




Core Curriculum to Facilitate the Expansion of a Rheumatology Practice to Include Nurse Practitioners and Physician Assistants

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Objective. Due to an aging population, increasing prevalence of rheumatic disease, and a growing supply and demand gap of rheumatology providers, innovative solutions are needed to meet the needs of persons with rheumatic conditions. Nurse practitioners (NPs) and physician assistants (PAs) have been identified as a group of health professionals who could help address the workforce shortage. The Executive Committee of the Association of Rheumatology Health Professionals (ARHP), a division of the American College of Rheumatology (ACR), charged a task force to facilitate the preparation of NPs/PAs to work in a rheumatology practice setting.

Methods. The task force, consisting of private practice and academic rheumatologists, and NPs and PAs, from both adult and pediatric settings, conducted a needs assessment survey of current NPs and PAs to identify mechanisms for acquiring rheumatology knowledge. Through face-to-face and webinar meetings, and incorporating stakeholder feedback, the task force designed a rheumatology curriculum outline to enrich the training of new NPs and PAs joining rheumatology practice.

Results. Informed by the needs assessment data and stakeholders, an NP/PA rheumatology curriculum outline was developed and endorsed by the ACR Board of Directors for use by community-based and academic rheumatology practices, whether pediatric or adult, who desire to add NPs and PAs to their practice setting.

Conclusion. As rheumatology is facing workforce shortages, the ACR/ARHP rheumatology curriculum outline can be utilized to train NPs and PAs and create more efficient integration of NPs and PAs into rheumatology practice.

INTRODUCTION

There is an acknowledged and requisite need to increase the number of trained rheumatology health professionals, including physicians, nurse practitioners (NPs), and physician assistants (PAs), in order to meet the demands for patient access to care (1,2). The value of NPs/PAs in primary care

and in various medical specialties, including rheumatology practice, is well-recognized (3–8). Providing care for patients with rheumatic disease requires a breadth of knowledge in diagnosis, pharmacologic, and nonpharmacologic treatment, as well as monitoring for complications and comorbidities. NPs/PAs improve access and deliver high-quality rheumatologic care, which may reduce physician clinical and

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Significance & Innovations

- To meet the growing demands on the rheumatology workforce, the specialty of rheumatology must develop innovative methods and tools for rheumatology clinicians to efficiently train nurse practitioners (NPs) and physician assistants (PAs) in the specialty of rheumatology.
- Development of a formal NP/PA curriculum outline in rheumatology is novel and can serve as a tool when adding NPs/PAs into clinical rheumatology practice.
- No other medical specialty has yet created an endorsed, standardized training tool that can aid in the preparation of NPs/PAs in a medical specialty.

administrative workload, and are well-received by both patients and physicians (9–20).

Specialty training is required for rheumatology physicians; however, NPs/PAs are not required to pursue postgraduate programs after completing generalist, primary care-focused training. Recently developed rheumatology graduate medical education milestones for rheumatology fellows in training use “standards to assess trainees’ mastery of knowledge, skills, and attitudes necessary to practice rheumatology competently” (21). Similar guidelines do not exist for NPs/PAs entering rheumatology practice. The requisite skills to be a competent rheumatology provider are applicable regardless of setting or profession. Therefore, a systematic process dedicated to training and efficiently incorporating an NP/PA into any practice setting is important to ensure that they have the necessary knowledge and skills to practice in rheumatology.

The need to increase NPs/PAs in rheumatology has been one area of focus for the American College of Rheumatology (ACR) and its division, the Association of Rheumatology

Health Professionals (ARHP). The ACR Blue Ribbon Panel on Academic Rheumatology, convened in 2012, evaluated the state of academic rheumatology and made the following recommendations regarding NPs/PAs practicing in rheumatology: 1) increase efforts aimed at growing the rheumatology workforce and limiting workforce attrition, 2) increase the support of adult and pediatric rheumatology units in providing specialized training for physicians and NPs/PAs, and 3) develop best practices for effective integration of nonphysician health professionals into academic divisions and practices (22). These principles are similarly applicable in the private-practice setting.

