

1 **ACGME Program Requirements for Graduate Medical Education**
2 **in Nuclear Medicine**

3
4 **Common Program Requirements are in BOLD**

5
6 Effective: July 1, 2011
7

8 Introduction

9
10 Int.A. Definition

11
12 Nuclear medicine is the medical specialty that uses the tracer principle, most
13 often with radiopharmaceuticals, to evaluate molecular, metabolic, physiologic
14 and pathologic conditions of the body for the purposes of diagnosis, therapy and
15 research.

16
17 ~~Nuclear medicine is the clinical and laboratory medical specialty that uses~~
18 ~~radioactive and stable tracers to study physiologic, biochemical and cellular~~
19 ~~processes for diagnosis, therapy and research.~~

20
21 Int.B. Duration and Scope of Training Education

22
23 Int.B.1. Length of Program

24
25 ~~The length of the educational program in nuclear medicine residency~~
26 ~~program must be 36 months in length, is three years, following one year~~
27 ~~of preparatory clinical residency training (as described below)~~

28
29 Int.B.2. Admission Prerequisites

30
31 ~~Before entering a nuclear medicine residency, residents must~~
32 ~~satisfactorily complete one year of training in a program accredited by the~~
33 ~~Accreditation Council for Graduate Medical Education (ACGME) or by the~~
34 ~~Royal College of Physicians and Surgeons of Canada, or equivalent.~~
35 ~~While the length of the nuclear medicine residency training is three years,~~
36 ~~residents may enter the program from different training backgrounds. The~~
37 ~~type and length of the prior training will determine the number of years the~~
38 ~~resident will be required to spend in the nuclear medicine program.~~

39
40 Int.B.2.a) ~~For residents who have completed an accredited one year~~
41 ~~program of fundamental clinical education, the length of nuclear~~
42 ~~medicine training is three years. The one year pre-requisite~~
43 ~~program must provide broad clinical education, with primary~~
44 ~~emphasis on the patient and the patient's clinical problems.~~
45 ~~Residents should have a sufficiently broad knowledge of medicine~~
46 ~~to obtain a pertinent history, perform an appropriate physical~~
47 ~~examination, and arrive at a differential diagnosis.~~

48
49 Int.B.2.b) ~~For residents who have completed an accredited patient care~~
50 ~~specialty program, the length of nuclear medicine training is two~~
51 ~~years.~~

52
53 Int.B.2.c) For residents who have completed an accredited program in
54 diagnostic radiology, the length of nuclear medicine training is one
55 year.

56
57 Int.B.3. Specific Description of Program Format
58
59 Residencies in nuclear medicine must teach the basic skills and clinical
60 competence that constitute the foundations of nuclear medicine practice,
61 and must provide progressive responsibility for and experience in the
62 application of these principles to the management of clinical problems.
63 Clinical experience must include the opportunity to recommend and plan,
64 conduct, supervise, interpret, and dictate reports for nuclear medicine
65 procedures that are appropriate for the existing clinical problem or
66 condition.

67
68 Int.C. Broad Description of Training Objectives and Goals
69
70 The program must be structured so that residents' clinical responsibilities
71 increase progressively during training. At the completion of the training program,
72 residents should be proficient in all areas of clinical nuclear medicine, and be
73 able to function independently as nuclear medicine consultants, plan and perform
74 appropriate nuclear medicine procedures, interpret the test results, and formulate
75 a diagnosis and an appropriate differential diagnosis. Residents should be
76 qualified to recommend therapy or further studies. If radionuclide therapy is
77 indicated, they should be capable of assuming responsibility for patient care.
78 Residents should develop a satisfactory level of clinical maturity, judgment, and
79 technical skill that will, on completion of the program, render them capable of the
80 independent practice of nuclear medicine.

