Pathology residents have a lot to deal with, from the obvious (the voluminous material and data of pathologic diagnosis), to the obscure (figuring out how a particular attending likes to sign out cases). One source of anxiety for pathology residents is the annual Resident In-Service Examination (RISE). In groups large and small, residents have voiced their uncertainty about RISE. What is this examination all about? Why do residents take it? How are the results used and are the results truly valid? This article is meant to answer such questions and hopefully prevent residents from losing sleep over RISE.

What Is RISE?
RISE is developed and administered by ASCP, in collaboration with the Academy of Clinical Laboratory Physicians and Scientists (ACLPS) and the Association of Directors of Anatomical and Surgical Pathology (ADASP). RISE is a comprehensive examination that assesses medical knowledge, one of six competencies defined in the Accreditation Council of Graduate Medical Education (ACGME) Outcomes Project.

RISE results are used by programs as one evaluation tool to assess resident progress. The exam is organized along the disciplines of anatomic and clinical pathology in three main sections: (a) Anatomic Pathology, including Surgical Pathology, Cytopathology, and Autopsy/Forensic Pathology; (b) Clinical Pathology, including Chemistry, Hematology, Transfusion Medicine, and Microbiology; and (c) Special Topics relevant to both Anatomic and Clinical Pathology, including Hematopathology, Laboratory Administration, and Molecular Pathology (Table 1).

Since 1983, the ASCP RISE has been given annually; currently 100% of U.S. residency programs participate in it. Overall, the examination comprises 350–400 multiple-choice questions; more than half of the questions in the three Anatomic Pathology sections and in the Hematology, Hematopathology, and Microbiology sections are image-based (Figure 1). In 2010, RISE is being administered online between March 20 and April 7.

| Table 1. The 10 Content Areas of RISE According to the Three Major Sections |
|-----------------------------|-----------------------------|-----------------------------|
| **Anatomic Pathology Section** | **Clinical Pathology Section** | **Special Topics Section** |
| Surgical Pathology (SP) | Clinical Chemistry (CC) | Hematopathology (HP) |
| Cytopathology (CP) | Hematology (HE) | Lab Administration (LA) |
| Autopsy/Forensic Pathology (FP) | Microbiology (MB) | Molecular Pathology |
|                         | Transfusion Medicine (TM) | Special Topics (ST) |
Demystifying the ASCP Resident In-Service Examination

By Henry M. Rinder, MD; Elizabeth A. Montgomery, MD; and Jay Wagner, MBA, MLS(ASCP)CM

Each of the 10 content areas is scored individually, and there is a score for the total examination. All pathology residents in all years take the same examination; scaled scores are generated as linear transformations of the raw measure such that they are compatible across years and examinees. The intent is to permit comparisons among residents in the same post-graduate year (PGY) group within programs (Table 2), across all programs, and between yearly examination cycles to track each resident’s progress. Each resident receives a confidential report that includes missed questions, references, mean scores, and, starting in 2010, percentile equivalents for each content area and year of training, while program directors receive a similar but more detailed comparison of residents and programs.

How Is RISE Constructed?

The ASCP RISE committee comprises 25–30 pathologists at any one time. These volunteer members are charged with developing a new RISE examination for the early spring of each year prior to the boards. The development of questions by the committee and recruitment of volunteer question writers is a year-round effort. The committee has developed a topical outline and taxonomy to ensure that questions in the databank adequately cover the subjects of a particular content area. Each content area has at least two pathologists with acknowledged expertise in that field, and most have expertise in several content areas. RISE committee members come from academic communities and military medicine settings. RISE represents collaboration among ADASP, ACLPS, the American Pathology Foundation (APF), the National Association of Medical Examiners (NAME), and the American Society for Apheresis (ASFA) Graduate Medical Education Resources Committee. Each member is charged yearly with writing five new RISE questions and recruiting five volunteer expert pathologists who in turn write five new RISE questions. This collective effort ensures a yearly input of 450–650 new questions, and these are combined with previously unused questions in the databank.

Table 2. Example of Mean RISE Scores for a Residency Program in 2009*

<table>
<thead>
<tr>
<th>PGY Group</th>
<th>Total</th>
<th>Anatomic Pathology</th>
<th>Clinical Pathology</th>
<th>Special Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CP</td>
<td>FP</td>
<td>SP</td>
<td>CC</td>
</tr>
<tr>
<td>Overall</td>
<td>470</td>
<td>492</td>
<td>509</td>
<td>464</td>
</tr>
<tr>
<td>PGY1</td>
<td>437</td>
<td>437</td>
<td>506</td>
<td>391</td>
</tr>
<tr>
<td>PGY2</td>
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<tr>
<td>PGY3</td>
<td>474</td>
<td>525</td>
<td>500</td>
<td>495</td>
</tr>
<tr>
<td>PGY4</td>
<td>510</td>
<td>525</td>
<td>535</td>
<td>500</td>
</tr>
</tbody>
</table>

*Note: All scores used in this example are fictitious and do not reflect any actual scores.
All available questions are vetted and catalogued by the RISE committee. Some questions are excluded from consideration for various reasons, for example, when new scientific knowledge makes them obsolete. RISE questions are also evaluated by a psychometrician. Psychometrics is the study of measurement instruments such as questionnaires and tests and concerns the theory and technique of educational and psychological measurement. RISE uses psychometrics to identify questions that perform poorly in separating better performing examinees from others so that such questions can be eliminated from the final RISE scoring. Good questions are also defined by common-sense qualities; they must be relevant to all levels of residency training, representative of disease cases that residents should have encountered, and have illustrative images that are unequivocal. Based on these standards, some original questions are modified by the committee to achieve these standards, but each question is attributed to its original author and maintains a literature reference. The final selection and editing of questions for the examination is accomplished in the fall; ASCP staff then work diligently over the next few months to expedite this examination for its March–April test dates.