One educational product of the ACR/ARHP is the *Advanced Rheumatology Course*. This online, 19-module training was initially intended for NPs/PAs to use to broaden their rheumatology knowledge base while integrating into clinical practice. The *Advanced Rheumatology Course* has been completed by a variety of health professionals, including trainees, fellows, physicians and NPs/PAs. The ACR/ARHP recognized the need for additional educational tools to most efficiently train NPs/PAs in the knowledge, skills, and attitudes needed when joining a rheumatology practice. Academic and private practices should be able to utilize these training tools when desiring to expand a clinical practice to include NPs/PAs, thereby making a commitment and investment in the NP/PA being a lifelong learner (23).

The ARHP Executive Committee convened a task force to promote specialty training of NPs/PAs entering rheumatology, including the development of a curriculum outline, thereby facilitating the preparation of NPs/PAs to work in rheumatology practices. The task force was comprised of NPs, PAs, clinical rheumatologists, health professional educators, and ACR and ARHP staff. Rheumatology educators, with expertise in curriculum development, were vital members of the task force. In the selection of the task force members, diversity was important, including gender, geography, practice setting (adults and pediatrics, private practice, and academic practice), and early, middle, and late

Table 1. Crosswalk of nurse practitioner competencies and physician assistant competencies*

	NCCPA, ARC-PA, PAEA, and AAPA core competencies					Interpersonal/ communication skills
	Patient care	Medical knowledge	Systems-based practice	Practice-based learning and improvement	Professionalism	
NONPF core competencies						
Scientific foundation		X				
Leadership			X			X
Quality			X	X		
Practice inquiry	X					
Technology/information literacy	X			X		X
Policy			X		X	
Health delivery systems	X		X			
Ethics					X	
Independent practice	X	X	X		X	X

* NCCPA = National Commission on Certification of Physician Assistants; ARC-PA = Accreditation Review Commission on Education for the Physician Assistant; PAEA = Physician Assistant Education Association; AAPA = American Academy of Physician Assistants; NONPF = National Organization of Nurse Practitioner Faculties.

career clinical providers. The task force's work, the development of a tool that could be used by rheumatologists in practice when desiring to expand their practice to include NPs/PAs, is described below.

MATERIALS AND METHODS

The task force created a rheumatology curriculum outline (RCO) to provide a structured and comprehensive educational approach for the NP/PA and the supervising/collaborating physician mentor as the NP/PA enters a rheumatology practice. The task force recognized that the RCO would have value for both new graduate NPs/PAs and experienced NPs/PAs entering rheumatology from another medical specialty. The task force accomplished the RCO creation in a stepwise approach as follows: 1) conducted a needs assessment through a literature search and survey of NPs/PAs, 2) evaluated data obtained from literature search and survey, 3) collaborated in development of the RCO, and 4) obtained valued stakeholder feedback.

Needs assessment. Literature review. The task force conducted a review of the literature utilizing PubMed, Web of Science, CINAHL, and ERIC databases to obtain an environmental scan regarding the utilization of NPs/PAs in rheumatology practice, as well as the available opportunities for NPs/PAs to obtain rheumatology knowledge and skills. The following keywords were utilized in this literature review: rheumatology, nurse practitioner(s), nurse's role, physician assistant, professional role, NPs/PAs, curriculum methods or organization and administration or standard or development or planning or design or guide or implementation or content, education nursing or physician assistant, or education rheumatology.

Needs assessment survey. A needs assessment survey was distributed to ARHP NP/PA members (n = 317) to obtain their input regarding key elements of their initial rheumatology training to provide guidance in curriculum development. ACR rheumatologist members were not included in this needs assessment survey as the ACR membership database does not identify rheumatologists working with NPs/PAs. Potential survey participants were contacted via e-mail with an initial invitation to participate, followed by 1 e-mail reminder sent 7 days later. The survey was open for responses for 30 days. Data requested in the needs assessment survey included demographic data, length of employment of NP/PA in rheumatology, rheumatic diseases treated in practice, practice setting and responsibilities in specific settings, classes of medications prescribed, and how knowledge, skills, and attitudes were developed upon initial entry into rheumatology practice.

