



Advanced Imaging Management Workgroup

Guidelines Review Staff Report

June 19, 2009

Developed By:
Nate Rozeboom, RN, HCA Intern
Leah Hole-Curry, HCA Project Lead
Denise Santoyo, HCA Project Staff

1 OVERVIEW

1.1 Purpose

Washington State Health Care Authority is leading efforts to use evidence based medicine to make health policy and coverage decisions. A new legislatively created workgroup, Advanced Imaging Management (AIM), includes representatives of various provider, payor, and health system quality organizations in the state of Washington and is charged with identifying evidence based tools applicable to advanced imaging purchasing by state agencies.

This report is prepared by HCA staff to assist the AIM workgroup in a key task identified in the legislation and workgroup charter: identify evidence based best practice guidelines or protocols applicable to advanced imaging. It provides a group of identified guidelines and an initial review based on the guidelines review checklist approved by the workgroup. This information and the principals adopted by the AIM workgroup will assist the workgroup to develop recommendations for state agency health care purchasers related to Advanced Imaging.

The AIM Workgroup reviewed the last available year of utilization data for the three health purchasing agencies direct purchasing, Department of Social and Health Services (Medicaid), Health Care Authority (Public Employee Health Plan), and Labor and Industries (Workers Compensation). The following topics were selected based on utilization and relevance to workgroup mandate. (e.g. a high percent of excluded advanced imaging related to therapeutic use of PET for cancer, ultrasound, and mammography). A total of eight areas were identified (MRI and CT Brain were later combined).

Table 1. WA State Purchasing High Priority Advanced Imaging

	All Agency Paid (annual)	All Agency Unit	Per Unit Cost
MRI Cervical Subtotal	\$5,030,759	9,142	\$550
MRI Lumbar Subtotal	\$11,920,418	19,194	\$621
MRI Upper Joint Subtotal	\$7,974,280	13,084	\$609
MRI Lower Joint Subtotal	\$8,165,721	14,070	\$580
MRI Brain Subtotal	\$6,327,112	10,447	\$606
MRI Subtotal	\$39,418,291	65,937	\$598
CT Brain	\$2,421,023	13,762	\$176
CT Abdomen/Pelvis	\$10,477,615	39,259	\$267
Cardiac Nuclear Subtotal	\$3,316,845	17,264	\$192
PET Oncology Subtotal	\$1,789,879	997	\$1,795
AI High Priority Total	\$57,423,652	137,219	\$600
All Agency All Radiology (Professional Bills)	\$115,398,090	809,439	
All Agency Non-Xray Radiology (Professional Bills)	\$102,699,465	472,235	
Advanced Imaging - High priority % of non-xray professional	56%		29%

1.2 Search Methods

All workgroup members and stakeholders were invited to submit guidelines for the review. The primary additional source was a search of the National Guidelines Clearinghouse (NGC) which is a comprehensive database of evidence-based clinical practice guidelines and related documents sponsored by the Agency for Healthcare Research and Quality (AHRQ).

The NGC does not have an advanced imaging category, but for basic context, the “diagnosis” category, which lists all diagnostic interventions, contains 1,324 guidelines. Systematic, itemized searches were conducted the eight high priority advanced imaging topic identified by the workgroup. In general, search criteria were broad and included the relevant imaging topic; date range for production or update within five years; and use of some evidence process in development. Please see Appendix B for individual search criteria and results. Each search resulted in an average of 30 guidelines with a total of 250 potentially relevant guidelines. These searches also identified the guidelines provided by stakeholders.

Search results were then reviewed and further narrowed based on relevance and duplication. An example of relevance would be that including “MRI” in key terms resulted in guidelines that contained the word “MRI” but were not necessarily related to the other key word such as “knee” or “upper joint”.

Regarding duplication, during the search process it became apparent that many searches resulted in guidelines from a handful of the same guideline developers. For instance, the American College of Radiology (ACR), the Work Loss Data Institute, and the American Academy of Orthopedic Surgeons (AAOS) were very prominent guideline developers in many of these searches. Most organizations use the same methodology and include or reference an organizational methods statement applicable to all of their guidelines, used to streamline and standardize their process.

