### Revised Standards for Quality Improvement Reporting Excellence

SQUIRE 2.0
5.9.19

**Title**Improving Practice to Improve Quality of Life in Patients with Psoriasis and Psoriatic Arthritis
 **Abstract
a.  Provide adequate information to aid in searching and indexing**

**b.  Summarize all key information from various sections of the text using the abstract format of the intended publication or a structured summary such as: background, local**[**problem**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Problem)**, methods, interventions, results, conclusions***Background*

The goal of the project was to improve quality of life (QOL) in patients with psoriasis and psoriatic

arthritis (PsA) through improving physician and non-physician clinicians’ knowledge,

competence, confidence, and performance in assessing psoriasis, PsA, and QOL using scales and

tools. This goal also directly aligned with our partner, the National Psoriasis Foundation’s (NPF) organizational goal, which was to reduce the percentage of individuals who report their disease to be a problem in their everyday life.

To achieve this goal, the project targeted dermatologists, other interested physicians, and

non-physicians to participate in an educational intervention followed by activities to implement learnings from the workshop.

*Local Problem*It has been shown that a low QOL correlates with greater disease severity in patients with

psoriasis and PsA.1-3 In addition, over 50% of patients with psoriasis and over 45% of patients with PsA report dissatisfaction with their treatment.1, 4, 5 It is reasonable to predict that increased treatment satisfaction will accompany increases in QOL for patients with psoriasis and PsA; however, both are dependent upon proper disease assessment and management. The importance of disease assessment is exemplified by a known practice gap in the assessment of PsA. Estimates of up to 42% of patients with psoriasis develop PsA,2, 6 yet a recent meta-analysis has reported that PsA remains undiagnosed 15.5% of the time.7 There are multiple knowledge, competence, and practice gaps that may contribute to these unfortunate patient outcomes.

*Methods and Interventions*
The project design included an educational intervention in the form of a live workshop, comprised of didactic presentations, interactive patient assessment demonstrations, virtual patient assessment experiences and implementation resources. Participants completed pre/post activity questionnaires to measure the direct impact of the workshop on their knowledge, competence, confidence, and self-reported practice related to the content of the activity. After the workshop, participants completed an evaluation to measure the perceived impact the workshop would have on their knowledge and practice. A control group completed the same pre/post questionnaires but did not receive the educational intervention. A comparison of the intervention workshop and the control group pre/post questionnaires was used to determine any differences in impact of the workshop on the participants knowledge, competence, confidence, and self-reported practice patterns. After the intervention workshop, participants were asked to continue their learning experience by completing baseline and follow-up implementation activities, completing a follow-up questionnaire, and recruiting their patients to complete baseline and follow-up QOL surveys. Chart audit data were to measure documented improvements in participants’ practice, while the follow-up questionnaire was to measure participants’ retention of knowledge, competence, and confidence. These data were to be correlated with improvements in patients’ QOL and treatment satisfaction as measured by the patient surveys to determine if a blended learning experience, like the one described here, led to improved QOL among patients with psoriasis and PsA. The workshop and post intervention activities were offered three times and marketed to the target audience over a 2-year period. 700 learners were anticipated to participate with 250 learners anticipated to complete the entire blended learning experience. At the end of the 2 year period, an online activity comprised of the live workshop content and post intervention data collection methods was offered to learners who were unable to participate in the initial blended learning experience.
*Results*A key objective of this grant was to increase proper disease assessment and management of psoriasis and PsA on the part of the physician. The analysis comparing the live workshop pre/ post assessment data for 366 learners showed improvement in confidence in assessing the severity of psoriasis; evaluating patients; and improved competence and confidence in using assessment tools for assessing patients for psoriasis, PsA and QOL. It is anticipated that this new or enhanced knowledge gained by learners from the educational intervention has and will continue to translate into increased patient treatment satisfaction and QOL for their patients. In addition, an average of 94% respondents felt attendance at the workshop had either a very positive or positive impact on their knowledge in assessing and evaluating psoriasis and PsA and that this knowledge would have a positive impact on their practice. Evaluations also showed that learners plan to perform joint examinations, having learned to better evaluate joints and more accurately assess psoriasis and PsA. The impact of the workshop educational intervention is estimated at 3,600 psoriasis and PsA patients that have been treated during the 12-month period following the intervention with learners using the knowledge gained from the educational intervention (a minimum of 30 patients/per physician learner/per year x approximately 120 practicing physician learners = 3,600 patients impacted annually). This number of patients impacted would be expected to increase as time progresses and learners continue to treat new patients.

The two remaining objectives of the grant were to increase the clinical use of tools for assessing psoriasis, PsA, and QOL in patients with psoriasis; and to increase QOL and treatment satisfaction as reported by patients with psoriasis and PsA. These were not realized due to a difficulty in facilitating the completion of chart audits both pre and post intervention and difficulty in engaging dermatologists in recruiting patients to complete QOL surveys.