RCO creation resources. The task force met for an in-person, 1.5-day meeting to review the articles obtained from the literature search and survey results. The task force subsequently utilized electronic communications and telephonic webinars to further complete the RCO, while considering data gathered by the task force. Together with the expertise of the rheumatology curriculum experts, the task force reviewed the principles in *Curriculum Development for Medical Education: A Six-Step Approach* (24). The task force recognized

that a published RCO does not exist for medical students or residents. The adult rheumatology Entrustable Professional Activities (EPAs), pediatric rheumatology EPAs, adult rheumatology curricular milestones, core curriculum outline for rheumatology fellowship programs, and the rheumatology toolbox for tracking of curricular milestones implementation, which were reviewed by the task force, were formative in RCO creation (25).

The RCO utilizes the core competencies for NPs/PAs (26,27), which parallel the Accreditation Council for Graduate Medical Education Core Competencies established for physicians (28). These NP/PA core competencies served as a framework for the RCO development. Recognizing the similarities between NP and PA core competencies, a cross-walk of the NP and PA competencies was performed and applied by the task force (Table 1). Given these similarities, it was evident that a single curriculum could be developed for use by NPs/PAs joining rheumatology practice.

Throughout the development of the RCO, the task force members requested review and input from other adult and pediatric, community-based, and academic-based rheumatology providers, including rheumatologists and rheumatology health providers who have trained NPs/PAs. The stakeholders were selected to include geographic, gender, and practice-setting diversity. These stakeholders included members of the following: ACR Committee on Rheumatologic Care (CORC), ACR Committee on Training and Workforce Issues (COTW), ACR Curriculum Subcommittee of the COTW, ARHP Practice Committee, and ACR and ARHP Executive Committees. To ensure that the curriculum outline reflected current educational methods, a review of the RCO by a group of educational leaders (Rheumatology Research Foundation Clinician Scholar Educator Award recipients) was sought. Stakeholder feedback was essential to create a curriculum that would be widely accepted and broadly utilized within the rheumatology community.

RESULTS

The needs assessment survey, sent to the NP/PA ARHP membership, resulted in 81 responses of 317 surveys (25.6%

Table 2. Needs assessment survey respondent characteristics

	Percentage (absolute number)
Sex	
Female	90.1 (73)
Male	9.9 (8)
Discipline*	
Nurse practitioner	61.7 (50)
Physician assistant	37.0 (30)
Length of employment in rheumatology, years	
0–5	45.24 (38)
6–10	15.48 (13)
11–15	16.67 (14)
>15	22.62 (19)

* One respondent reported discipline as occupational therapist.

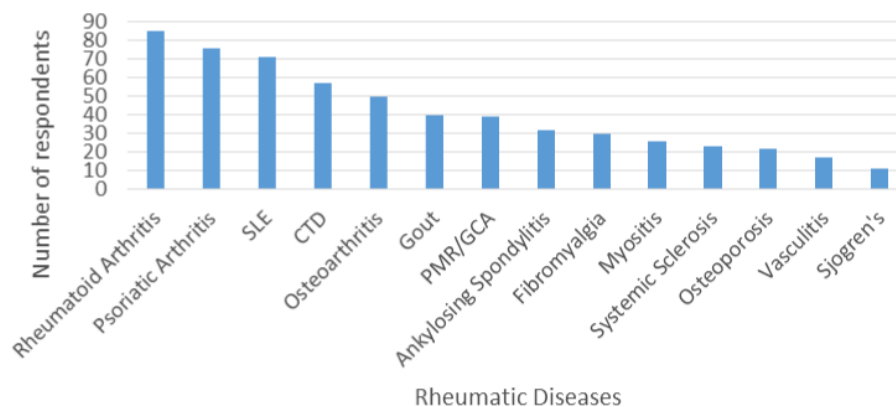


Figure 1. Results from needs assessment survey showing rheumatic diseases treated. SLE = systemic lupus erythematosus; CTD = connective tissue diseases; PMR/GCA = polymyalgia rheumatica/giant cell arteritis.