81
82 **I. Institutions**

83
84 **I.A. Sponsoring Institution**
85
86 **One sponsoring institution must assume ultimate responsibility for the**
87 **program, as described in the Institutional Requirements, and this**
88 **responsibility extends to resident assignments at all participating sites.**

89
90 **The sponsoring institution and the program must ensure that the program**
91 **director has sufficient protected time and financial support for his or her**
92 **educational and administrative responsibilities to the program.**

93
94 I.A.1. The program director must be provided with no less than the equivalent of
95 one half day per week of protected time in order to fulfill the
96 responsibilities inherent to carrying out the administrative activities and
97 meeting the educational goals of the program.

98
99 **I.B. Participating Sites**

100
101 **I.B.1. There must be a program letter of agreement (PLA) between the**
102 **program and each participating site providing a required**

103 assignment. The PLA must be renewed at least every five years.

104

105

The PLA should:

106

107 I.B.1.a)

identify the faculty who will assume both educational and supervisory responsibilities for residents;

108

109 I.B.1.b)

specify their responsibilities for teaching, supervision, and formal evaluation of residents, as specified later in this document;

110

111 I.B.1.c)

specify the duration and content of the educational experience; and,

112

113 I.B.1.d)

state the policies and procedures that will govern resident education during the assignment.

114

115 I.B.2.

The program director must submit any additions or deletions of participating sites routinely providing an educational experience, required for all residents, of one month full time equivalent (FTE) or more through the Accreditation Council for Graduate Medical Education (ACGME) Accreditation Data System (ADS).

116

117 I.B.3.

~~Integrated and Non-integrated Sites~~

118

~~Within a single program some participating sites may qualify as integrated, while others are non-integrated. The program should be based at the primary clinical site. A program using multiple sites must ensure a unified educational experience for the residents. Each participating site must offer significant educational opportunities to the overall program.~~

119

120 I.B.3.a)

~~When another site is utilized and a single program director assumes responsibility for the entire residency, including the appointment of all residents and teaching staff, that site is designated as integrated. Rotations to integrated sites are not limited in duration and require prior approval of the Review Committee.~~

121

122 I.B.3.b)

~~Participation by any non-integrated site providing more than three months of training must have prior approval by the Review Committee, according to criteria similar to those applied to the primary institution. A maximum of three months per year but not greater than nine months of the three-year nuclear medicine program may be spent outside the parent and integrated sites on rotation to non-integrated sites.~~

123

124 I.B.3.b).(1)

~~Service responsibility alone at a non-integrated site is not a suitable educational experience.~~

125

126 I.B.3.b).(2)

~~Non-integrated sites should not be so distant as to make it difficult for residents to travel for participation in clinical~~

127

154 ~~responsibilities or didactic activities, unless there is a~~
155 ~~comparable educational experience at the non-integrated~~
156 ~~sites.~~

158 I.B.4. Programs should avoid affiliations with sites at such distances from the
159 primary clinical site as to make resident attendance at rounds and
160 conferences impractical, unless there is a comparable educational
161 experience at the site.

163 **II. Program Personnel and Resources**

164 **II.A. Program Director**

167 **II.A.1. There must be a single program director with authority and**
168 **accountability for the operation of the program. The sponsoring**
169 **institution's GMEC must approve a change in program director.**
170 **After approval, the program director must submit this change to the**
171 **ACGME via the ADS.**

173 **II.A.2. The program director should continue in his or her position for a**
174 **length of time adequate to maintain continuity of leadership and**
175 **program stability.**

177 **II.A.3. Qualifications of the program director must include:**

179 **II.A.3.a) requisite specialty expertise and documented educational**
180 **and administrative experience acceptable to the Review**
181 **Committee;**

183 **II.A.3.b) current certification in the specialty by the American Board of**
184 **Nuclear Medicine, or specialty qualifications that are**
185 **acceptable to the Review Committee; and,**

187 **II.A.3.c) current medical licensure and appropriate medical staff**
188 **appointment.**

190 **II.A.3.d) broad knowledge of, experience with, and commitment to general**
191 **nuclear medicine and must have served as a nuclear medicine**
192 **faculty member for at least one year preceding appointment as the**
193 **program's director.**

195 **II.A.4. The program director must administer and maintain an educational**
196 **environment conducive to educating the residents in each of the**
197 **ACGME competency areas. The program director must:**