 *Conclusions*
In regard to the key objectives of this project, learners attending the workshop intervention reported increased knowledge, competence, and confidence in using assessment tools for psoriasis, PsA, and QOL. It is felt that this new or enhanced knowledge gained by learners from the educational intervention has and will continue to translate into increased patient treatment satisfaction and QOL for their patients. The post workshop implementation activities were not successfully completed. Workshop participants who continued onto the implementation activities were met with a barrier in collecting chart audit data. The project did not take into consideration the physician’s need to extract specific chart audit data that was not available in the physician’s Electronic Medical Records. This barrier resulted in the inability of the physician to extract the data needed for the chart audit during the baseline, follow-up and online activities. This was impactful as this data was intended to demonstrate successful practice pattern improvement during implementation. In hindsight, a pilot of the implementation activity chart data collection tool would have served as useful in identifying this as a weakness that could have been corrected prior to the project being implemented. The impact of this barrier continued as the participants could not complete the entire learning experience without this data. It’s our belief that the barrier to completing the project impacted the motivation by the participants to complete the patient recruitment portion of the implementation and online activities. This patient data was designed to measure increased QOL and treatment satisfaction as reported by patients with psoriasis and PsA. Without the chart audit data or patient data, we were unable to meet the last two objectives of the project that would demonstrate any definitive impact of the live educational intervention on improved care in practice.

A second effort was made to collect the data necessary to meet the final two objectives of the project. This alternative research methodology proposed to gather self-reported data on the impact the program had on physician attendees, however; there was a lower than anticipated number of physicians who participated in the workshop educational intervention. Because of this low number and the length of time since the educational activity had occurred, it was decided that we would not have sufficient data to support a solid conclusion regarding the impact of the intervention. In particular, we became very concerned that the time lapse between the pre and post intervention data collected had allowed for a variety of variables to impact practice which would likely distort a final conclusion. The measures regarding the assessment of improved patient QOL post intervention was also not realized. Since AAD does not have direct contact with the patients of our members, and we had not successfully engaged learners in either the initial or alternative research concepts, we were not able to establish a connection between the workshop intervention and impact on patient QOL.

 **Problem
Nature and significance of the local**[**problem**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Problem)It has been shown that a low QOL correlates with greater disease severity in patients with

psoriasis and PsA.1-3 In addition, over 50% of patients with psoriasis and over 45% of patients with PsA report dissatisfaction with their treatment.1, 4, 5 It is reasonable to predict that increased treatment satisfaction will accompany increases in QOL for patients with psoriasis and PsA; however, both are dependent upon proper disease assessment and management. The importance of disease assessment is exemplified by a known practice gap in the assessment of PsA. Estimates of up to 42% of patients with psoriasis develop PsA,2, 6 yet a recent meta-analysis has reported that PsA remains undiagnosed 15.5% of the time.7 There are multiple knowledge, competence, and practice gaps that may contribute to these unfortunate patient outcomes.

**Available Knowledge
Summary of what is currently known about the**[**problem**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Problem)**, including relevant previous studies**

AAD needs assessment data identified knowledge and competence gaps from past AAD *Translating Evidence into Practice: Psoriasis Guidelines* sessions held by the Academy since 2011.8 During these sessions, participants were asked to answer case-based clinical questions pertaining to psoriasis. The resulting data were assessed for aggregate responses below 70% to determine gaps. Prior to the session, the average correct responses for 31 of 42 questions (74%) fell below the 70% cut-off, thus indicating multiple knowledge and competence gaps. In addition, less than 70% of participants self-reported the use of body surface area (BSA) and physician global assessment (PGA) to assess patients’ disease severity, the overall assessment of QOL, and the use of multiple tools to assess QOL (Table 1). The 6 months to 2.5-year follow-up results shown in Table 1 revealed persistent practice gaps in the use of PGA to assess disease severity and in the use of QOL assessment tools. Related practice gaps from an online performance improvement module on psoriasis identified where 192 participants completed at least 10 chart audits (stage A), reviewed educational materials and developed an implementation plan, then audited an additional 10 charts (stage C).9 Less than 70% of participants had documented important patient history details or counseled their patients on comorbidities associated with psoriasis, indicating numerous practice gaps that could relate to a decreased QOL for patients (Table 2).9 While significant improvements in almost every topic were observed at stage C, there were persistent practice gaps for every topic.





In addition, the AAD had published findings on the effectiveness of a performance improvement module for dermatologists on the topic of psoriasis (Gist 2015). At the time of the project grant application submission, the AAD had 2 original manuscripts currently undergoing peer-review on the topics of knowledge and competence retention following an online patient safety in dermatology activity and the effectiveness of *Translating Evidence into Practice: Psoriasis Guidelines* sessions in improving participant knowledge and positively impacting clinical practice.

