



ASSOCIATION OF PROFESSORS OF DERMATOLOGY

Evidence-Based Practice Prescription

ASSESSMENT FORM

Introduction:

Evidence-based practice (EBP) can be defined as the *integration* of the highest-quality research evidence *with* patients' values and the clinical circumstances. However, studies have shown that physicians leave most clinical questions unanswered and often use sources of information that are less up-to-date or more prone to errors.

EBP includes supports life-long learning and professionalism through maintenance of up-to-date knowledge. EBP requires that the physician reflect on their knowledge gaps, form specific, searchable questions, access reliable sources of high-quality information, assess the data for applicability and reliability, apply to practice and assess the outcomes (the 5 A's: Ask, Acquire, Appraise, Apply, and Assess).

EBP supports the ACGME competencies of Patient Care and Practice-based Learning and Improvement. The Dermatology Milestones include behaviors under the domains of Professionalism and Practice-based Learning and Improvement that apply to EBP. This tool supports assessment of resident *knowledge and use* of EBP using a realistic clinical issue and thus enables assessment of four Dermatology Milestones:

Professionalism

- II. Committed to life-long learning and improvement.
- III. Patient care is the first priority.

Practice Based Learning and Improvement

- I. Appraise and assimilate scientific evidence
- II. Continuously improve through self-assessment of competence

Getting Started:

The use of the EBP Prescription or 'tool' can be stimulated by any number of scenarios including journal club discussions or clinical encounters in outpatient, inpatient, subspecialty or procedural encounters with patients. The tool can be triggered by a resident or physician in response to a question – which often indicates a knowledge gap – and an opportunity to self-educate.

It is recommended that a shared network file be designated to store the blank tool as well as completed tools. This way the residents can access the tool from a convenient location and completion of the tool is easier in an electronic format than writing on a printed form. The completed tool can then be saved in the folder, accessed by the supervising attending for review and feedback. It can be accessed later by the resident to complete the last step of assessment of the evidence-based practice.



When a practice gap is encountered and the tool is assigned, the resident will describe the clinical scenario then re-frame question as an answerable question in the PICO format ('Ask'). They will also document which resources they used and which was the source that yielded the reference that best addressed the question. From this part of the exercise residents will begin to reflect which sources are more frequently high- or low-yield and thus become more efficient at procuring high-level evidence.

The resident is asked to record the citation so that it can be accessed by others – the supervising attending as well as other providers that had a similar question. The resident must then consider the strengths and weaknesses of the article by considering the relevance, validity and magnitude of the findings. After considering these factors the resident must then reflect on how their practice will change, especially in regards to the original clinical scenario.

The form can then be saved as a new file with a file name that is descriptive of the clinical scenario/question so that it can be easily identified by other providers that may wish to review it. The resident should also alert the supervising attending that the form is completed so that an exchange and assessment, preferably face-to-face, can be performed. The goal of this discussion is to assess and encourage the resident to complete the 5A's with a high-degree of quality, accuracy, and reflection (see assessment form).

It may also be of interest to the faculty advising the resident to consider how often the resident is self 'prescribing' the tool as this goes toward a mature ability to recognize and resolve gaps in practice.



Completing the form:

ASK: Use PICO to convert the clinical scenario into *multiple, specific, relevant terms* that will facilitate an efficient and effective search of an information resource. The PICO format helps to delineate the Population, Intervention, Comparison population or intervention, and Outcome in the clinical scenario.

ACQUIRE: Use information resources to find information that pertains to your clinical scenario. Consider the reliability of the source and relevance to the scenario. There are many options including secondary sources of distilled information, primary literature, organizations, and people.

APPRAISE: It is important to appraise the source for its relevance to the scenario, assess the validity to ensure it answers the question being investigated, and to consider the magnitude of the difference in the intervention or outcome.

Relevance can be assessed by considering the clinical relevance of studied outcome(s), population(s), test(s) or measures, intervention(s), comparator(s), and adverse effects.