Because our staff inquiry is primarily focused on the rigor of guideline development and evidence quality, it isn't necessary to review each of the individual ACR guidelines for instance, because ACR has a standard methodology document which does not vary and thus the rating for Section 1 did not change. However, due to the prominence of ACR in advanced imaging, staff did review at least one ACR guideline per high priority topic. Important to this workgroup, this provides a mechanism to apply a standardized evidence filter at a relatively high level (the organization's methodology), to initially narrow the guidelines for eventual consideration or recommendation for agency implementation. The final number of guidelines included and reviewed is 32. See Appendix A for individual checklists.

1.3 Review and Rating Process

Resources: The AIM Workgroup approved a guidelines review checklist that is based on a longer tool developed by AGREE, an international guidelines collaboration which includes participation by US' AHRQ. www.agreecollaboration.org AGREE is dedicated to defining quality for guideline development, reporting, and assessment. Staff also

referenced a series of articles “Rating the Quality of Evidence and Strength of Recommendations” published in the British Medical Journal and developed by GRADE (Grading of Recommendations Assessment, Development, and Evaluation) Working Group available at: http://www.gradeworkinggroup.org/about_us.htm. GRADE is also an international collaboration with US participation and focuses on “common, sensible, and transparent” approach to grading the quality of evidence and strength of recommendations.

Using the checklist provides a structured base of information for workgroup members to compare the development process and evidentiary basis of identified guidelines. HCA staff was tasked with reviewing identified guidelines against checklist sections 1 and 2. To prioritize work due to the limited timeframe, the staff focused on section 1-Primary Criteria - which are questions related to guideline development rigor. As time permitted and for those with fair or good Section 1 ratings, Section 2 was also completed. Section 2 addresses whether guideline scope and stakeholder involvement are defined.

1.4 Primary Criteria

Rigor of development (Section 1) relates to the process used to gather and synthesize the evidence, the methods to formulate the recommendations, and editorial independence. The guideline/ organization must be explicit about the search and selection of evidence, the rating or strength of that evidence, and how that graded evidence is correlated to guideline recommendations. Additionally, the guideline/ organization must state funding sources and conflicts of interests of members.

Note that the questions focus on transparency but do not impose any specific quality of evidence requirement. This is key to our ability to understand and follow the basis for both the evidence cited and the recommendations. High quality, evidence based guidelines describe search terms and inclusion criteria and their ability to maximize the number of relevant studies; have explicit study quality ratings linked to evidentiary hierarchy (study design) and study implementation (limitations, directness of evidence, etc); and clearly identify the linkage between the evidence ratings and recommendations.

In our review, numerous guidelines received a Poor rating because they did not meet AGREE standards in clearly describing their search and study selection. Without this information, a potential user does not know whether all relevant studies were included and what the basis for a selected (or excluded) study is.

Note that a guideline developed with poor evidentiary rigor may still contain some individually reasonable or well supported recommendations, however because of the development limitations, which of the recommendations are properly supported is not ascertainable. The reverse is also true: guidelines developed with excellent evidentiary rigor may still contain recommendations that are not appropriate for the workgroup’s purpose. This initial sort identifies the organizations using comprehensive, unbiased, and clearly defined evidence standards. Secondary criteria can assist in assessing whether the context, scope, usability, and important outcomes are addressed such that the guideline would be applicable to the workgroup’s task of identifying guidelines for use by state agency purchasers.

1.5 Secondary Criteria

Sections 2, 3 As noted above, a review of the guidelines against the secondary criteria are beyond the scope of this report, but a brief description is included here. Scope and purpose are focused on whether the overall aim of the guideline, the specific clinical questions, and the target patient populations are described. Describing these attributes is important for a potential user to assess a guideline's breadth and context. Many reviewed guidelines are developed by provider specialty organizations focused on particular clinical conditions and tests. Well described and focused guidelines are informative, but narrow scope may limit applicability to the broad workgroup goals.