**Rationale
Informal or formal frameworks, models, concepts, and/or**[**theories**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Theory)**used to explain the**[**problem**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Problem)**, any reasons or**[**assumptions**](http://squire.citysoft.org/index.cfm?fuseaction=page.viewPage&pageID=485&nodeID=1#assumptions)**that were used to develop the**[**intervention(s),**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Interventions)**and reasons why the**[**intervention(s)**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Interventions)**was expected to work**The data above suggested that if the AAD’s live and online educational activities for psoriasis and PsA were enhanced to offer a blended-learning experience focused on the assessment of psoriasis, PsA, and QOL, that improved results in the gaps could be achieved. Based on participation numbers for previous psoriasis sessions held by the Academy since 2011 and online module participation, a similar robust participation of 700 participants for the project was expected. Out of this 700 targeted number of participants, 250 clinicians were anticipated to complete the entire learning experience comprised of the live workshop and post workshop implementation activities. Participants were actively recruited through a robust targeted outreach and engagement of champion psoriasis and PsA experts to encourage their colleagues to participate. It was believed that incentives would entice the learner to both participate as well as complete the post workshop implementation activities. This incentive was a framed completion certificate signed by the chair of the AAD’s Council on Education and a $30 AAD store gift certificate for use toward additional educational activities or 100 psoriasis and PsA pamphlets for patients. These incentives were available to participants who completed the entire learning experience (e.g. workshop and post workshop implementation activities). After the blended learning experience was over, an online activity comprised of the blended learning experience was launched. This was expected to be attractive to those learners who could not attend the initial learning experience and who wanted the flexibility that an online activity offers. To boost participation of these learners, the online activity incentive for learners was increased to a $100 AAD store gift certificate to encourage learners to both enroll and complete the activity.
For patient data, it was anticipated that 1,000 patients would be successfully recruited during the implementation activities and complete patient QOL surveys. Patients who were to be recruited were incentivized with a $50 Amazon egiftcard for their participation. Due to the lack of patient recruitment and therefore lack of patient questionnaires, the incentive for patients during the online activity was increased to a $100 Amazon egiftcard for completing the pre-QOL survey and a $100 for completing the post-QOL survey. This was offered to encourage physician learners to reach out to their patients with a robust incentive to complete the patient QOL surveys.

 **Specific Aims**The key objectives of this project were to: 1) increase knowledge, competence, and confidence in

using assessment tools for psoriasis, PsA, and QOL; 2) increase the clinical use of tools for

assessing psoriasis, PsA, and QOL in patients with psoriasis; and 3) increase QOL and treatment

satisfaction as reported by patients with psoriasis and PsA. **Context
Contextual elements considered important at the outset of introducing the**[**intervention(s)**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Interventions)

The goal of this project also directly aligned with our partner, the National Psoriasis Foundation’s organizational goal, which was to reduce the percentage of individuals who report their disease to be a problem in their everyday life.

To assist with the actual implementation of the grant, an additional partner, The France Foundation (TFF), was enlisted. The AAD and TFF have collaborated in the past to launch and manage PI CME Part IV activities which included physician chart audit tools. TFF has been involved in multiple collaborative initiatives in traditional, quality improvement, and performance improvement projects. TFF’s medical and scientific experts and experienced project management team supported the AAD in the implementation, execution and management of this project.

As dermatologists play an important role in screening, identifying, and managing patients with

psoriasis and PsA, this target audience was in a prime position to improve the QOL and treatment satisfaction of patients with psoriasis and PsA by increasing the use of scales and tools for assessing psoriasis, PsA, and QOL in their own practices. As a result, it was predicted this project would have a widespread, positive impact on care and outcomes for patients affected by psoriasis and PsA.

**Intervention**

**a.  Description of the**[**intervention(s)**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Interventions)**in sufficient detail that others could reproduce it**

**b.  Specifics of the team involved in the work**This project provided a blended learning experience, which has been shown to be effective for continuing medical education in other specialties.10-13 The blended learning design included live workshops and two post workshop implementation activities that included online chart audits, patient recruitment and patient participation in completing pre/post online QOL questionnaires. After the initial blended learning experience was over, the online activity was launched to make the blended learning experience available online to those who could not attend the initial blended learning experience.

*Workshops*

The workshop, entitled *Practical Approaches to Assessing Psoriasis and Psoriatic Arthritis,* was created with input from expert psoriasis and PsA faculty to ensure effectiveness in improving participants’ knowledge, competence, and confidence in assessing psoriasis, PsA, and QOL using assessment scales and tools. Three live workshops, each following the same format, were offered over a 2-year period. The workshop included didactic presentations; live patient psoriasis, PsA and QOL assessment demonstrations; patient case vignettes and printed implementation resources. For the assessment demonstrations, up to 5 patient volunteers were assessed by faculty who in part used questions submitted by the participants via an Audience Response System (ARS). Patient volunteers were recruited by expert psoriasis and PsA faculty and each patient received $750 for participation in the assessment demonstrations. Patient demonstrations were followed by patient case vignettes featuring patient videos or photographs and ARS questions designed to provide a virtual patient assessment experience for the participants. All patient photographs and/or videos used in the vignettes were unidentifiable. Participants also received implementation resources consisting of laminated pocket cards, reference booklets, score cards, checklists, and apps deemed appropriate by expert psoriasis and PsA faculty to ensure practicality in aiding participants in improving their clinical practice. As a part of the workshop, participants completed pre/post questionnaires. Participants also completed an evaluation at the conclusion of the workshop.
*Baseline*

After the workshop, participants continued to be engaged in learning through participation

in the implementation portion of the overall blended learning experience. Within a month (30 days) of attending a workshop, participants were to complete a baseline audit of at least 5 patient charts. Inclusion criteria for the charts were that the patient be an established patient with psoriasis aged 18

years or older who was not clear of disease and who was last seen within 2 months prior to the

date of the workshop. At this same time, participants were to recruit at least 10 of their patients

with psoriasis to complete a baseline QOL questionnaire. Patient inclusion criteria was that the

patient is an established patient with psoriasis aged 18 years or older who is not clear of disease and who was last seen within 2 months prior to the date of the workshop.