Validity can be assessed by considering the appropriateness of: Study design, Adequacy of blinding, Allocation concealment, Randomization, Importance of comparison or control group, Intention to treat analysis, Invalid or biased measurement, Consideration of appropriate, Covariates ("were other relevant factors considered?"), Conclusions consistent with evidence ("do the results make sense?"), Accounted for all study participants, Follow up duration was sufficient, Appropriate statistical analysis, Sample size / Power, Sponsorship disclosed and considered for conflict of interest, and Confirmation with other studies (earlier or later).

The difference between groups can be considered using measures of magnitude (specificity, sensitivity, positive or negative predictive value, number needed to treat, relative risk, odds ratio, absolute risk reduction, mean difference) and tests of statistical significance (p-values, confidence intervals, power estimate or calculation).

APPLY & ASSESS: Based on the scenario as well as the strengths and limitations of the evidence, what have you learned and what are the next steps in this clinical situation? What was the outcome of the plan and what improvements/consideration would you make in the future?



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Prescribed by: Resident (self)		Attending	
Clinical Scenario:			
Re-frame the Question in PICO format:			
<u>P</u> opulation	<u>I</u> ntervention	<u>C</u> omparison	<u>O</u> tcome
Information Sources Used:			
Source with the Most Complete, High-Yield Information:			
The Evidence (Citation(s) and Hyperlink to Reference(s)):			
Your Appraisal of the Article(s):			
Relevance:			
Validity:			
Magnitude:			

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Name:

Date Assigned:

What did you learn?
How will your practice change? If it will not, please describe your rationale.

Discussion with Attending: (Notes)

Findings Shared/Posted: (location, date)



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III.1

ASK: Convert the clinical scenario into multiple, specific, relevant terms that pertain to the **PICO** **Format** (Population, Intervention, Comparison population or intervention and Outcome).

Beginning Resident	Junior Resident	Senior Resident	Graduating Resident	Practitioner
Some fields left blank Descriptors are general	All fields completed One general term per field	All fields completed Most fields with one specific term	All fields completed Multiple descriptors in most fields	Multiple relevant descriptors per field in all 4 fields

III.1

ACQUIRE: Information resources

Beginning Resident	Junior Resident	Senior Resident	Graduating Resident	Practitioner
Blank or 1 source	2 of the listed sources	3 of listed sources	≥4 types of sources listed	≥4 types of sources listed

Information resources include:

- Electronic databases of original/primary literature (Medline, Embase, CINAHL)
- Dermatology-specific Journals
- Other Journals (JAMA, NEJM)
- Textbook
- EBM publications or databases (Cochrane, Best Evidence, DynaMed, Clinical Evidence, etc)
- Medical website (Up-to-Date, MDConsult, eMedicine, etc)
- General internet search (google, etc)
- Clinical Guidelines (Guideline Clearinghouse)
- Professional Organization (AAD website, NIH website)
- People (colleague, consultant, attending, librarian)

III.1

**APPRAISE:
-Relevance:**

Beginning Resident	Junior Resident	Senior Resident	Graduating Resident	Practitioner
Blank or 1 issue, General description	2 issues, General description	2 issues, Specific description/ correlation for 1 or both	2-3 issues, Specific description/ correlation for 2-3	4+ issues, Specific description/ correlation for all

- Addresses clinical relevance of outcome(s)
- Addresses clinical relevance of population(s)
- Addresses clinical relevance of test(s)
- Addresses clinical relevance of intervention(s)
- Addresses clinical relevance of comparator(s)
- Addresses pertinent clinical adverse effects

III.1

Factors related to **internal validity** are considered:

Beginning Resident	Junior Resident	Senior Resident	Graduating Resident	Practitioner
Blank or 1 issue	2 of the listed issues	3 of listed issues	4 of listed issues	More than 4 of listed issues

- Appropriateness of study design
- Adequacy of blinding
- Allocation concealment
- Randomization



- Importance of comparison or control group
- Intention to treat analysis
- Invalid or biased measurement
- Consideration of appropriate covariates ("were other relevant factors considered?")
- Conclusions consistent with evidence ("do the results make sense?")
- Accounted for all study participants
- Follow up duration was sufficient
- Appropriate statistical analysis
- Sample size / Power
- Sponsorship disclosed and considered for conflict of interest
- Confirmation with other studies (earlier or later)