199 **II.A.4.a) oversee and ensure the quality of didactic and clinical**
200 **education in all sites that participate in the program;**

202 **II.A.4.b) approve a local director at each participating site who is**
203 **accountable for resident education;**

204

- 205 **II.A.4.c)** approve the selection of program faculty as appropriate;
206
- 207 **II.A.4.d)** evaluate program faculty and approve the continued
208 participation of program faculty based on evaluation;
209
- 210 **II.A.4.e)** monitor resident supervision at all participating sites;
211
- 212 **II.A.4.f)** prepare and submit all information required and requested by
213 the ACGME, including but not limited to the program
214 information forms and annual program resident updates to
215 the ADS, and ensure that the information submitted is
216 accurate and complete;
217
- 218 **II.A.4.g)** provide each resident with documented semiannual
219 evaluation of performance with feedback;
220
- 221 **II.A.4.h)** ensure compliance with grievance and due process
222 procedures as set forth in the Institutional Requirements and
223 implemented by the sponsoring institution;
224
- 225 **II.A.4.i)** provide verification of residency education for all residents,
226 including those who leave the program prior to completion;
227
- 228 **II.A.4.j)** implement policies and procedures consistent with the
229 institutional and program requirements for resident duty
230 hours and the working environment, including moonlighting,
231 and, to that end, must:
232
- 233 **II.A.4.j).(1)** distribute these policies and procedures to the
234 residents and faculty;
235
- 236 **II.A.4.j).(2)** monitor resident duty hours, according to sponsoring
237 institutional policies, with a frequency sufficient to
238 ensure compliance with ACGME requirements;
239
- 240 **II.A.4.j).(3)** adjust schedules as necessary to mitigate excessive
241 service demands and/or fatigue; and,
242
- 243 **II.A.4.j).(4)** if applicable, monitor the demands of at-home call and
244 adjust schedules as necessary to mitigate excessive
245 service demands and/or fatigue.
246
- 247 **II.A.4.k)** monitor the need for and ensure the provision of back up
248 support systems when patient care responsibilities are
249 unusually difficult or prolonged;
250
- 251 **II.A.4.l)** comply with the sponsoring institution's written policies and
252 procedures, including those specified in the Institutional
253 Requirements, for selection, evaluation and promotion of
254 residents, disciplinary action, and supervision of residents;
255

256 **II.A.4.m)** **be familiar with and comply with ACGME and Review**
257 **Committee policies and procedures as outlined in the ACGME**
258 **Manual of Policies and Procedures;**
259
260 **II.A.4.n)** **obtain review and approval of the sponsoring institution’s**
261 **GMEC/DIO before submitting to the ACGME information or**
262 **requests for the following:**
263
264 **II.A.4.n).(1)** **all applications for ACGME accreditation of new**
265 **programs;**
266
267 **II.A.4.n).(2)** **changes in resident complement;**
268
269 **II.A.4.n).(3)** **major changes in program structure or length of**
270 **training;**
271
272 **II.A.4.n).(4)** **progress reports requested by the Review Committee;**
273
274 **II.A.4.n).(5)** **responses to all proposed adverse actions;**
275
276 **II.A.4.n).(6)** **requests for increases or any change to resident duty**
277 **hours;**
278
279 **II.A.4.n).(7)** **voluntary withdrawals of ACGME-accredited**
280 **programs;**
281
282 **II.A.4.n).(8)** **requests for appeal of an adverse action;**
283
284 **II.A.4.n).(9)** **appeal presentations to a Board of Appeal or the**
285 **ACGME; and,**
286
287 **II.A.4.n).(10)** **proposals to ACGME for approval of innovative**
288 **educational approaches.**
289
290 **II.A.4.o)** **obtain DIO review and co-signature on all program**
291 **information forms, as well as any correspondence or**
292 **document submitted to the ACGME that addresses:**
293
294 **II.A.4.o).(1)** **program citations, and/or**
295
296 **II.A.4.o).(2)** **request for changes in the program that would have**
297 **significant impact, including financial, on the program**
298 **or institution.**
299
300 **II.A.4.p)** **ensure that residents entering at the NM2 level achieve the**
301 **required NM1 and NM2 competency outcomes by the completion**
302 **of the NM2 year; and, ~~develop a formal didactic schedule that~~**
303 **~~indicates the specific date and time of each lecture, the topic of~~**
304 **~~the lecture, the faculty individual presenting the lecture, and the~~**
305 **~~duration of the lecture. This schedule must incorporate each of the~~**
306 **~~elements of basic science detailed in section IV.A.5 below, and~~**