*Follow-up*

Six months (180 days) following the workshop, participants were to complete a follow-up chart

audit. Inclusion criteria for the patient charts was that the patient was an established patient

with psoriasis aged 18 years or older who was last seen within the past 2 months. At this time,

participants were to ask patients who participated in the baseline QOL questionnaire and had been

seen at least once since then, to complete a follow-up QOL questionnaire. Finally, participants were to

complete a follow-up questionnaire, which included an evaluation of the overall blended learning

experience.

*Online Module*

Upon completion of the overall blended learning experience, a complimentary online activity comprised of the initial blended learning experience was made available for those not able to attend a live workshop. For this online activity, 2 of the live workshops were recorded and edited into an online module. The implementation resources were provided as downloadable files. The requirements of the online activity included the following steps:

Step 1
Complete five brief, patient chart audits that collect information on the severity of the patient’s psoriasis, quality of life assessment, and screening for psoriatic arthritis.  The results of this chart audit exercise will serve as a baseline.

Step 2
Hear from the experts using on-demand webinars.
Step 3
After viewing the webinars, complete five new patient chart audits and compare results to the baseline.

Step 4
Give your patients the opportunity to complete an anonymous survey. Patients receive a $100 Amazon egiftcard for their time.

*Incentives*Learners were incentivized to participate in the implementation activities with a framed completion certificate signed by the chair of the AAD’s Council on Education and a $30 AAD store gift certificate for use toward additional educational activities or 100 psoriasis and PsA pamphlets for patients. These incentives were available to participants who completed the entire learning experience (e.g. workshop and both post workshop implementation activities). Patients who were to be recruited by the learner, were incentivized with a $50 Amazon egiftcard for their participation in completing a pre and post QOL questionnaire. The incentive for learners in the online activity was increased to a $100 AAD store gift certificate to encourage learners to enroll and complete the online activity. The incentive for patients was increased to a $100 Amazon egiftcard for completing the pre-QOL survey and a $100 for completing the post-QOL survey.

The timeline below allows for a reproduction of this blended learning experience (Tables 5 – 9).








The team involved in the work included AAD staff within the education and marketing departments, specifically:

* Reva Bhushan, MA, PhD, Senior Manager, Evidence-based Education and Clinical

Best Practices at the AAD. Dr. Bhushan worked directly with key staff to provide guidance and expertise based on her previous work. She also worked directly with faculty members to develop content for the sessions and with champion psoriasis experts to promote the program. Upon her departure, Damon Marquis, MA, MS, FACEHP, AAD Chief Learning Officer and Keri Thiessen, MEd, AAD Manager, Educational Needs Assessment and Development Manager, assumed Dr. Bhushan’s responsibilities to ensure a seamless completion of the grant.

* Jennifer Thompson, MS, Associate Director, Live Education, oversaw the live workshop programming and resources.
* Chris Presta, Associate Director, Digital Learning, served as liaison with our partner, The France Foundation, to oversee production of enduring materials.
* Tammi Matillano, Specialist, Live Education, managed the recruitment and participation of patients as well as the internal collaborations associated with planning the workshops.
* Nicole Torling, lead designer, assisted in the design and formatting of the

graphical tactics for implementation resources and marketing campaigns. She also

coordinated with stakeholders and manage the printing and/or digital release of these materials.

* Patrick Tibble, application developer, designed, developed, tested, implemented, and maintained reference or interactive apps upon request as determined by the expert psoriasis and PsA faculty.

AAD partnered with The France Foundation (TFF) on this project. TFF has been involved in multiple collaborative initiatives with medical specialty societies and academic institutions in traditional, quality improvement, and performance improvement focused projects. The TTF team included:

* Daniel Rabin, PhD, Content Medical Director, provided assistance with content development, faculty engagement, development of surveys and clinician tools, medical editing and fact checking.
* Heather Tarbox, Director of Education and Operations, provided overall program management including adherence to timelines, faculty management, and CME programs execution.
* Theodore Bruno, MD, Chief Medical Officer, provided executive oversight of TFF staff and product development.
* Matthew Pereira, Senior Interactive Project Manager, provided interactive development services including the programming of the online portals, production/editing /syncing videos, web design, and tracking online analytics.