III.1 The **magnitude** of difference, including the **statistical significance** of differences were considered:

Beginning Resident	Junior Resident	Senior Resident	Graduating Resident	Practitioner
Blank or cannot describe	Mentions magnitude OR statistical significance, General terms used for 1	Mentions magnitude and statistical significance, General terms used for both	Mentions magnitude and statistical significance, Specific terms for 1	Mentions magnitude and statistical significance, Specific terms used for both

- **Magnitude measures:** specificity, sensitivity, likelihood ratio of a test, number needed to treat, relative risk, odds ratio, absolute risk reduction, mean difference for continuous outcomes, positive or negative predictive value

V.2 -**Statistical significance:** p-values, confidence intervals, power estimate or calculation, Type I, Type II error.

V.3 **APPLICATION:** Can correlate the literature with the patient's clinical state, circumstances, and preferences

Beginning Resident	Junior Resident	Senior Resident	Graduating Resident	Practitioner
Cannot link findings to the patient's condition, co-morbidities, circumstances, and intervention risks	Considers 1: the patient's condition, co-morbidities, circumstances, and intervention risks	Considers 2: the patient's condition, co-morbidities, circumstances, and intervention risks	Considers all: the patient's condition, co-morbidities, circumstances, and intervention risks	Considers all: the patient's condition, co-morbidities, circumstances, and intervention risks

III.2 **DISCUSSION (Assessment meeting):** An opportunity to discover if the resident has insight about their performance.

Beginning Resident	Junior Resident	Senior Resident	Graduating Resident	Practitioner
Many (>6) areas for improvement needed;	Some (4-5) areas for improvement needed;	Some (3) areas for improvement needed;	Few (1-2) areas for improvement needed;	Few (1-2) areas for improvement needed;
Few or no ideas for self-improvement and accepts suggestions	Few or no ideas for self-improvement but Accepts suggestions	Several ideas for self-improvement and accepts suggestions	Several ideas for self-improvement and accepts suggestions	Several ideas to improve and accepts suggestions



EXAMPLES:

1. EBP Prescription completed by an early (August) PGY-4 dermatology resident

Context/Rotation: <u>Derm</u> <u>Clinic</u> <u>PLG</u> <u>Mohs</u> <u>VA</u> <u>Grand Rounds</u> <u>Hospital/Inpt.</u>			
Clinical Scenario: 47 yo M pemphigus patient who has been started on oral steroids for an unknown amount of time to control his symptoms. Should the patient be started on a bisphosphonate to prevent fractures due to glucocorticoid induced osteoporosis			
Re-frame the Question in PICO format:			
Population Man with pemphigus on long-term systemic steroids	Intervention Bisphosphonate	Comparison Calcium/Vit D Or placebo	Outcome Bone fracture or Osteoporosis
Information Sources Used: <u>Pubmed</u> , <u>Cochrane reviews</u>			
Source with the Most Complete, High-Yield Information:			
The Evidence (Citation(s) and Hyperlink to Reference(s)): Adachi JD, et al. Two-year effects of alendronate on bone mineral density and vertebral fracture in patients receiving glucocorticoids: a randomized, double-blind, placebo-controlled extension trial. <u>Arthritis Rheum.</u> 2001 Jan;44(1):202-11. <u>Saag</u> KG, et al. Alendronate for the prevention and treatment of glucocorticoid-induced osteoporosis. Glucocorticoid-Induced Osteoporosis Intervention Study Group. <u>N Engl J Med.</u> 1998 Jul 30;339(5):292-9			
Your Appraisal of the Article: (see below for more information) Relevance: including men and also patients with pemphigus (though they did not specify how many men had pemphigus) on oral steroids for > or equal to 12 months. This is longer than our patient though his total duration of steroids is unknown at this point. both the alendronate and placebo groups were given calcium and vitamin D supplementation which may play some role in the overall effect on outcome Validity: large multicenter, randomized, placebo controlled trial Magnitude:			
What did you learn? In many studies of <u>bisphosphates</u> in the prevention or treatment of glucocorticoid induced osteoporosis, the patients were also given Calcium and Vitamin D supplementation. In the 12 month extension of the original study, <u>there</u> was a statistically significant decrease in the number of new vertebral fractures in the alendronate groups compared to placebo.			
How will your practice change? If it will not, please describe your rationale. It would be reasonable to start patients with long or indeterminate courses of oral steroids on <u>alendronate</u> 5mg and 800-1000mg calcium and 250-500mg U vitamin D supplementation (the side effect profile of 5 mg and 10mg of alendronate is about the same) since there is evidence that it helps prevent vertebral fractures in addition to increasing bone mineral density.			