Stakeholder Involvement focuses on information about the composition, discipline and relevant expertise of the guideline development group and involvement of target users and patients to address perspectives and usability. Clarity and presentation addresses issues such as the language and format of the guideline to promote its usability, including concrete and precise descriptions, evidence linkage, relevant options, and dissemination. Finally, applicability pertains to the likely organizational, behavioral and cost implications of the topic of the guideline. This may require information about practice changes, patient acceptance, measurements, resource use and changes in practice type, specialty, location, education requirements, and shifts or changes in cost.

The GRADE series of papers also includes a paper specific to diagnostic tests and strategies that provides additional recommendations to ensure a comprehensive and transparent approach for diagnostic recommendations, including the central concept that test results are surrogates for patient-important outcomes.

1.6 Summary Results

Results of the review have been tabulated and are summarized in Table 2, below. The table has been sorted alphabetically by the eight high priority areas identified by the AIM workgroup (checklists and search documents follow same order).

- A total of 32 guidelines were reviewed.
- 23 guideline development organizations are represented with most being provider / specialty societies.
- There were at least 3 and up to 6 guideline reviews completed for each high priority area, except CT of the abdomen/pelvis which resulted in only one unduplicated, relevant guideline, even with an additional hand search.
- For the three questions in the Section 1, rigor of development, set on a scale of Good, Fair, Poor:
 - 13 guidelines rated at least two "Good" and one Fair.
 - Of the 13, 5 guidelines had all "Good" ratings.
 - These 13 higher scored guidelines are spread over six of the eight high impact areas.

Table 2: Guideline Review Summary Results

#	High Priority AI Topic	Guideline Developer	Title	1.1 Rigor of Evidence	1.2 Rigor of Recommendation	1.3 Editorial Independence
1	Abdomen / Pelvis - CT	American College of Radiology (ACR)	Left Lower Quadrant Pain	<i>Poor</i>	<i>Fair</i>	<i>Poor</i>
2	Abdomen / Pelvis - CT	American College of Radiology (ACR)	Renal Trauma	<i>Poor</i>	<i>Fair</i>	<i>Poor</i>
3	Brain -MRI / CT	American Academy of Neurology (AAN)	Headache; Non-acute	<i>Good</i>	<i>Good</i>	<i>Fair</i>
4	Brain -MRI / CT	American College of Radiology (ACR)	Headache	<i>Poor</i>	<i>Fair</i>	<i>Poor</i>
5	Brain -MRI / CT	American College of Emergency Physicians	Neuro imaging and decision making in adult mild traumatic brain injury in the acute setting	<i>Good</i>	<i>Good</i>	<i>Good</i>
6	Brain -MRI / CT	Scottish intercollegiate Guidelines Network	Diagnosis and Management of headache in Adults	<i>Good</i>	<i>Good</i>	<i>Good</i>
7	Brain -MRI / CT	European Federation of Neurological Societies	Diagnosis and Treatment of Brain metastases	<i>Good</i>	<i>Good</i>	<i>Fair</i>
8	Brain -MRI / CT	New Zealand Guidelines Group (NZGG)	Traumatic Brain Injury: diagnosis, acute management and rehabilitation	<i>Good</i>	<i>Good</i>	<i>Good</i>
9	Cardiac Nuclear	American College of Cardiology (ACR) Appropriateness Criteria	Single-Photon Emission Tomography Myocardial Perfusion Imaging	<i>Poor</i>	<i>Fair</i>	<i>Fair</i>
10	Cardiac Nuclear	Am. Heart Association; Am. Stroke Association Stroke Council; Clinical Cardiology Council; Cardiovascular Radiology & Intervention Council	Early Management of adults with ischemic stroke	<i>Poor</i>	<i>Fair</i>	<i>Fair</i>
11	Cardiac Nuclear	European Society of Cardiology	Diagnosis and Treatment of Chronic Heart Failure	<i>Poor</i>	<i>Fair</i>	<i>Fair</i>
12	Cardiac Nuclear	American Heart Association (AHA) & American College of Cardiology (ACC)	Diagnosis and Management of chronic heart failure in the adult	<i>Poor</i>	<i>Good</i>	<i>Fair</i>
13	Cardiac Nuclear	National Heart Foundation of Australia, Cardiac Society of Australia and NZ	Guidelines for prevention, detection and management of chronic heart failure in Australia	<i>Poor</i>	<i>Poor</i>	<i>Good</i>
14	Cervical - MRI	American College of Radiology (ACR)	Chronic Neck Pain	<i>Poor</i>	<i>Fair</i>	<i>Poor</i>
15	Cervical - MRI	Work Loss Data Institute	Neck and Upper back (acute & chronic)	<i>Good</i>	<i>Fair</i>	<i>Good</i>