307 the program director must provide written documentation of this
308 schedule as part of the information submitted to the Review
309 Committee for its program review. The schedule must be current
310 for each academic year. Visiting faculty and residents may provide
311 some of the lectures;

312
313 II.A.4.q) ensure that residents entering at the NM3 level achieve the
314 required NM1, NM2 and NM3 competency outcomes by the
315 completion of the NM3 year; ensure that all residents participate
316 in regularly scheduled clinical nuclear medicine conferences and
317 seminars and interdisciplinary conferences. In these conferences,
318 residents are responsible for presenting case materials and
319 discussing the relevant theoretical and practical issues. There
320 should be active resident participation in well-structured seminars
321 and journal clubs that review the pertinent literature with respect to
322 current clinical problems and that include discussion of additional
323 topics to supplement the didactic curriculum; and,

324
325 II.A.4.r) ensure that all residents participate in regularly scheduled, usually
326 daily, procedure interpretation and review conferences. The
327 program must provide the resident with the opportunity to gain
328 progressively independent responsibility for review, technical
329 approval and acceptance, and interpretation and dictation of
330 consultative reports on completed nuclear medicine procedures.

331
332 II.A.5. The program director must have broad knowledge of, experience with,
333 and commitment to general nuclear medicine, along with sufficient
334 academic and administrative experience to ensure effective
335 implementation of these program requirements and sufficient experience
336 participating as an active faculty member in an ACGME-accredited
337 residency program.

338
339 II.A.6. The program director must demonstrate a strong interest in the education
340 of residents, sound clinical and teaching abilities, support of the goals and
341 objectives of the program, demonstrate a commitment to his or her own
342 continuing medical education, and participate in scholarly activities.

343
344 **II.B. Faculty**

345
346 **II.B.1. At each participating site, there must be a sufficient number of**
347 **faculty with documented qualifications to instruct and supervise all**
348 **residents at that location.**

349
350 **The faculty must:**

351
352 **II.B.1.a) devote sufficient time to the educational program to fulfill**
353 **their supervisory and teaching responsibilities; and to**
354 **demonstrate a strong interest in the education of residents,**
355 **and**

356
357 **II.B.1.b) administer and maintain an educational environment**

409 faculty member per two residents.

410

411 **II.C. Other Program Personnel**

412

413 **The institution and the program must jointly ensure the availability of all**
414 **necessary professional, technical, and clerical personnel for the effective**
415 **administration of the program.**

416

417 II.C.1. There must be a dedicated program coordinator to assist the program
418 director in effectively fulfilling the administrative requirements of the
419 program.

420

421 **II.D. Resources**

422

423 **The institution and the program must jointly ensure the availability of**
424 **adequate resources for resident education, as defined in the specialty**
425 **program requirements.**

426

427 II.D.1. There must be at least one computer with Internet access dedicated for
428 resident educational use. The institution sponsoring a residency program
429 in nuclear medicine should be of sufficient size and composition to
430 provide an adequate volume and variety of patients for resident training. It
431 must provide sufficient faculty, financial resources, as well as clinical,
432 research, and library facilities to meet the educational needs of the
433 residents, and to enable the program to comply with the requirements for
434 accreditation.

435

436 II.D.2. The program must provide adequate space, equipment, and other
437 pertinent facilities to ensure an effective educational experience for
438 residents in nuclear medicine, and must possess the modern facilities and
439 equipment required to practice nuclear medicine.