What Is the Purpose of RISE?

Until 2003, RISE was a paper-based, multiple-choice examination that used Kodachrome transparencies, was designed strictly for resident self-assessment, and was taken anonymously. Program directors received summary data only for their entire program. Beginning in 2003, at the request of the Program Directors section (PRODS) of the Association of Pathology Chairs (APC), RISE results evolved to become one set of resident evaluation tools for assessing Medical Knowledge, one of the six competencies set forth by the ACGME. In order to facilitate this purpose, the RISE format was converted to an online examination, and specific resident results are now confidentially reported to both examinees and program directors. The ASCP RISE is listed as a major component of resident assessment by most U.S. pathology residency program directors. Programmatic RISE results for the content areas can also be used to identify curricula that need improvement within training programs.

In addition to being a tool for self-assessment, RISE supplies educational feedback to residents. A comprehensive list of each item on the examination details the specific bulleted point of the question, for example, “Acute promyelocytic leukemia is associated with t(15;17).” For each resident, his or her individualized list of “Missed Questions” can be used to focus on those subjects that may need enhanced study or to refer to the listed literature reference for each question.

A Universal Evaluation Tool

RISE is designed to be a universal evaluation tool that permits a broader assessment of pathology training than that of the individual resident or program. In a collaborative pilot study in 2006, ASCP and American Board of Pathology (ABP) determined that there was an excellent correlation between absolute scores for PGY-4 residents in the three content areas of the Anatomic Pathology section of RISE and subsequent success on the ABP Certification Examination in Anatomic Pathology. The magnitude of performance improvement between the first and fourth years of training also correlated with subsequent success in passing the Anatomic Pathology certifying examination. RISE results from graduating seniors in 2008 and 2009 are about to be comprehensively evaluated in conjunction with success on the subsequent ABP certifying examinations, and an excellent correlation is expected.

RISE results are meant to highlight areas for improvement within residency training, and RISE provides a means for subsequent assessment of changes in resident teaching. Surveys of program directors have shown that RISE scores correlate with consensus opinions on those areas of residency training that are most difficult to teach. One identified area of difficulty in resident performance on both the RISE and ABP examinations is Laboratory Administration/Management. As a result of this issue, ASCP, together with APF, has developed and conducted a workshop on Laboratory Management Education at the 2009 annual APC/PRODS meeting.

Another product of the ASCP RISE is the associated surveys that are updated annually. These surveys are multipurposed. First, feedback from the residents about the examination itself is used to continually improve and update RISE. Second, demographic data are evaluated to inform the RISE committee about residency training standards and trends. Third, the demographic data are used to inform residents about the processes of applying for fellowships and jobs, trends in post-residency training and salaries, and other relevant career information. These data have been posted on the ASCP Web site in the past; data from the 2009 survey are currently being processed for publication.

What Is the Future of RISE?

The RISE committee is continually improving the quality of the examination by (a) increasing the depth and breadth of questions in all curriculum content areas, (b) finding outstanding digital imagery to highlight questions, and (c) continually updating questions to reflect changes in nomenclature and medical advances. Introduction of the ASCP Vault, an easy, fast, and convenient application for searching, downloading, organizing, storing, and sharing
pathology-related assets, is expected to provide a rich resource for developing future RISE questions. Currently, RISE is primarily an examination to assess Medical Knowledge; discussions have been initiated to determine whether RISE can be employed for other competencies, including advanced case-based problems for patient care and multiple linked questions for systems-based learning improvement. Whether the addition of virtual microscopy to the examination is of benefit to residents is also being evaluated.

Since 2006, graduating residents certified by the ABP must undergo a continual process of self-evaluation, assessment of skills and knowledge, and formal recertification. To that end, the ASCP RISE not only is an early exercise for residents to develop a comfort level with annual examinations, but also can serve as a template for other means of continual self-assessment now required for pathologists who must recertify with the ABP through the Maintenance of Certification program.

With the long-term success of RISE and the ongoing need for assessment tools, ASCP has embarked on the development of yearly in-service examinations for pathology fellows. The Fellow In-Service Hematopathology Examination (FISHE) was developed with assistance from the Education Section of the Society for Hematopathology and has been administered yearly since 2007. This examination was followed in 2009 by the Forensics In-Service Examination (FISE) in collaboration with NAME. In addition, a Transfusion Medicine In-Service Examination (TMISE) has now been constructed with the aid of the Graduate Medical Education Resources Committee of ASFA and will be available in the spring of 2010 for transfusion medicine fellows.

Summary

The ASCP RISE has been a valuable tool for residents and training programs, and we hope that this description of RISE dispels misconceptions and answers outstanding questions. Residents have used RISE in paper form as a past study guide, and it is anticipated that the Missed Question drill down currently provided will be a valid way to address knowledge gaps. Residents can take comfort in knowing that their RISE results are a good predictor of readiness to sit for the ABP certification examinations. Because self-assessment is now a lifelong professional tool, this original and continuing aim of RISE may help bridge this requirement from training to practice. RISE supplies program directors with a valid, standardized evaluation tool that permits comparison of their residents and their programs with others in the one competency of Medical Knowledge. RISE has been able to demonstrate inconsistencies in the effectiveness of residency training and stimulated coordinated efforts to improve those deficiencies.

In summary, RISE has evolved from the self-assessment tool that was originally envisioned to a comprehensive assessment of Medical Knowledge in both general and specialty pathology training.

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