Table 2: Guideline Review Summary Results

#	High Priority AI Topic	Guideline Developer	Title	1.1 Rigor of Evidence	1.2 Rigor of Recommendation	1.3 Editorial Independence
16	Cervical - MRI	Canadian Protective Chiropractic Association	Diagnostic Imaging practice guidelines for musculoskeletal complaints in adults, and evidence-based approach	<i>Poor</i>	<i>Fair</i>	<i>Fair</i>
17	Lower Joint- MRI	American College of Radiology (ACR)	Acute Trauma to the Knee	<i>Poor</i>	<i>Fair</i>	<i>Poor</i>
18	Lower Joint- MRI	American Academy of Orthopaedic Surgeons	Treatment of Osteoarthritis of the Knee	<i>Good</i>	<i>Good</i>	<i>Fair</i>
19	Lower Joint- MRI	University of Michigan Health System	Knee Pain or Swelling: Acute or Chronic	<i>Poor</i>	<i>Poor</i>	<i>Fair</i>
20	Lower Joint- MRI	Institute for Clinical Systems Improvement (ICSI)	Diagnosis and Treatment of Adult Degenerative Joint Disease (DJD)/Osteoarthritis (OA) of the Knee	<i>Poor</i>	<i>Poor</i>	<i>Fair</i>
21	Lumbar - MRI	American Academy of Occupational and Environmental Medicine	Low Back Disorder	<i>Poor</i>	<i>Good</i>	<i>Good</i>
22	Lumbar - MRI	American College of Radiology (ACR)	Appropriateness Criteria: Low Back Pain	<i>Poor</i>	<i>Fair</i>	<i>Poor</i>
23	Lumbar - MRI	North American Spine Society (NASS)	Diagnosis and treatment of degenerative lumbar spinal stenosis	<i>Good</i>	<i>Good</i>	<i>Fair</i>
24	Lumbar - MRI	American College of Physicians and American Pain Society	Diagnosis and treatment of low back pain	<i>Good</i>	<i>Good</i>	<i>Good</i>
25	Oncology - PET	Association of Comprehensive Cancer Care Centres	Non-small Cell Lung Cancer	<i>Poor</i>	<i>Good</i>	<i>Good</i>
26	Oncology - PET	National Institute for Clinical Excellence (NICE)	Diagnosis and Treatment of Lung Cancer	<i>Good</i>	<i>Good</i>	<i>Fair</i>
27	Oncology - PET	American College of Chest Physicians	Management of small cell lung cancer	<i>Good</i>	<i>Good</i>	<i>Good</i>
28	Oncology - PET	Cancer Care Ontario	Diagnostic Imaging in the Assessment of Metastatic/ Recurrent Ovarian Cancer	<i>Poor</i>	<i>Fair</i>	<i>Poor</i>
29	Oncology - PET	Scottish Intercollegiate Guidelines Network	Management of patients with lung cancer	<i>Good</i>	<i>Good</i>	<i>Fair</i>
30	Oncology - PET	National Comprehensive Cancer Network	Non-small Cell Lung Cancer	<i>Poor</i>	<i>Good</i>	<i>Good</i>
31	Upper Joint - MRI	American College of Radiology (ACR)	Appropriateness Criteria: Shoulder Trauma	<i>Poor</i>	<i>Fair</i>	<i>Poor</i>
32	Upper Joint - MRI	American Academy of Orthopaedic Surgeons	Clinical guideline on diagnosis of carpal tunnel syndrome	<i>Good</i>	<i>Fair</i>	<i>Good</i>