440

441 II.D.3. A nuclear medicine residency program requires the support of services in
442 other specialties, notably internal medicine, surgery, radiology, pediatrics,
443 and pathology. Training resources should be such that the total number of
444 residents in the institution is large enough to permit peer interaction and
445 intellectual exchange with residents in the nuclear medicine program.

446

447 II.D.4. While the number of procedures may vary from one training program to
448 another, a well-designed program will perform at least 4,000 common
449 nuclear medicine imaging procedures annually, a wide variety of non-
450 imaging procedures, and at least 15 radionuclide therapeutic procedures
451 annually. Imaging procedures should be distributed over the entire
452 spectrum of nuclear medicine practice, including the pediatric age group.
453 A minimum of 100 pediatric nuclear medicine cases should be available
454 annually. Resident rotations to hospitals with a large pediatric caseload
455 should be considered if the number of pediatric studies in the primary site
456 averages fewer than 100 per year.

457

458 II.D.5. Teaching case files involving diagnostic and therapeutic nuclear medicine
459 procedures should be available and should cover the full spectrum of

460 clinical applications: indexed, coded with correlative and follow-up data,
461 and readily accessible for resident use. There must be a mechanism for
462 maintaining case records and treatment results to facilitate patient follow-
463 up and to provide teaching material. Electronic availability of teaching files
464 is acceptable as a substitute or enhancement of on-site teaching case
465 files.
466

467 **II.E. Medical Information Access**

468
469 **Residents must have ready access to specialty-specific and other**
470 **appropriate reference material in print or electronic format. Electronic**
471 **medical literature databases with search capabilities should be available.**
472

473 **III. Resident Appointments**

474
475 **III.A. Eligibility Criteria**

476
477 **The program director must comply with the criteria for resident eligibility**
478 **as specified in the Institutional Requirements.**
479

480 III.A.1. Programs must demonstrate the ability to recruit and retain qualified
481 residents. Residents should be appointed only when their documented
482 prior experience and attitudes demonstrate the presence of abilities
483 necessary to master successfully the clinical knowledge and skills
484 required of all program graduates. All residents must have demonstrated
485 understanding and facility in using the English language. To be eligible for
486 appointment to the program at the NM1 level, residents must have
487 satisfactorily completed:
488

489 III.A.1.a) one year of graduate medical education in a program accredited
490 by the ACGME, the Royal College of Physicians and Surgeons of
491 Canada (RCPSC), or the American Osteopathic Association
492 (AOA). This year must include a minimum of nine months of direct
493 patient care; or alternatively,
494

495 III.A.1.b) two or more years of graduate medical education and a passing
496 score on the United States Medical Licensing Exam (USMLE) Part
497 3, with a minimum two-digit score of 80.
498

499 III.A.2. Residents should be reappointed only when their clinical judgment,
500 medical knowledge, history taking, professional attitudes, moral and
501 ethical behavior, and clinical performance are documented to be entirely
502 satisfactory. To be eligible for appointment to the program at the NM2
503 level, residents must have completed a program accredited by the
504 ACGME, the RCPSC, or the AOA.
505

506 III.A.2.a) The educational program for these residents should be 24 months
507 in length.
508

509 III.A.3. To be eligible for appointment to the program at the NM3 level, residents
510 must have completed a program in diagnostic radiology accredited by the

511 ACGME, the RCPSC, or the AOA.

512

513 III.A.3.a) The educational program for these residents should be 12 months

514 in length.

515

516 **III.B. Number of Residents**

517

518 **The program director may not appoint more residents than approved by the**

519 **Review Committee, unless otherwise stated in the specialty-specific**

520 **requirements. The program's educational resources must be adequate to**

521 **support the number of residents appointed to the program.**

522

523 III.B.1. ~~At the time of the program's regular review, the Review Committee will~~

524 ~~assess the continued adequacy of the program's resources for the current~~

525 ~~number of residents.~~

526

527 **III.C. Resident Transfers**

528

529 **III.C.1. Before accepting a resident who is transferring from another**

530 **program, the program director must obtain written or electronic**

531 **verification of previous educational experiences and a summative**

532 **competency-based performance evaluation of the transferring**

533 **resident.**

534

535 **III.C.2. A program director must provide timely verification of residency**

