



DEPARTMENT OF THE AIR FORCE
59TH MEDICAL WING (AETC)
JOINT BASE SAN ANTONIO - LACKLAND TEXAS



26 APR 2017

MEMORANDUM FOR SGSP

ATTN: MAJ SHAOPING MO SUMNER

FROM: 59 MDW/SGVU

SUBJECT: Professional Presentation Approval

1. Your paper, entitled Assessing Medication Adherence in Patients with Rheumatoid Arthritis (RA) presented at/published to Texas Society of Health-Systems Pharmacists Alcalde Southwest Leadership Conference, Galveston TX, 26-17 April 2017 in accordance with MDWI 41-108, has been approved and assigned local file #17209.
2. Pertinent biographic information (name of author(s) title, etc.) has been entered into our computer file. Please advise us (by phone or mail) that your presentation was given. At that time, we will need the date (month, day and year) along with the location of your presentation. It is important to update this information so that we can provide quality support for you, your department, and the Medical Center commander. This information is used to document the scholarly activities of our professional staff and students, which is an essential component of Wilford Hall Ambulatory Surgical Center (WHASC) internship and residency programs.
3. Please know that if you are a Graduate Health Sciences Education student and your department has told you they cannot fund your publication, the 59th Clinical Research Division may pay for your basic journal publishing charges (to include costs for tables and black and white photos). We cannot pay for reprints. If you are a 59 MDW staff member, we can forward your request for funds to the designated Wing POC at the Chief Scientist's Office, Ms. Alice Houy, office phone: 210-292-8029; email address: alice.houy.civ@mail.mil.
4. Congratulations, and thank you for your efforts and time. Your contributions are vital to the medical mission. We look forward to assisting you in your future publication/presentation efforts.

Linda Steel-Goodwin

LINDA STEEL-GOODWIN, Col, USAF, BSC
Director, Clinical Investigations & Research Support

