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Dr. Rimal Mousa

Education

September 2013 – August 2017 Doctor of Philosophy (PhD) in health economics, University of Nottingham, UK

Investigating the cost-effectiveness of using different treatment strategies in older women with primary breast cancer: systematic review and economic model to inform value based pricing, health policymaking and reimbursement

Sept 2009 – July 2011 MSc degree in clinical pharmacy with G.P.A: 3.78 , The first rank. Excellent

(The evaluation of the development of anti-insulin neutralizing antibodies in diabetic patients treated with exogenous insulin)

Sept 2004 – Jul 2009 BSc University of Jordan /Faculty of pharmacy- with G.P.A: 3.92 , The third rank. Excellent

Employment History

August 2022-To date Associate professor in health economics and public health

August 2017– 2022 Assistant professor of Health economics and policy, University of Jordan

Oct 2012 – July 2013 Teaching assistant, University of Jordan/ School of Pharmacy

Professional Experiences

One year training at the Hospital of the University of Jordan, including administration and prescription of drugs in all departments of the hospital

Three months On-The-Job-Training in “Pharmacy One” in Amman/ Jordan

5 month training in JU hospital as clinical pharmacist in outpatient and inpatient setting, make clinical Rotation with physicians in different department (infection, pediatric, surgery, GI, dialysis) discuss with them drug related problem In term of safety and efficacy (based on guidelines and evidence based medicine) and Make patient education about his/her medications(in both knowledge and adherence)

Member at pricing committee in the JFDA from 2022-2024

Member at the HTA steering committee at the Ministry of Health 2023 until present

Coordinator of the Health economics and policy master program held at the Public Health institute at the university of Jordan

Research Experience/Skills

September 2013-July 2014. Conducting a systematic review of economic evaluation using different treatment strategies in postmenopausal women with primary breast

Skills: Evidence based medicine, systematic literature review using a large number of database, including NHS Economic Evaluation Database, Cochrane Library, Ovid Medline, PubMed, and EMBASE, evidence based medicine, quality and modelling methodology assessment of studies, critical appraisal, screening the literature and summarize the key parameters using Microsoft access

July 2014- March 2015. Data analysis of a large longitudinal database of older women, who were diagnosed with primary breast cancer at age over 70 years, identifying treatment pathways, clinical effectiveness, and resource use.

Skills: Regression analysis including survival analysis for time to event data, multinomial logistic regression and generalized linear model for imputing missing data

March 2015-Dec 2015. Conducting an economic evaluation alongside an observational studies

Skills: Effectiveness and cost analysis, bootstrapping, utility mapping using multinomial logistic regression, propensity score matching to minimize the selection bias

December 2015-March 2016. Conducting an economic evaluation based on a decision analytical model combining data from different sources to inform **value based pricing and reimbursement**

Skills: designing a Markov model based on literature, Monto Carlo simulation, bootstrapping, conducting a decision analytical model using excel, regression analysis such as Weibull regression, costing analysis, health related quality of life and utility mapping

Research Experience/Skills

Sep 2018 to 2020

Exploring patterns of treatment pathways of Breast cancer patients in Jordan: A focus on cost and survival

Jan 2018 to 2020

Developing a Markov Model for the Cost-Effectiveness of Pharmacist Care among diabetic patients in Jordan **Skills: Markov Modelling**

2018 to 2022:

Conducting an empirical analysis of hospital records, public reports, personal interviews and expert discussion to estimate organizational and departments cost to charge ratio (CCR), average costs and cost component of selected medical procedures, imaging, and laboratory tests to facilitate accurate planning and budgeting as well as better financing for universal health coverage. To which these master price list relates to the true cost is crucial to a hospital sustainability and profitability. **Skill: Pricing, universal health coverage and social health insurance**

2018-2022 Analysis of cost to charge and average costs in Jordanian public health providers: Understanding health costs of procedures, lab tests and images. **Skills: Health policy making**

2019- to date: Insights on the current practice, use and needs for value based decision making in Jordan and setup a cost-effectiveness threshold for **reimbursement and inform health policy making. Skills: Qualitative research**

Peer reviewed-Publications/working paper

Peer-reviewed Journals

- **Mousa R**, Hammad EA, Jaghbir M. Direct medical costs of breast cancer in Jordan: cost drivers and predictors Expert Review of Pharmacoeconomics and Outcomes Research. 2021, 21(4):647-654. <https://doi.org/10.1080/14737167.2021.1859372>
- **Mousa R** and Hammad EA. Cost-Effectiveness of Pharmacist Led Care in Type 2 Diabetic Jordanians: A Markov Modelling of Cardiovascular Diseases Prevention. Expert Review of Pharmacoeconomics and Outcomes Research. 2021 ;21(5):1069-1079. <http://doi.org/10.1080/14737167.2021.1838900>