536 **education and summative performance evaluations for residents**

537 **who leave the program prior to completion.**

538

539 **III.D. Appointment of Fellows and Other Learners**

540

541 **The presence of other learners (including, but not limited to, residents from**

542 **other specialties, subspecialty fellows, PhD students, and nurse**

543 **practitioners) in the program must not interfere with the appointed**

544 **residents' education. The program director must report the presence of**

545 **other learners to the DIO and GMEC in accordance with sponsoring**

546 **institution guidelines.**

547

548 **IV. Educational Program**

549

550 **IV.A. The curriculum must contain the following educational components:**

551

552 **IV.A.1. Overall educational goals for the program, which the program must**

553 **distribute to residents and faculty annually;**

554

555 **IV.A.2. Competency-based goals and objectives for each assignment at**

556 **each educational level, which the program must distribute to**

557 **residents and faculty annually, in either written or electronic form.**

558 **These should be reviewed by the resident at the start of each**

559 **rotation;**

560

561 **IV.A.3. Regularly scheduled didactic sessions;**

562		
563	IV.A.3.a)	<u>There must be a dedicated formal didactic lecture schedule that indicates the specific date and time of each lecture, the topic of the lecture, the individual presenting the lecture, and the duration of the lecture.</u>
564		
565		
566		
567		
568	IV.A.3.a).(1)	<u>Residents must attend the regularly scheduled didactic lectures.</u>
569		
570		
571	IV.A.3.a).(2)	<u>The topics must include:</u>
572		
573	IV.A.3.a).(2).(a)	<u>diagnostic use of radiopharmaceuticals: clinical indications, technical performance, and interpretation of <i>in-vivo</i> imaging of the body organs and systems, using external detectors and scintillation cameras, including single photon emission computed tomography (SPECT), single photon emission computed tomography – computed tomography (SPECT/CT), positron emission tomography (PET), and positron emission tomography – computed tomography (PET/CT) and correlation of nuclear medicine procedures with other pertinent imaging modalities;</u>
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582		
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584		
585		
586	IV.A.3.a).(2).(b)	<u>exercise and pharmacologic stress testing: the pharmacology of cardioactive drugs and physiologic gating techniques;</u>
587		
588		
589		
590	IV.A.3.a).(2).(c)	<u>non-imaging studies: training and experience in non-imaging procedures, such as radiolabeled antibody preparation, uptake measurements, and <i>in-vitro</i> studies;</u>
591		
592		
593		
594		
595	IV.A.3.a).(2).(d)	<u>therapeutic uses of unsealed radiopharmaceuticals in the treatment of benign and malignant disorders: patient selection and management, including dosimetry, dose administration, toxicity, and radiation protection considerations; and,</u>
596		
597		
598		
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600		
601	IV.A.3.a).(2).(e)	<u>fundamentals of imaging molecular targets, processes and events and existing and emerging molecular imaging techniques, particularly as they relate to current clinical practice.</u>
602		
603		
604		
605		
606	IV.A.3.b)	<u>Basic Science Educational Program</u>
607		
608		<u>Residents must complete classroom and laboratory experience in basic radionuclide handling techniques applicable to the medical use of unsealed byproduct material and radionuclides requiring a written directive. This must include the following areas:</u>
609		
610		
611		
612		