response rate). Not surprisingly, and reflective of the current gender representation in both the NP and PA professions, female respondents (90.1%) outnumbered male respondents. The needs assessment survey revealed that the largest proportion of respondents (45.2%) had been in rheumatology for less than 5 years (Table 2). Data regarding the roles of NPs/PAs in rheumatology practice also included a broad array of rheumatic diseases seen by NPs/PAs (Figure 1) and a wide range of pharmacotherapy prescribed (Figure 2). The respondents listed a variety of resources important to NPs/PAs new to rheumatology, with the most important being 1) a colleague mentor physician, NP, or PA; 2) the ACR/ARHP; 3) a textbook; and/or 4) online resources (Table 3).

RCO tool. The NP/PA RCO was endorsed in February 2017 by the ACR Board of Directors and is available on the ACR website (URL: <https://www.rheumatology.org/Portals/0/Files/Nurse-Practitioner-Physician-Assistant-Curriculum-Outline.pdf>).

The RCO provides rheumatologists and NPs/PAs with structure and guidance to effectively integrate NPs/PAs new to rheumatology practice, as well as to aid in the acquisition of the knowledge, skills, and attitudes requisite of rheumatology health professionals. The task force recognized that NPs/

PAs acquire and master these skill sets at variable rates; therefore, the RCO is intended to be a guide for the rheumatologist and NP/PA as the NP/PA enters into the practice, rather than a prescription with a strict training timeline. The RCO is not intended to be restrictive in nature (i.e., only seeing a few diagnoses) and does not limit the scope of licensure (i.e., allowing for the full range of clinical activities delegated by the supervising/collaborating rheumatologist) and practice under the laws regulating NP/PA professional practice (i.e., to function as a practitioner with supervision/collaboration).

Recognizing that different practices have varying needs, some examples of “exceeding expectations” were included in the RCO. Whether these “exceeding expectations” or other duties, as assigned, are addressed during the initial period of the NP/PA joining the practice will be at the discretion of the supervising/collaborating rheumatologist and NP/PA, based on the location, setting, availability, and individual practice needs.

A rheumatology toolbox for suggested learning activities as well as performance assessments is incorporated into the RCO to facilitate the development of a robust learning environment for the NP/PA new to rheumatology practice. The toolbox provides a collection of resources, identified by the task force and informed by the needs assessment, as

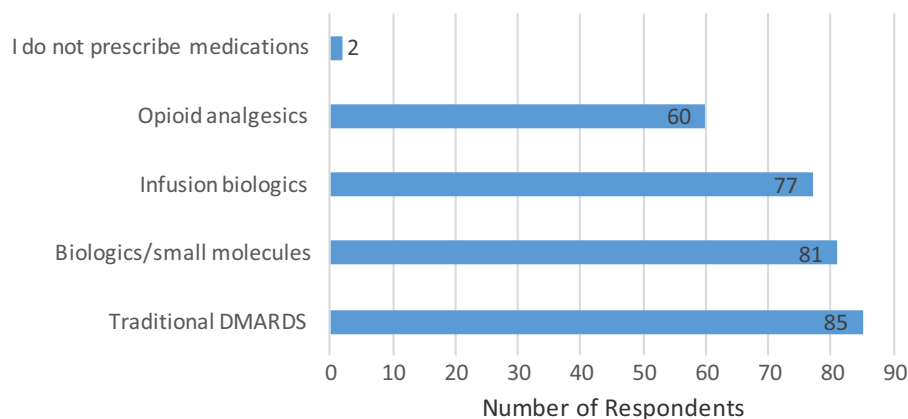


Figure 2. Pharmacotherapy prescribed by nurse practitioners and physician assistants (needs assessment survey responders) in rheumatology practice.