Psoriasis experts and faculty for the educational intervention included:

* Alice Gottlieb, MD, PhD, FAAD, Chair, Derm-in-Chief, Harvey B Ansell Professor of Dermatology,

Tufts Medical Center, served as the faculty lead for this project. Dr. Gottlieb is an

internationally-recognized physician who is board certified in dermatology, rheumatology, and

internal medicine. She is an expert in psoriasis and treatment with target immunotherapies and

has experience in diagnosing and managing patients with psoriasis, PsA, and other

inflammatory skin disorders. For this project, she oversaw content development, directed the

workshops, and identified patients for the interactive patient assessment demonstrations.

Other expert psoriasis and PsA faculty included:

* Joseph F. Merola, MD, MSc, FAAD, Instructor, Harvard Medical School, Brigham and

Women’s Hospital.

* Neil Korman, MD, PhD, FAAD, Professor, Department of Dermatology, Case Western

 Reserve University, is a psoriasis expert with a background in basic, clinical, and

 translational research.

* Abby Van Voorhees, MD, FAAD, Professor and Chair, Department of Dermatology, Eastern

Virginia Medical School, is experienced in treating, researching, and educating peers in

psoriasis.

* Dafna D. Gladman, MD, FRCPC, Senior Scientist, Toronto Western Research Institute,

Canada specialized in prognosis as well as genetic and therapeutic studies in psoriatic

arthritis.

* April W. Armstrong, MD, MPH, FAAD, Associate Dean of Clinical Research, Keck School of

Medicine, USA has extensive experience conducting clinical trials and supporting effective

research programs for patients with psoriasis.

**Study of Intervention***Approach chosen for assessing the impact of the*[*intervention(s)*](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Interventions) *Approach used to establish whether the observed outcomes were due to the*[*intervention(s)*](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Interventions)

The approach used for assessing the impact of the project included focusing on the key objectives of the project, defining measures applicable to these objectives and creating a data collection strategy appropriate to the measures.

To establish whether the observed outcomes were due to the intervention, three separate workshops were offered, and data compiled to assess if a change in knowledge, competence and confidence occurred across the workshops. The same pre/post questionnaires and overall evaluation were implemented during each workshop for consistency across the workshops. A control group was used to compare any increases in knowledge, competence and confidence with the intervention. To observe if outcomes were due to the intervention, post workshop baseline and 6-month follow-up implementation activities were to be conducted to collect data using chart audits for comparison between the two implementation activities. Patient data collection was to include a pre - post questionnaire during both the baseline and 6-month follow-up activities for comparison of QOL data.

**Measures
a.  Measures chosen for studying**[**processes**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Process)**and outcomes of the**[**intervention(s),**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Interventions)**including rationale for choosing them, their operational definitions, and their validity and reliability**

**b.  Description of the approach to the ongoing assessment of contextual elements that contributed to the success, failure, efficiency, and cost**

**c.  Methods employed for assessing completeness and accuracy of data**

*Measures – Table 4*****

*Workshop Measures - Participants*

* Clinical knowledge and competence
* Treatment confidence level
* Self-reported performance of psoriasis, PsA, QOL
* Perception of impact on knowledge
* Perception of impact on practice

The measures above were selected based on a key objective of this grant to increase learner knowledge, competence, and confidence in using assessment tools for psoriasis, PsA, and QOL. Data collection tools for these measures were to be self-reported pre-post questionnaires during the workshop and a workshop overall evaluation.

*Post Workshop and Online Activity Measures - Participants*

* Documented performance of psoriasis, PsA, QOL assessment
* Documented use of scales and tools

The measures above were selected based on a key objective of this grant to increase the clinical use of tools for assessing psoriasis, PsA, and QOL in patients with psoriasis. Data collection tools for these measures were to include chart audit at the 30-day baseline and 6-month follow-up implementation periods.

*QOL Measures - Patients*

* Perception of QOL
* Treatment satisfaction

The measures above were selected based on a key objective of this grant to increase QOL and treatment satisfaction as reported by patients with psoriasis and PsA. Data collection tools for these measures were to be self-reported QOL pre-post questionnaires submitted by patients recruited by participants at the 30-day baseline and the 6-month follow-up as well as by participants enrolled in the online activity who recruited patients to complete pre-post QOL questionnaires.

*Participant Follow-up Questionnaire*

* Retention of knowledge and confidence

The measure above was to measure the retention of knowledge and confidence obtained at the workshop at the completion of the 6-month follow-up.

**Analysis
a.  Qualitative and quantitative methods used to draw**[**inferences**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Inferences)**from the data**

Qualitative and quantitative methods used to draw [inferences](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Inferences) from the data were developed for the project and are detailed below. However, prior to the completion of this project, staff identified to perform these analytics are no longer with the AAD and these comparisons are not able to be conducted.