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS			
1. TO: CLINICAL RESEARCH	2. FROM: (Author's Name, Rank, Grade, Office Symbol) Shaoping Mo Summer, Major/O-4, SGSP	3. GME/GHSE STUDENT: ☒ YES ☐ NO	4. PROTOCOL NUMBER: C.207.024e
5. PROTOCOL TITLE: (NOTE: For each new release of medical research or technical information as a publication/presentation, a new 59 MDW Form 3039 must be submitted for review and approval.) Assessing Medication Adherence in Patients with Rheumatoid Arthritis (RA)			
6. TITLE OF MATERIAL TO BE PUBLISHED OR PRESENTED: Assessing Medication Adherence in Patients with Rheumatoid Arthritis (RA)			
7. FUNDING RECEIVED FOR THIS STUDY? ☐ YES ☒ NO FUNDING SOURCE:			
8. DO YOU NEED FUNDING SUPPORT FOR PUBLICATION PURPOSES: ☒ YES ☐ NO			
9. IS THIS MATERIAL CLASSIFIED? ☐ YES ☒ NO			
10. IS THIS MATERIAL SUBJECT TO ANY LEGAL RESTRICTIONS FOR PUBLICATION OR PRESENTATION THROUGH A COLLABORATIVE RESEARCH AND DEVELOPMENT AGREEMENT (CRADA), MATERIAL TRANSFER AGREEMENT (MTA), INTELLECTUAL PROPERTY RIGHTS AGREEMENT ETC.? ☐ YES ☒ NO NOTE: If the answer is YES then attach a copy of the Agreement to the Publications/Presentations Request Form.			
11. MATERIAL IS FOR: ☒ DOMESTIC RELEASE ☐ FOREIGN RELEASE CHECK APPROPRIATE BOX OR BOXES FOR APPROVAL WITH THIS REQUEST. ATTACH COPY OF MATERIAL TO BE PUBLISHED/PRESENTED.			
☐ 11a. PUBLICATION/JOURNAL (List intended publication/journal.)			
☐ 11b. PUBLISHED ABSTRACT (List intended journal.)			
☐ 11c. POSTER (To be demonstrated at meeting: name of meeting, city, state, and date of meeting.)			
☒ 11d. PLATFORM PRESENTATION (At civilian institutions: name of meeting, state, and date of meeting.) Texas Society of Health-Systems Pharmacists Alcalde Southwest Leadership Conference			
☒ 11e. OTHER (Describe: name of meeting, city, state, and date of meeting.) Galveston, TX			
12. HAVE YOUR ATTACHED RESEARCH/TECHNICAL MATERIALS BEEN PREVIOUSLY APPROVED TO BE PUBLISHED/PRESENTED? ☒ YES ☒ NO ASSIGNED FILE # _____ DATE 20 Jan 2017			
13. EXPECTED DATE WHEN YOU WILL NEED THE CRD TO SUBMIT YOUR CLEARED PRESENTATION/PUBLICATION TO DTIC NOTE: All publications/presentations are required to be placed in the Defense Technical Information Center (DTIC).			
DATE 7 Apr 2017			
14. 59 MDW PRIMARY POINT OF CONTACT (Last Name, First Name, M.I., email) Summer, Shaoping, M. shaoping.m.summer.mil@mail.mil			15. DUTY PHONE/PAGER NUMBER 916-3455/210-228-6002
16. AUTHORSHIP AND CO-AUTHOR(S) List in the order they will appear in the manuscript.			
LAST NAME, FIRST NAME AND M.I.	GRADE/RANK	SQUADRON/GROUP/OFFICE SYMBOL	INSTITUTION (If not 59 MDW)
a. Primary/Corresponding Author Shaoping Mo Summer	O-4/Major	959 CSPS	
b. Annabel L. Schumaker	GS 13	BAMC Army	USARMY MEDCOM
c. Thomas Shank	O5 (retired Army)	N/A	Pfizer
d.			
e.			
17. IS A 502 ISG/JAC ETHICS REVIEW REQUIRED (JER DOD 5500.07-R)? ☐ YES ☒ NO			
I CERTIFY ANY HUMAN OR ANIMAL RESEARCH RELATED STUDIES WERE APPROVED AND PERFORMED IN STRICT ACCORDANCE WITH 32 CFR 219, AFMAN 40-401 JP, AND 59 MDW 41-108. I HAVE READ THE FINAL VERSION OF THE ATTACHED MATERIAL AND CERTIFY THAT IT IS AN ACCURATE MANUSCRIPT FOR PUBLICATION AND/OR PRESENTATION.			
18. AUTHOR'S PRINTED NAME, RANK, GRADE Shaoping Mo Summer, Major/O-4		19. AUTHOR'S SIGNATURE SUMMER.SHAOPING.MO 138262212	20. DATE 3/21/2017
21. APPROVING AUTHORITY'S PRINTED NAME, RANK, TITLE John Andrew Bouchard, Captain/O-3, Inpatient Pharmacy Flt/CC		22. APPROVING AUTHORITY'S SIGNATURE BOUCHARD.JOHN.A.1382707885	23. DATE 3/22/2017

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

1st ENDORSEMENT (59 MDW/SGVU Use Only)

TO: Clinical Research Division 59 MDW/CRD Contact 292-7141 for email instructions.	24. DATE RECEIVED April 14, 2017	25. ASSIGNED PROCESSING REQUEST FILE NUMBER 17209
--	-------------------------------------	--

26. DATE REVIEWED April 25, 2017	27. DATE FORWARDED TO 502 ISGJAC
-------------------------------------	----------------------------------

28. AUTHOR CONTACTED FOR RECOMMENDED OR NECESSARY CHANGES: ☒ NO ☐ YES If yes, give date. ☐ N/A

29. COMMENTS ☒ APPROVED ☐ DISAPPROVED
Presentation of IRB approved research with appropriate disclaimers. Approved

30. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER Kevin Kupferer/SG13/Human Research Subject Protection Expert	31. REVIEWER SIGNATURE KUPFERER KEVIN R. 1086097270 Digitally signed by Kevin R. Kupferer, DN: cn=Kevin R. Kupferer, o=59th Medical Group, ou=US Army, email=kupferer.kevin@us.army.mil, c=US	32. DATE April 25, 2017
---	--	----------------------------

2nd ENDORSEMENT (502 ISGJAC Use Only)