Table 3. Most important resource identified by needs assessment survey responders*

Resource	Respondents who identified this resource
Preceptor (MD/DO, NP, or PA)	20
ACR products	19
Textbook	18
Online resources	17
Conferences	7
Journal reading	6
Injection class or workshop	3
Pharmaceutical representative	3
Video or learning modules	3
Patient resources	2
Other	3

* DO = doctor of osteopathic medicine; NP = nurse practitioner; PA = physician assistant; ACR = American College of Rheumatology.

important and useful for the development and experience of the early NP/PA rheumatology provider. The toolbox includes potential learner activities, as well as tools for assessment to be utilized by each practice (private or academic, adult or pediatric). It is anticipated, for example, that the *Advanced Rheumatology Course* would be accessible and utilized as a valuable resource in the process of adding NPs/PAs new to rheumatology practice.

The task force recommended evaluating the progress of the NPs/PAs at regular intervals throughout the training experience. Structured evaluations are recommended at least twice during the training period. The task force recognizes that more frequent progress checks may be needed depending on individual and specific local circumstances.

DISCUSSION

The RCO for NPs/PAs is the first specialty-specific curriculum outline for NPs/PAs both developed and endorsed by a professional medical specialty society, the ACR/ARHP. The knowledge, skills, and attitudes for delivery of specialized rheumatology care by NPs/PAs are delineated in the RCO. A strength of the RCO is its applicability and practicality for both the rheumatologist and the NP/PA, and as a standard, yet flexible, tool to meet any rheumatology practice's unique needs. The RCO can be utilized throughout the entire training period as an NP/PA begins working in any rheumatology practice.

The creation of this document was multifaceted, based on input gathered through a survey, electronic and in-person communications from rheumatologists, rheumatology NPs/PAs, and other important stakeholders. The majority of the rheumatology NPs/PAs who responded to the needs assessment survey has worked in rheumatology practices for less than 5 years. Emphasis by this group was placed on the importance of a strong mentoring relationship with a supervising/collaborating physician during the initial training. Based on the work of Hauer et al (29) and Sheu et al (30), the relationship between an individual rheumatologist and an NP/PA would be anticipated to gradually develop overtime, including levels of increased trust.

The task force recognizes that academic rheumatology practices may be interested in developing more formalized training programs for NPs/PAs. While NP/PA residency or fellowship specialty training programs exist (31–35), most NPs/PAs do not elect to participate in formal postgraduate training programs (36). While NP/PA postgraduate training programs in other medical specialties offer an educational plan providing curricular content developed at each training site, there exists no centralized or standardized curriculum across the specialty for any of these specialty NP/PA programs. Thus, uniquely, strengths of the RCO include the homogeneity of curricular content that can be utilized nationally when training NPs/PAs new to rheumatology. In fact, the standardized format of the RCO may assist in attracting more NPs/PAs to the specialty. Additionally, the RCO could be distributed to educational institutions so that NP/PA students may utilize it before, during, or after clinical rotations or clerkships to enrich the educational experience. While it is too early to tell, NPs/PAs seeking residency/fellowship may also be attracted to train at institutions utilizing the RCO.

There is no currently available formalized NP/PA postgraduate rheumatology training program similar to physician rheumatology fellowships, although such a program did exist for PAs from 2004–2008 at the University of Texas Southwestern Medical Center, underwritten by the Veterans Health Administration. Although this previous PA rheumatology fellowship was believed to be successful with all 4 PA fellowship graduates securing positions in rheumatology, the program was discontinued due to unavailability of funding to continue the program (37). Thus, in the absence of a formalized training program or a curriculum structure, most NPs/PAs enter rheumatology and other specialties through an on-the-job training experience.