 *Pre- Post Questionnaire*

Immediately prior to the start of a workshop, participants completed a pre-questionnaire

via an ARS using a unique identifier number to measure their baseline knowledge and competence through multiple-choice, case-based clinical questions. Their baseline confidence was measured at the same time using 5-point Likert scale-based questions. Finally, the participants self-reported their current practice patterns by answering polar and checklist questions regarding how they perform assessment of psoriasis, PsA, and QOL. These baseline data were to allow us to identify knowledge, competence, confidence, and practice gaps based on results that fall below 70% for the preferred responses. At the conclusion of the workshop, participants completed an ARS-based post-questionnaire that repeated the measures of the pre-questionnaire. Regarding practice patterns, the post-questionnaire was to measure the participants’ intent to perform assessments of psoriasis, PsA, and QOL as well as their intent to use assessment scales and tools in their practice. By comparing the pre-questionnaire results to the post-questionnaire results, we were to determine if improvements in knowledge, competence, and confidence occurred. Pre- and post-questionnaire data were recorded by the ARS using unique identifier numbers, paired based on the identification numbers and were to be analyzed using paired t tests. As these questionnaires were administered immediately prior to and following the workshop, any improvements would be assumed to be a direct result from participation in the workshop.

*Workshop Evaluation*

Participants also completed an evaluation of the workshop within the AAD’s meeting evaluation system. The evaluation included 5-point Likert scale-based questions to measure the amount participants felt their knowledge increased as a result of participating in the workshop and how strong of an impact they felt the workshop would have on their clinical practice. The perception of increased knowledge data was to be correlated with actual improvements in knowledge determined from the pre- and post-questionnaire using single and multiple regression analyses.

The outcomes to be analyzed below were not realized due to lack of participation in the post workshop implementation activities and online activity.

*Chart Audit*

Documented practice pattern data was to be collected through online chart audits. Participants

were to answer polar and checklist questions based on their assessment of the patients’ psoriasis,

PsA, and QOL as documented in the charts. These measures were to be repeated in the

follow-up chart audit. By comparing baseline and follow-up chart audit data, it was to be determined

if improvements in the assessment of patients’ psoriasis, PsA, and QOL, and in the use of

assessment scales and tools occurred. As the data extracted from the patient charts would not

contain any patient identifier information in accordance with the Health Insurance Portability

and Accountability Act (HIPAA) and could not be paired, these data were to be analyzed in aggregate using 2-sample t tests. Since these measures occur outside of the workshop where other events
could impact the outcomes, we were to determine if there was an impact from participation in the

workshop by comparing the data to chart audit data from controls. These data were also to be

compared to the self-assessment results from the pre-questionnaire to determine if participants were accurately self-assessing their practice, which was unlikely based on published reports.14 Additionally, these data were to be compared with the intent to assess data from the post-questionnaire to determine if there was a discrepancy between intent to improve and documented improvements.

*Patient Questionnaire*

Patient perceptions of their QOL and treatment satisfaction were to be collected through baseline

and follow-up online questionnaires using 5-point Likert scale-based questions. Patient identification data would not be collected in accordance with HIPAA; instead, patients were to be provided with an identification number that was specific to their clinician participant. As a result, the patient data was to be analyzed in aggregate using 2-sample t tests. By comparing these data to control data, we were to determine if there are observed improvements creditable to the clinicians’ participation in the workshop. As these data were to be collected using the same unique identifier numbers as the workshop ARS, we were to determine if there were correlations between improvements in the participants’ knowledge, competence, confidence, or documented practice and improvements in their patients’ QOL and treatment satisfaction using single and multiple regression analyses.

*Follow-up Participant Questionnaire*

The online follow-up questionnaire for participants was to measure their retention of knowledge

and competence gained from participation in the workshop through multiple-choice, case based

clinical questions. Additionally, 5-point Likert scale-based questions were to measure the retention of confidence. These data were to be collected using the same unique identifier numbers used in workshop ARS and compared to both pre-post questionnaire results using paired t tests. Controls who completed the pre-post questionnaires were also asked to complete this portion of the follow-up questionnaire to determine if there was a relationship between retention of knowledge, competence, and confidence and participation in the workshop. In addition, the follow-up questionnaire was to include evaluation questions related to the entire blended learning experience so that

additional improvements to the methodology and resources described here could be made after

the completion of the research project.

 **Ethical**
[**Ethical aspects**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Ethical_aspects)**of implementing and studying the**[**intervention(s)**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Interventions)**and how they were addressed, including, but not limited to, formal ethics review and potential conflict(s) of interest**Patient volunteers who were recruited by expert psoriasis and PsA faculty, signed all appropriate consent and release forms prior to participation in live workshops. The live patient demonstrations during the workshop were followed by patient case vignettes featuring patient videos or photographs. All patient photographs and/or videos used in these vignettes were unidentifiable.During the implementation activities, documented practice pattern data was to be collected through online chart audits. The data extracted from the patient charts was not to contain any patient identifier information in accordance with the Health Insurance Portability and Accountability Act (HIPAA).

 **Results**
**a.  Initial steps of the**[**intervention(s)**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Interventions)**and their evolution over time (e.g., time-line diagram, flow chart, or table), including modifications made to the intervention during the project**

**b.  Details of the**[**process**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Process)**measures and outcome**

**c.  Contextual elements that interacted with the**[**intervention(s)**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Interventions)

**d.  Observed associations between outcomes, interventions, and relevant contextual elements**

**e.  Unintended consequences such as unexpected benefits,**[**problems**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Problem)**, failures, or costs associated with the**[**intervention(s).**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Interventions)

**f.  Details about missing data**
*Intervention and Implementation Activities Flow Chart*



In addition to the activities above, a complimentary online activity was also launched after the follow-up implementation activity was to be completed.

