter of The DRUM, Apr 2009; 5(1):9-10. • (http://www.moh.gov.om/nv_menu.php?fNm=ports/report.htm.) • DT at PHC facilities in Oman: Pharmacological newsletter of the DRUM, Sep 2009; 5(1):10-12. • Several national and regional workshops organized & conducted by DRUM for doctors, pharmacists, & assistant pharmacists.