The RCO, as a valued resource to assist rheumatologists and NPs/PAs, is a structured, foundational tool that can be used effectively by practices of all types (private and academic, adult and pediatric) to efficiently educate an NP/PA new to rheumatology. Individual practices can tailor the RCO to meet the needs of their individual practice as the practice determines. As a flexible tool, the RCO can aid in making such decisions and supporting the necessary training to achieve the individual practice's goals.

As with all other scientific study and educational tool development, the authors recognize limitations in the development process of the RCO. First, the needs assessment survey response rate was 25.6% and did not include rheumatologists who work with or have worked with NPs/PAs. While survey data were limited, the NP/PA task force members' anecdotal experiences practicing in rheumatology were viewed as similar, in regards to diagnoses treated and prescribing practices, which was supported with stakeholder perspectives and experiences. Secondly, the survey did not include the practice setting, and this may have affected the results defining the responsibilities of the NPs/PAs in their practices. Third, the RCO is a new educational tool that needs to be tested. In the coming years, the authors anticipate feedback from those who have utilized this resource. Finally, there are limited data regarding how NPs/PAs are trained in rheumatology, and this will hopefully change as the ACR-endorsed tool begins to be adopted by the field.

The goal of the RCO, when utilized by rheumatology practices, is to enrich the experience of training an NP/PA, assisting the NP/PA in gaining confidence in his/her fund of knowledge and foundational skills, and ultimately functioning as a fully integrated team member in a rheumatology practice. The implementation of the RCO presents an opportunity for research. In addition, the RCO offers other significant potential advantages, many of which could be used as metrics when evaluating its success: 1) establishing a pattern of lifelong learning for the NP/PA (23), 2) the RCO could serve as a recruitment tool by rheumatologists and aid in the retention of NPs/PAs in rheumatology who value the investment in their career, 3) an NP/PA may choose to dedicate his/her career to working in a rheumatology setting, increasing their confidence level, enhancing relationships and trust with the supervising/collaborating rheumatologist, and thereby becoming more able to assume additional responsibilities, as delegated by the rheumatologist (29,30), 4) some trained rheumatology NPs/PAs may share their knowledge and experience with fellow colleagues by serving as an NP/PA mentor, 5) the RCO may have a positive impact on the rheumatology workforce shortages, and inclusion and incorporation of the training of NPs/PAs using the RCO within the structure of existing physician fellowships, as in the University of Texas Southwestern PA fellowship (37), and 6) development of future funding opportunities to educate and train NPs/PAs in rheumatology using the RCO in a variety of settings.

The task force invites the ACR/ARHP leadership, as well as other rheumatology educators, clinicians, and potential funding sources to consider these points and others when evaluating the success of the RCO in future years. The utilization and effectiveness of the RCO will require periodic review and regular updating to ensure that it continues to be current in the foundational rheumatology knowledge essential for specialty practice. Modifications and additions to the RCO, as overseen by the ACR/ARHP, will be warranted as new developments in rheumatology emerge.

The task force recognized that one of the strengths of the RCO is its potential to be widely used nationally and internationally. The role of NPs/PAs in countries outside of the US is evolving and will help to address worldwide health care workforce challenges. As numbers of NP/PA providers increase and the need for an international rheumatology workforce continues to expand, the portability and applicability of the RCO lends itself to partial or full utilization globally.

The RCO, developed by the ACR/ARHP, is a novel approach to prepare NPs/PAs new to the field of rheumatology. It will allow for the efficient integration of NPs/PAs into rheumatology practice and may provide opportunities to further enhance NP/PA specialty education. Most importantly, the RCO will help grow the team of health professionals dedicated to our common mission of advancing rheumatology.

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AUTHOR CONTRIBUTIONS

All authors were involved in drafting the article or revising it critically for important intellectual content, and all authors approved the final version to be submitted for publication. Mr. Smith had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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Acquisition of data. Smith, Slusher, Scott, Haag, Smarr.

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