33. DATE RECEIVED	34. DATE FORWARDED TO 59 MDW/PA
-------------------	---------------------------------

35. COMMENTS ☐ APPROVED (In compliance with security and policy review directives.) ☐ DISAPPROVED

36. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER	37. REVIEWER SIGNATURE	38. DATE
---	------------------------	----------

3rd ENDORSEMENT (59 MDW/PA Use Only)

39. DATE RECEIVED April 25, 2017	40. DATE FORWARDED TO 59 MDW/SGVU April 26, 2017
-------------------------------------	---

41. COMMENTS ☒ APPROVED (In compliance with security and policy review directives.) ☐ DISAPPROVED

42. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER Kevin Iinuma, SSgt/E-5, 59 MDW Public Affairs	43. REVIEWER SIGNATURE Digitally signed by Kevin Iinuma, DN: cn=Kevin Iinuma, o=59th Medical Group, ou=US Army, email=iinuma.kevin@us.army.mil, c=US	44. DATE April 26, 2017
--	--	----------------------------

4th ENDORSEMENT (59 MDW/SGVU Use Only)

45. DATE RECEIVED	46. SENIOR AUTHOR NOTIFIED BY PHONE OF APPROVAL OR DISAPPROVAL ☐ YES ☐ NO ☐ COULD NOT BE REACHED ☐ LEFT MESSAGE
-------------------	--

47. COMMENTS ☐ APPROVED ☐ DISAPPROVED

48. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER	49. REVIEWER SIGNATURE	50. DATE
---	------------------------	----------




Assessing Medication Adherence in Patients with Rheumatoid Arthritis (RA)

Shaoping Mo Sumner, Maj, USAF, PharmD

San Antonio Combined Military Postgraduate Year One Pharmacy Residency Program
Fort Sam Houston, TX




Disclaimer

This research has been approved by the Brooke Army Medical Center Institutional Review Board.

"The view(s) expressed herein are those of the author(s) and do not reflect the official policy or position of Brooke Army Medical Center, the U.S. Army Medical Department, the U.S. Army Office of the Surgeon General, the Department of the Air Force, the Department of the Army or the Department of Defense or the U.S. Government."

Neither my spouse or I have any financial interest/arrangement, affiliation or relationship with one or more organizations that could be perceived as a real or apparent conflict of interest in the context of the subject of this program




Brooke Army Medical Center (BAMC)

BAMC: San Antonio Military Medical Center (SAMMC) plus 5 free standing primary care clinics



- Only DoD Level 1 Trauma Center
- 425-bed medical facility
- Army Institute of Surgical Research
 - DoD Burn Center
 - Battlefield Trauma Centers of Excellence
- 89 Accredited educational programs
- 35 Primary and specialty care services
- 32 Sub-specialty clinics
- Average 4500 outpatient prescriptions daily




Learning Objectives

At the completion of this program, the participant will be able to

- Identify oral RA-specific drug treatment options
- Differentiate the two medication adherence instruments
- Analyze the correlation between the two instruments

Background

- Rheumatoid arthritis
 - Affecting 1-3 million Americans
 - Seventy percent are women
 - Associated with higher risk of heart disease and stroke

American College of Rheumatology, <http://www.rheumatology.org/About/Press/PressReleases/2010/09/23/20100923RA>. Accessed on 23 September, 2010

Drug Therapies

Class	Medication
Oral DMARDs	Methotrexate Hydroxychloroquine Leflunomide Sulfasalazine Minocycline
IV Biologics	Etanercept Adalimumab Infliximab
Steroid/NSAID	Prednisone Ibuprofen

DMARDs: disease modifying anti-rheumatic drugs

Young A. Prescriber 2008;19:19-28
Hughes et al. BMC 2013 14:286

Background

- Patient adherence to DMARDs may be adversely affected by
 - Slow onset to symptom relief
 - Intolerable side effects
- Medication adherence and compliance are used interchangeably
 - Adherence is a preferred term
 - Actively participating

Hugest et al. BMC Musculoskeletal Disorder 2013,14:286
Osterberg et al. N Engl J Med 2005;353:487-97

Background

- Non-adherence rate to DMARDs up to 80%
- Higher healthcare cost, decreased quality of life
- Two instruments assessing medication adherence
 - Compliance-Questionnaire-Rheumatology (CQR)
 - Original 19-item version (CQR19)
 - New 5-item version (CQR5)
 - Morisky Medication Adherence Scale (MMAS8)