2. Assessment of an EBP Prescription by a PGY-4 dermatology resident

ASK: Convert the clinical scenario into multiple, specific, relevant terms that pertain to the **PICO Format** (Population, Intervention, Comparison population or intervention and Outcome).

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Some fields left blank Descriptors are general	All fields completed One general term per field	All fields completed Most fields with one specific term	All fields completed Multiple descriptors in most fields	Multiple relevant descriptors per field in all 4 fields

ACQUIRE: Information resources

Beginning Resident	Junior Resident	Senior Resident	Graduating Resident	Practitioner
Blank or 1 source	2 of the listed sources	3 of listed sources	≥ 4 types of sources listed	≥ 4 types of sources listed

Information resources include:

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Textbook

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- **Medical website (Up-to-Date, MDConsult, eMedicine, etc)**

- General internet search (google, etc)

- Clinical Guidelines (Guideline Clearinghouse)

- Professional Organization (AAD website, NIH website)

- People (colleague, consultant, attending, librarian)

APPRAISE: -Relevance:

Beginning Resident	Junior Resident	Senior Resident	Graduating Resident	Practitioner
Blank or 1 issue, General description	2 issues, General description	2 issues, Specific description/ correlation for 1 or both	2-3 issues, Specific description/ correlation for 2-3	4+ issues, Specific description/ correlation for all

- Addresses clinical relevance of outcome(s)
- **Addresses clinical relevance of population(s): inclusion of men, pemphigus patients**
- Addresses clinical relevance of test(s)
- **Addresses clinical relevance of intervention(s): used a bisphosphonate**
- **Addresses clinical relevance of comparator(s): also got Calcium and Vitamin D**
- Addresses pertinent clinical adverse effects

Factors related to **internal validity** are considered:

Beginning Resident	Junior Resident	Senior Resident	Graduating Resident	Practitioner
Blank or 1 issue	2 of the listed issues	3 of listed issues	4 of listed issues	More than 4 of listed issues

- Appropriateness of study design
- Adequacy of blinding
- Allocation concealment
- **Randomization**
- **Importance of comparison or control group**
- Intention to treat analysis
- Invalid or biased measurement
- Consideration of appropriate covariates ("were other relevant factors considered?")
- Conclusions consistent with evidence ("do the results make sense?")
- Accounted for all study participants
- Follow up duration was sufficient
- Appropriate statistical analysis



- **Sample size / Power: hinted at by comment of 'large'**
- Sponsorship disclosed and considered for conflict of interest
- Confirmation with other studies (earlier or later)

The **magnitude** of difference, including the **statistical significance** of differences were considered:

Beginning Resident	Junior Resident	Senior Resident	Graduating Resident	Practitioner
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DISCUSSION (Assessment meeting): An opportunity to discover if the resident has insight about their performance.

This resident could improve (1) use of Information resources, consideration of (2) internal validity and (3) measures of magnitude, as well as thought about (4) how to apply the information to this patient's circumstances and conditions.

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Many (>6) areas for improvement needed;	Some (4-5) areas for improvement needed;	Some (3) areas for improvement needed;	Few (1-2) areas for improvement needed;	Few (1-2) areas for improvement needed;
Few or no ideas for self-improvement and accepts suggestions	Few or no ideas for self-improvement but Accepts suggestions	Several ideas for self-improvement and accepts suggestions	Several ideas for self-improvement and accepts suggestions	Several ideas to improve and accepts suggestions