- 613 IV.A.3.b).(1) radiation physics and instrumentation, including:
614
615 IV.A.3.b).(1).(a) radiation physics: structure of matter, modes of
616 radioactive decay, particle and photon emissions,
617 and interactions of radiation with matter; and,
618
619 IV.A.3.b).(1).(b) instrumentation: principles of instrumentation used
620 in detection, measurement, and imaging of
621 radioactivity with special emphasis on gamma
622 cameras, including SPECT, SPECT/CT, PET and
623 PET/CT systems, and associated electronic
624 instrumentation and computers employed in image
625 production and display. Instruction must be
626 provided in the instrumentation principles of
627 magnetic resonance imaging and multi-slice
628 computed tomography.
629
630 IV.A.3.b).(2) radiation protection and regulations, including:
631
632 IV.A.3.b).(2).(a) means of reducing radiation exposure, radiation
633 dose limits, evaluation of radiation overexposure,
634 medical management of persons overexposed to
635 ionizing radiation, management and disposal of
636 radioactive substances, and establishment of
637 radiation safety programs in accordance with
638 federal and state regulations.
639
640 IV.A.3.b).(3) mathematics pertaining to the use and measurement of
641 radioactivity, including statistics and medical decision
642 making;
643
644 IV.A.3.b).(4) chemistry of radioactive material for medical use, including
645 reactor, cyclotron, and generator production of
646 radionuclides; radiochemistry; and formulation of
647 radiopharmaceuticals; and,
648
649 IV.A.3.b).(5) radiation biology: biological effects of ionizing radiation and
650 calculation of radiation dose.
651
652 IV.A.3.c) All residents and faculty members must participate in regularly
653 scheduled clinical nuclear medicine seminars, journal clubs and
654 interdisciplinary conferences. Participation should be documented
655 with attendance logs.
656
657 **IV.A.4. Delineation of resident responsibilities for patient care, progressive**
658 **responsibility for patient management, and supervision of residents**
659 **over the continuum of the program; and,**
660
661 **IV.A.5. ACGME Competencies**
662
663 **The program must integrate the following ACGME competencies**

664		into the curriculum:
665		
666	IV.A.5.a)	Patient Care
667		
668		Residents must be able to provide patient care that is
669		compassionate, appropriate, and effective for the treatment of
670		health problems and the promotion of health. Residents:
671		
672	IV.A.5.a).(1)	<u>will completing the NM1 year must demonstrate</u>
673		<u>competency in:</u>
674		
675	IV.A.5.a).(1).(a)	<u>initial patient evaluation to include pertinent</u> obtain
676		<u>patient information relevant to the requested</u> test or
677		<u>therapy procedure</u> using patient interview, chart
678		and computer data base review, <u>the performance of</u>
679		<u>a focused physical examination as indicated,</u> and
680		contact <u>communication</u> with the referring physician;
681		
682	IV.A.5.a).(1).(b)	<u>selection of appropriate nuclear medicine</u>
683		<u>procedures in bone, thyroid, hepatobiliary, and</u>
684		<u>cardiac imaging;</u>
685		
686	IV.A.5.a).(1).(c)	<u>supervision of the performance of nuclear medicine</u>
687		<u>procedures in bone, thyroid, hepatobiliary, and</u>
688		<u>cardiac imaging as well as the preliminary review</u>
689		<u>and interpretation of the resulting images; and,</u>
690		
691	IV.A.5.a).(1).(d)	<u>therapeutic administration of radioiodine for benign</u>
692		<u>thyroid disease, including: patient selection,</u>
693		<u>evaluating risks and benefits, determining the</u>
694		<u>administered dose, patient identity verification,</u>
695		<u>obtaining informed consent, documenting</u>
696		<u>pregnancy status, using administrative controls to</u>
697		<u>prevent a medical event, complying with federal</u>
698		<u>and state regulations regarding medical use of</u>
699		<u>radiopharmaceuticals, counseling patients and their</u>
700		<u>families about radiation safety issues, and</u>
701		<u>scheduling and performing post-therapy follow-up.</u>
702		
703	IV.A.5.a).(2)	<u>completing the NM2 year must demonstrate competency</u>
704		<u>in:</u>
705		
706	IV.A.5.a).(2).(a)	will select <u>selection of appropriate procedures(s) or</u>
707		therapy based on the referring physician's request
708		and the patient's history;
709		
710	IV.A.5.a).(2).(b)	This involves selection of the appropriate
711		radiopharmaceutical, dose, imaging technique, data
712		analysis, <u>basic supervisory skills, and image</u>
713		<u>presentation, and preliminary interpretation in the</u>
714		<u>performance of parathyroid, gastrointestinal,</u>