Cramer J, et al. Value health 2008;11:44-47

Comparisons			
Instrument	Design	Validated	Time to complete
CQR19	RA specific	Yes	≤12 min
CQR5	RA specific	No	< 2 min
MMAS8	Many disease states but not RA	Yes	<1 min

Monksy DE, et al. Med care. 1986;24:67-74

CQR Sample Questions
Don't agree at all; Don't agree; Agree; Agree very much (1-4 points, respectively)
If the rheumatologist tells me to take the medication, I do so
I take my anti-rheumatic medicines because I have fewer problems
If I don't take my anti-rheumatic medicines, I have more complaints
I definitely don't care to miss my anti-rheumatic medications
If I can help myself with alternative therapies, I prefer that to what my rheumatologist prescribes
I don't expect miracles from my anti-rheumatic medicines

de Klerk, et al. J Rheumatol. 2003;30:2469-75

MMAS8 Sample Questions
1 for No; 0 for Yes, except the last question (never/rarely, once in a while, sometimes, usually, always, 1, 0.75, 0.5, 0.25, 0)
Do you sometimes forget to take your medicine?
Did you take all your medicines yesterday?
When you feel like your symptoms are under control, do you sometimes stop taking your medicine?
When you travel or leave home, do you sometimes forget to bring along your medicine?
How often do you have difficulty remembering to take all your medicine?

Monksy DE, et al. J Clin Epidemiol. 1991;44:262-263

Purpose and Objectives
Purpose: Assess medication adherence in patients with rheumatoid arthritis
Objectives:
1. Primary: Assess whether there is a correlation between CQR19 and MMAS8
2. Secondary: Determine if there is potential medication adherence issue in patients with RA taking oral DMARDs, and the correlation between CQR5/19 and MMAS8

Research Design & Methods	
Prospective cohort study	
Inclusion Criteria	Exclusion Criteria
- Diagnosed with RA - Taking oral DMARDs - Treated in Rheumatology Clinic - Age $\geq$ 18 years	- Patients not meeting the inclusion criteria - Cognitive disability

Methods
- An 80% power was used to detect a correlation coefficient of 0.2 to get estimated sample size of 102 - Data collection and processing - A combined questionnaire from CQR19 and MMAS8 was provided to patients upon check-in - Completed surveys were collected in designated drop box - Primary investigator collected them at the end of each day - Continued for 6 weeks

Statistical Analysis
- Spearman rank-order correlation - Variables are ordinal or continuous - Linear (monotonic) relationship - The null hypothesis is that the correlation between two instruments is zero - Chi-square (or Fisher's exact) test used to show if the group assignments are associated

Results

Cohort Demographics

Variable	Statistic
	Mean (SD)
Age (n=80)	54 (13.8)
Female, 62 (77%)	53 (14.1)
Males, 18 (23%)	58 (13.8)
Duration of RA, years (n=75)	10 (11.2)
	Median (IQR)
Number of all medications (n=75)	8 (6)
Number of oral RA medications (n=81)	2 (2)
	Number (%)
Self-described Health (n=80)	
Poor	4 (5.0)
Fair	42 (52.5)
Well	27 (33.7)
Very Well	7 (8.8)

SD: standard deviation

IQR: interquartile range

Results			
Spearman Correlations for Adherence/Compliance Predictor Scores			
Comparison Groups	P (rho)	P- value	Interpretation
MMAS8-CQR19 taking compliance	0.268	0.015	Weak-Significant
MMAS8-CQR19 dosing compliance	0.296	0.007	Weak-Significant
CQR19 taking/dosing compliance	0.842	<0.001	Strong-Significant

- MMAS8 and CQR19 taking and dosing scores were significantly correlated - CQR19 taking and dosing scores were significantly correlated	Roundtree (1981)	
	< 0.20	Very weak
	0.20 – 0.40	Weak
	0.4 – 0.70	Moderate
	0.70 – 0.90	Strong
	> 0.90	Very strong