- **Mousa R**, Melhem JM and Hammad EA. Epidemiology of women diagnosed with breast cancer in Jordan: A 5-year survival analysis and patients' characteristics from 2 public hospitals. Saudi medical Journal. 2021, 42 (7) 776-783; DOI: <https://doi.org/10.15537/smj.2021.42.7.20210112>
- Developing an economic model for assessing the cost-effectiveness of primary endocrine therapy in treating older women with primary breast cancer: a systematic review. Working paper
- Abdel Jalil M, Alsous MM, Abu Hammour K, Saleh MM, **Mousa R**, Hammad EA. Role of Pharmacists in COVID-19 Disease: A Jordanian Perspective. Disaster medicine and public health preparedness 2020:1-7.
- Hammad EA, **Mousa R**, Hammad AA, Al-Qudah M. Awareness, knowledge, and attitudes of health professions students toward health economics and pharmacoeconomics education in Jordan. Currents in Pharmacy Teaching and Learning. 2020, 12(9)1072-1080.
- Abdel Jalil M, Alsous MM, Hammad EA, **Mousa R**, Saleh MM and Hammour K. Perceived Public Stress Among Jordanians During the COVID-19 Outbreak. Disaster Medicine and Public Health Preparedness. 2020, 9: 1–5.
- Hammad EA, Alabbadi I, Taissir F, Hajjwi M, Obeidat NM, Alefan Q& **Mousa R**. Hospital unit costs in Jordan: insights from a country facing competing health demands and striving for universal health coverage. Health economics review. 2022, 12 (11)1-9.
- Hammad EA, **Mousa R**, Massad E, Al-Abbadi I. Analysis of cost to charge and average costs in Jordanian public health providers: Understanding health costs of procedures, lab tests and images. Journal of Pharmaceutical Health Services Research. In press.

Published Conference Abstracts

Conference presentations

Mousa R, Chen LC, Cheung KL. An evidence-based model design to inform the cost-effectiveness evaluation of primary endocrine therapy and surgery for older women with primary breast cancer. Value in Health. 2014;17(7):A638.

Mousa R, Chen LC, Cheung KL. An evidence-based model design to inform the cost-effectiveness evaluation of primary endocrine therapy and surgery for older women with primary breast cancer. Poster Presentation. Primary breast cancer symposium 15 March 2015

Mousa R, Chen LC, Cheung KL. Cost-effectiveness of primary endocrine therapy against surgery for older women with primary breast cancer. Poster Presentation. ISPOR 2016. Annual international congress 24 May 2016, Washington DC.

Mousa R, Hammad EA. Cost-Effectiveness of Pharmacist Led Care in Prevention of Cardiovascular Diseases in Type 2 Diabetic Jordanians: A Markov Model simulation. *FIP Regional Conference for the Eastern Mediterranean*. April 2019

Mousa R, Hammad EA, Hammad, Al-Qudah M. Awareness, Knowledge, and Attitudes of Health Professions Students Toward Health/Pharmacoeconomics Education in Jordan. The first international health conference for the Jordan Healing and Health Bank. March 2020.

Hammad E , Alabbadi I, Fardos T, Hajjawi M , Obeidat N , Alefan Q , Mousa R. Value in Health, Volume 24, Issue 12, S2 (December 2021). Hospital Unit Costs in Jordan: An Analysis Where Competing Demands Meets with a Thrive for Better Financing of Universal. Value in Health, Volume 24, Issue 12, S2 (December 2021).

R Mousa and E Hammad. Cost-Effectiveness of Pharmacist-LED Care versus Usual Care in Type 2 Diabetic Jordanians: A Markov Modeling of Cardiovascular Diseases Prevention. Value in Health. 25 (1) S60 (December 2021)

Naser A¹, Bilbisi M², Mousa R³. Cost-Minimization Analysis of Delafloxacin Versus Standard of Care for the Treatment of Acute Bacterial Skin and Skin Structure Infections (ABSSSI) in Jordan. Value in Health. 2023; 26(12) S175.

Naser A¹, Bilbisi M², Mousa R³. Cost-Effectiveness Analysis of Isavuconazole Versus Voriconazole for the Treatment of Invasive Aspergillosis in Jordan. Value in Health. 2023;26(12) S116.

Naser A¹, Bilbisi M², Mousa R³. Cost-Effectiveness Analysis of Isavuconazole Versus Liposomal Amphotericin for the Treatment of Invasive Mucormycosis in Jordan. Value in Health. 2023; 26(12) S145.