Contextual elements that interacted with the workshop intervention include the appropriate match between the project content and the target audience consisting of dermatologists and other interested physicians (e.g., primary care physicians and rheumatologists), and non-physician clinicians (e.g., nurse practitioners and physician assistants) who provide dermatologic care to patients with psoriasis and PSA.

This was demonstrated by successfully attracting 366 attendees to the workshops. In addition, the venue of the workshops made it accessible to this audience by holding the workshops during AAD Annual and Summer meetings located in various geographic regions throughout the US. This offered an efficient and cost-effective opportunity for participants to attend these workshops. A robust marketing campaign ensured that this target audience was aware of the opportunity to participate in this educational activity. The actual workshop was presented by experts in their field speaking on relevant content that was current and evidence based. Actual patient demonstrations gave participants a “hands-on” experience in assessing severity using scales and tools they would then take back to practice.

As further demonstration of the success of this workshop, a control group attended a psoriasis forum session entitled *Research Gaps in Psoriasis: Opportunities for Future Studies and the Development of New Outcome Measures for Clinical Trials* also offered at an AAD Annual Meeting. These attendees were also presumed to treat psoriasis. The attendees of the control session answered the same pre- and post-survey but did not attend the *Practical Approaches to Assessing Psoriasis and Psoriatic Arthritis* intervention workshop. Analysis comparing the pre- and post-survey showed significant improvement in the knowledge, confidence, and competence of the participants who attended the intervention workshop compared to the participants of the control session. In addition, an average of 94% respondents attending the *Practical Approaches to Assessing Psoriasis and Psoriatic Arthritis* felt attendance at their workshop had either a very positive or positive impact on their knowledge in assessing and evaluating psoriasis and PsA and that this knowledge would have a positive impact on their practice. Evaluations also showed that learners plan to perform joint examinations having now learned to better evaluate joints and more accurately assess psoriasis and PsA. We project that the impact of the workshop educational intervention was improved care for an estimated 3,600 psoriasis and PsA patients that had been treated during the 12-month period following the intervention (a minimum of 30 patients/per physician learner/per year x approximately 120 practicing physician learners = 3,600 patients impacted annually). We anticipate that the number of patients impacted will continue to increase as time progresses and learners continue to treat new patients.

The post workshop implementation activities were not as successful. Workshop participants who continued onto the implementation activities were met with a barrier in collecting chart audit data. The project did not take into consideration the physician’s need to extract specific chart audit data that was not programmed into the physician’s Electronic Medical Records. This barrier resulted in the inability of the physician to extract the data needed for the chart audit during the baseline, follow-up and online activities. This was impactful as this data was intended to demonstrate successful implementation and increased clinical use of tools for assessing psoriasis, PsA, and QOL in patients with psoriasis. Without this data, the participant could not complete the entire learning experience. It’s our reasoning that in turn, this impacted the motivation by the participant to complete the patient recruitment portion of the implementation and online activities. This too, was important as this patient data was designed to measure increased QOL and treatment satisfaction as reported by patients with psoriasis and PsA. Without the chart audit data or patient data, we were unable to conclude an impact of the live educational intervention on improved care.

Upon completion of the implementation activities and online activity, a second effort was made to collect data necessary to meet the objectives of the project. This alternative research methodology proposed to gather self-reported data on the impact the program had on physician attendees, however; there was a lower than anticipated number of physicians who participated in the workshop educational intervention. Because of this low number and the length of time since the educational activity had occurred, it was decided that we would not have sufficient data to support a solid conclusion regarding the impact of the intervention. In particular, we became very concerned that the time lapse between the pre and post intervention data collected had allowed for a variety of variables impacting practice to distort a final conclusion. The measures regarding the assessment of improved patient QOL post intervention was also not realized. Since AAD does not have direct contact with the patients of our members or other learners, and we had not engaged learners in either the initial or alternative research concepts, we were not able to establish a connection between the workshop intervention and impact on patient QOL.

**Summary**a.  Key findings, including relevance to the [rationale](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Rationale) and specific aims