Roundtree, et al. 1981

Results			
Comparison Groups		χ^2	P-value
MMAS8 Adherence	CQR19 Taking Compliance	8.3409	0.017*
MMAS8 Adherence	CQR19 Dosing Compliance	6.9462	0.028*
MMAS8 Adherence	CQR5	1.6688	0.454*
CQR19 Taking Compliance	CQR5	38.89	<0.0001
CQR19 Dosing Compliance	CQR5	34.33	<0.0001

* Fisher's exact test

- MMAS8 and CQR19 taking and dosing group assignments were significantly associated
- MMAS8 and CQR5 group assignments were not associated
- CQR5 and CQR19 taking and dosing group assignments were significantly associated

Secondary Outcomes	
Predictor and Groups	Number (%)
MMAS8 Adherence	
High	7 (8.5)
Medium	32 (39.0)
Low	43 (52.4)
CQR19 Taking Compliance	
High	41 (50)
Low	41 (50)
CQR19 Dosing Compliance	
High	26 (31.7)
Low	56 (68.3)
CQR5 Adherence	
High	29 (35.4)
Low	53 (64.6)

Conclusions
- Although CQR19 and MMAS8 scores were only weakly correlated, adherence groups assignments were similar - The ability of CQR5 and MMAS8 to predict adherence groups assignments were not similar - The ability of CQR19 and CQR5 to predict adherence groups assignments were similar - Further study needed to recommend MMAS8 as a replacement for CQR19 - All four predictor estimates identified high levels of potential DMARD non-adherence with predictions ranging from 50% to 68%




Limitations and Future Directions

- Limitations
 - Limited population to one site
 - Might be subject to recall bias
 - Patients filled out the form incorrectly/incompletely
- Future Directions
 - Include more than one treatment facility
 - Provide data indicating the potential extent of non-adherence
 - May serve as a baseline for further research




Assessment Questions

1. Oral Rheumatoid Arthritis-specific drug treatments include which of the following

- A) IV biologic agents
- B) Disease modifying anti-rheumatic drugs (DMARDs)
- C) Glucocorticoids
- D) B and C only




Assessment Questions

2. The Morisky Medication Adherence Scale was developed to assess medication adherence intent and has been validated in several common diseases, including RA.

- A) True
- B) False




Assessment Questions

3. The terms compliance and adherence are used interchangeably, but adherence is the preferred term since it implies active participation of the patient.

- A) True
- B) False




Acknowledgements

- This project would not be possible without the guidance, support, and assistance of the following people
 - Dr. Annabel Schumaker, PharmD, BCPS
 - Dr. Tom Shank, PharmD
 - Dr. Irene Lo, PharmD, BCPS
 - Dr. Scott Holuby, PharmD, BCPS
 - Staff at the Rheumatology Clinic
 - Everyone else who has supported me through my residency




Contact Information

For additional information contact me at:

shaoping.m.sumner.mil@mail.mil



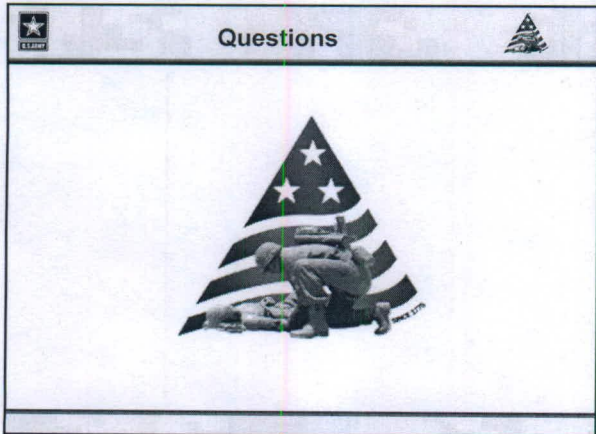

References

- RA facts-statistics-info, <http://www.healthline.com/health/rheumatoid-arthritis-facts-statistics-infographic>. Accessed on 30 August, 2016
- Elizabeth Salt, Susan Frazier, "Adherence to Disease Modifying Anti-Rheumatic Drugs in Rheumatoid Arthritis patients: a narrative review of the Literature". Orthop Nurs. 2010; 29 (4): 260-275.
- American College of Rheumatology, <http://www.rheumatology.org/Am-Ar-Patient/Caregiver/Disease-Conditions/Rheumatoid-Arthritis>. Accessed on 23 September, 2016
- Hughes et al: A 5 item version of the Compliance Questionnaire for Rheumatology (CQR5) successfully identifies low adherence to DMARDs. BMC Musculoskeletal Disorders 2013 14:286.
- Young A: Current approaches to drug treatment in rheumatoid arthritis. Prescriber 2008, 19:19-28.
- WHO (2003). Adherence to long-term therapies: evidence for action. Retrieved from http://www.who.int/chp/knowledge/publications/adherence_report/en/. Accessed July 31, 2016.
- DiMatteo MR. Variations in patients' adherence to medical recommendations: a quantitative review of 50 years of research. Med Care. 2004;42:200-09.




References

- Cramer JA, Roy A, Burrell A, Fairchild CJ, Fuldore MJ, Ollendorf DA, et al. Medication compliance and persistence: terminology and definitions. Value Health. 2008;11:44-47.
- Servers et al: Assessing Self-reported Medication Adherence in Inflammatory Bowel Disease: A Comparison of Tools. Inflamm Bowel Dis 2016;0:1-7.
- Osterberg L, Blaschke T. Adherence to Medication. N Engl J Med 2005;353:487-97.
- Morisky DE, Green LW, Levine DM. Concurrent and predictive validity of a self-reported measure of medication adherence. Med Care. 1986;24:67-74.
- Morisky DE, DiMatteo MR. Improving the measurement of self-reported medication nonadherence: Final response. J Clin Epidemiol. 2011; 64:262-263.
- de Klerk E, van der Heijde D, Landewe R, van der Tempel H, van der Linden S. The Compliance-Questionnaire-Rheumatology compared with electronic medication event monitoring: a validation study. J Rheumatol. 2003;30:2469-75.



2017 Alcáldé Southwest Leadership Conference

April 26-27, 2017 | Galveston, TX

What is the Alcáldé Southwest Leadership Conference?

Alcáldé 2017, the 31st Annual Southwest Leadership Conference, intends to provide encouragement and learning experiences which will promote creativity, scholarship and leadership, and will promote the presentation of evidence-based research. To the extent possible, the process adopted for presentation at Alcáldé is patterned after that of ASHP, so as to provide a practical experience in getting ready for a national presentation.

Alcáldé, the Spanish title for the mayor of the town or village, is derived from the Arabic word al-qadi, or "judge". Fortunately the term was applied to local government officials whose functions were varied but always included a judicial element. Types of alcalde were differentiated according to the specialized nature of their judicial functions: the alcalde de corte was a judge in the palace court with jurisdiction in and about the residence of the king; the alcalde mayor assisted the judges appointed by the king in the towns. Since the 19th Century, the alcalde has had the dual role of the local council and representative of the central government. The pharmacy resident, fellow or preceptor must also serve a dual role as a leader among his or her peers and as a representative of the profession.

Important Deadlines:

Requirement	Deadline
Notification of Intent to Present	January 15, 2017
Abstract Submission	February 28, 2017
PowerPoint Presentation	April 14, 2017
Alcáldé Presentations	April 26 - 27, 2017

[View the Guidelines for Submitting Platform Presentations](#)

[View a Sample Bio](#)

[View the Criteria for Self Assessment Questions](#)

[View the Criteria for Learning Objectives](#)

PLATFORM PRESENTATIONS

All residents and fellows are strongly encouraged to submit abstracts of papers to be presented at SWLC for pharmacy residents, fellows and preceptors.

The presentation format includes 15 minutes of lecture and five minutes of questions-and-answers. The presentation must be in a PowerPoint format; an LCD Projector and screen will be provided. Abstracts should be submitted no later than February 28, 2017 via e-mail. Residents and fellows must submit their presentation in PowerPoint format no later than Friday, April 10, 2017. Changes to presentations will not be allowed after this time. Please submit the PowerPoint presentation with a title using your name; e.g.

Quicklinks

[About the Foundation](#)

[Contributions](#)

[Alcáldé
Conference
Registration
Hotel
Schedule](#)

[CAB Bond Memorial
Grant](#)

[Leonard Lecture](#)

[Scholarships](#)

[Volunteer
Opportunities](#)