Speaker at conferences

Four talks at the Evidence Based Medicine and Health economic conference. 8-12 December 2020

Talk at the School of Pharmacy symposium 8 April 2021. Cost-Effectiveness of Pharmacist Led Care in Prevention of Cardiovascular Diseases in Type 2 Diabetic Jordanians: A Markov Model simulation

Presenter for 8 sessions at the “Basics of Health Economics (HE) and Pharmacoeconomics (PE)” Workshop held virtually between 25/5 and 7/7/ 2021 for Jordanian and Iraq stakeholders

Speaker and consultant at the regional center for disease control and prevention

Presenter at the HTA assessment: Basics and applications summits on 11/10/2021

Presenter at the HTA assessment: Basics and applications workshop on 18 December 2021

Attending a conference toward Universal Health coverage in Jordan. Dead sea October 2021

Courses taught

Undergraduate courses (BSc Medical, Pharmacy and Pharm D)

- Pharmacoeconomics; 4th year, core course
- **Health policy and economics**, 6th year medical students, core students
- ParaPharmaceutics; 5th Year, elective course
- Hospital Clerkship: cardiology, Pharm D 6th Year, core practical course
- Research project, , Pharm D 6th Year, core course
- Health Informatic 2 year master degree of PBA
- Advanced Topics in Business administration, 2nd year master degree of PBA

Courses attended

Health economic evaluation principles & practicalities	16/05/13; 17/05/13	2 full days
Decision analytical modelling for economic evaluation at University of York	18,19/03/13	2 full days
Advanced statistical methods at the Nottingham city hospital	12,19, 26/02/13; 5,12/03/13	3 hours/day
Research method in epidemiology with basic statistic at the Nottingham city hospital	17, 24, 31/10/12; 7,14, 21, 28/11/12; 5,12,19/12/12	3 hours/day
Advanced economic model at University of Glasgow	1-3/10/ 2014	8 hours/day
The European ISPOR conference short courses /Markov modelling using Tree age	---*-8-12/11/2014	8 hours/day
The European ISPOR conference short courses/DES using Arena	8-12/11/2014	8 hours/day
Missing data using multiple imputation at the University of Manchester	28-29/1/15	8 hours/day
STATA course in London school of	7/2013	8 hours/day
Online course of measuring and valuing health/ University of Sheffield	16/02-7/03/2015	4 hours/week
Online course of HTA/ University of Sheffield Health Technology Assessment: Choosing Which Treatments Get Funded	10/10/2021	12 hours
Primary breast cancer symposium	6/03/2015	1 day
A course in Tree Age	17/04/2015	4 hours
European ISPOR short courses: Risk-Sharing/Performance-Based Arrangements for Drugs and Other Medical Products for shaping price and reimbursement policy	6-7/10/2021	4 hours
YHEC: How to Build an HTA Dossier for funding pricing and reimbursement of new innovative interventions	21/10/2021	5 hours

ISPOR module: Introduction to Budget Impact analysis I	21/10/2021	1 hours
Budget Impact Analysis II: Applications and Design Issues		
European ISPOR short courses: Selecting Rapid Review Methods for Health Technology Assessment	3-4/11/2021	4 hours

Prizes and awards

Academic

Full scholarship that involve tuition fees and live expenses for MSc degree from Ministry of Higher education and scientific research in Jordan

Best winner of poster (*The evaluation of the development of anti-insulin neutralizing antibodies in diabetic patients treated with exogenous insulin*) in 2012

Research interest

- Evaluating the cost effectiveness of different health care intervention
- Economic modelling of long-term cost and outcomes
- Health policy
- Social health insurance
- Health technology assessment to inform value-based pricing, price negotiation and reimbursement
- Conducting systematic review and critical appraisal studies
- Developing and evaluating health interventions aiming to improve Health care and patient outcomes and access to cost-effective interventions with affordable price
- Conducting regression to analyze long-term database
- Utility mapping and health related quality of life
- Evidence based medicine
- Health policy
- Value based pricing
- Risk sharing and performance-based arrangement

Funded research projects

- Exploring pattern and treatment pathways and outcomes in breast cancer patients: cost and survival analysis

Memberships

- Member in pricing committee at JFDA (May 2022-present)
- Member of the international ISPOR society (2013/2014, 2021/2022)
- Member of Jordan Pharmacy association (2009- up to date)
- Member of Arab Network, ISPOR Jordan (2017- up to date)
- Member of community service committee at JU school of Pharmacy (2020-2021)
- Member of the Electronic pharmacy website at JU school of Pharmacy (2019/2020)
- Member of Accreditation Council for Pharmacy Education committee for the evaluation of staff resource at JU school of Pharmacy (2015/2016)

References

- Rula Darwish, Ph.D., Professor
Dean of School of Pharmacy, University of Jordan
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