b.  Particular strengths of the project

Project Impact

Key findings include data demonstrating the results from the *Practical Approaches to Assessing Psoriasis and Psoriatic Arthritis* workshop had a positive impact on participants as reflected by pre and post questionnaire workshop data indicating an increase in knowledge, competence, and confidence in using assessment tools for psoriasis, PsA, and QOL across all three workshops. In addition, control group data comparing the pre- and post-survey results with the intervention group, showed significant improvement in the knowledge, confidence, and competence of the participants who attended the intervention workshop. Lastly, an average of 94% respondents attending the felt attendance at the intervention workshop had either a very positive or positive impact on their knowledge in assessing and evaluating psoriasis and PsA and that this knowledge would have a positive impact on their practice. Evaluations also showed that learners plan to perform joint examinations having learned to better evaluate joints and more accurately assess psoriasis and PsA. This data suggest successful achievement of the aim to increase knowledge, competence, and confidence in using assessment tools for psoriasis, PsA, and QOL
The second and third aims to increase the clinical use of tools for assessing psoriasis, PsA, and QOL in patients with psoriasis and increase QOL and treatment satisfaction as reported by patients with psoriasis and PsA, were not achieved due to a barrier to data collection for the implementation activities and online activity. Therefore, no data was collected to establish practice pattern data to measure increase in clinical use of tools or measure patient QOL. Due to this barrier, participants were not able to complete the entire blending learning experience. It is our thought that this discouraged learners to move on in recruiting patients to complete QOL data surveys. Although an incentive was offered to physicians to complete the project, we aren’t able to draw conclusions if this was impactful due to the barrier in chart audit data collection. Given no patients were recruited, we were unable to measure the impact of these incentives for patients to complete the surveys.

Strengths of the project included the prior work and lessons learned regarding the translation of evidence on psoriasis and PsA which was used to inform the overall workplan for this project. In addition, national psoriasis and PsA experts who contributed their time and expertise to create and teach content on this subject led to a successful workshop. Patients were willing to donate their time to participate in the workshops which afforded participants a “hands-on” experience in the use of scales and tools in assessing patients. AAD and TTF staff were well chosen to perform their roles in this project as well.

**Interpretation
a.  Nature of the association between the**[**intervention(s)**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Interventions)**and the outcomes**

**b.  Comparison of results with findings from other publications**

**c.  Impact of the project on people and**[**systems**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Systems)

**d.  Reasons for any differences between observed and anticipated outcomes, including the influence of**[**context**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#context)

**e.  Costs and strategic trade-offs, including**[**opportunity costs**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Opportunity_costs)

The association between the intervention and the outcomes are inconclusive due to both a barrier in the implementation activities and online activity data collection method. For the workshop data that was collected, departure of project staff assigned to analyze this data did not allow for statistical comparisons of the workshop data.

The impact of the project is an estimated 3,600 psoriasis and PsA patients treated during the 12-month period following the workshop intervention with learners using the knowledge gained from the intervention (a minimum of 30 patients/per physician learner/per year x approximately 120 practicing physician learners = 3,600 patients impacted annually). This number of patients impacted is anticipated to increase upward as time progresses and learners continue to treat new patients.

**Limitations
a.  Limits to the**[**generalizability**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Generalizability)**of the work**

**b.  Factors that might have limited**[**internal validity**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#Internal_validity)**such as confounding, bias, or imprecision in the design, methods, measurement, or analysis**

**c.  Efforts made to minimize and adjust for limitations**

**Conclusions
a.  Usefulness of the work**

**b.  Sustainability**

**c.  Potential for spread to other**[**contexts**](http://www.squire-statement.org/index.cfm?fuseaction=page.viewpage&pageid=485#context)

**d.  Implications for practice and for further study in the field**

**e.  Suggested next steps**

In regard to the key objectives of this project, learners attending the workshop intervention reported increased knowledge, competence, and confidence in using assessment tools for psoriasis, PsA, and QOL. It is felt that this new or enhanced knowledge gained by learners from the educational intervention has and will continue to translate into increased patient treatment satisfaction and QOL for their patients. The post workshop implementation activities were not successful. Workshop participants who continued onto the implementation activities were met with a barrier in collecting chart audit data. The project did not take into consideration the physician’s need to extract specific chart audit data that was not available in the physician’s Electronic Medical Records. This barrier resulted in the inability of the physician to extract the data needed for the chart audit during the baseline, follow-up and online activities. This was impactful as this data was intended to demonstrate successful practice patterns during implementation. In hindsight, a pilot of the implementation activity chart data collection tool would have served as useful in identifying this as a weakness that could have been corrected prior to the project. The impact of this barrier continued as the participants could not complete the entire learning experience without this data. It’s our reasoning that the barrier to completing the project impacted the motivation by the participant to complete the patient recruitment portion of the implementation and online activities. This patient data was designed to measure increased QOL and treatment satisfaction as reported by patients with psoriasis and PsA. Without the chart audit data or patient data, we were unable to meet the last two objectives of the project that would conclude any definitive impact of the live educational intervention on improved care in practice.

A second effort was made to collect the data necessary to meet the final two objectives of the project. This alternative research methodology proposed to gather self-reported data on the impact the program had on physician attendees, however; there was a lower than anticipated number of physicians who participated in the workshop educational intervention. Because of this low number and the length of time since the educational activity had occurred, it was decided that we would not have sufficient data to support a solid conclusion regarding the impact of the intervention. In particular, we became very concerned that the time lapse between the pre - post intervention data collected had allowed for a variety of variables impacting practice to distort a final conclusion. The measures regarding the assessment of improved patient QOL post intervention was also not realized. Since AAD does not have direct contact with the patients of our members or the learners, and we had not engaged learners in either the initial or alternative research concepts, we were not able to establish a connection between the workshop intervention and impact on patient QOL.

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