715 infection, pulmonary, urinary tract procedures, and
716 PET studies. It also includes review of image
717 quality, defining the need for additional images and
718 correlation with other imaging studies such as x-
719 rays, CT, MRI, or ultrasound;
720
721 IV.A.5.a).(2).(c) interpretation of PET studies performed for
722 oncologic indications;
723
724 IV.A.5.a).(2).(d) preparation of radiopharmaceuticals, including
725 preparing patient doses and performing quality
726 control measures; and,
727
728 will communicate results promptly and clearly to the
729 referring physician or other appropriate health care
730 workers. This communication should include clear and
731 succinct dictation of the results;
732
733 IV.A.5.a).(2).(e) will conduct therapeutic administration of
734 radioiodine for thyroid malignancy, procedures,
735 Therapeutic procedures must be done in
736 consultation with an attending physician who is a
737 licensed user of radioactive material. These
738 procedures should include including dose
739 calculation, patient selection, evaluating risks and
740 benefits, determining the administered dose,
741 patient identity verification, obtaining explanation of
742 informed consent, documenting of pregnancy
743 status, using administrative controls to prevent a
744 medical event, complying with federal and state
745 regulations regarding the medical use of
746 radiopharmaceuticals, counseling of patients and
747 their families on about radiation safety issues, and
748 scheduling and performing post-therapy follow-up
749 after therapy.
750
751 will maintain records (logs) of participation in nuclear
752 cardiology pharmacologic and exercise studies, and in all
753 types of therapy procedures;
754
755 IV.A.5.a).(3) completing the NM3 year must demonstrate competency
756 in:
757
758 IV.A.5.a).(3).(a) should attain sequentially increasing competence in
759 selecting the most appropriate nuclear medicine
760 studies, performing these studies in the technically
761 correct manner, interpreting the information
762 obtained, correlating this information with other
763 diagnostic studies, and treating and following up
764 the patient who receives radionuclide therapy.
765 Under adequate faculty supervision, the resident

766		should participate directly in the performance of
767		imaging studies, non-imaging measurements and
768		assays, and therapeutic procedures
769		recommending, planning, conducting, supervising,
770		interpreting, and reporting diagnostic and
771		therapeutic nuclear medicine procedures
772		appropriate for the clinical problem or condition;
773		
774	IV.A.5.a).(3).(b)	<u>correlating the nuclear medicine procedure with</u>
775		<u>clinical information, laboratory, and other</u>
776		<u>procedural or imaging studies;</u>
777		
778	IV.A.5.a).(3).(c)	<u>interpreting PET studies performed for non-</u>
779		<u>oncologic indications;</u>
780		
781	IV.A.5.a).(3).(d)	<u>therapeutic administration of radiopharmaceuticals,</u>
782		<u>including patient selection, evaluating risks and</u>
783		<u>benefits, determining the administered dose,</u>
784		<u>patient identity verification, obtaining informed</u>
785		<u>consent, documenting pregnancy status, using</u>
786		<u>administrative controls to prevent a medical event,</u>
787		<u>complying with federal and state regulations</u>
788		<u>regarding the medical use of radiopharmaceuticals,</u>
789		<u>counseling patients and their families about</u>
790		<u>radiation safety issues, and scheduling and</u>
791		<u>performing post-therapy follow-up; and,</u>
792		
793	IV.A.5.a).(3).(e)	must be provided structured opportunities to
794		interpreting the following:
795		
796	IV.A.5.a).(3).(e).(i)	<u>learn the indications, contraindications,</u>
797		<u>complications, and limitations of specific</u>
798		<u>procedures; <u>musculoskeletal studies for</u></u>
799		<u>benign and malignant disease;</u>
800		
801	IV.A.5.a).(3).(e).(ii)	develop technical proficiency in performing
802		these procedures; <u>myocardial perfusion</u>
803		<u>imaging with treadmill and pharmacologic</u>
804		<u>stress, including patient monitoring, with</u>
805		<u>special emphasis on electrocardiographic</u>
806		<u>interpretation;</u>
807		
808	IV.A.5.a).(3).(e).(iii)	learn to interpret the results of these
809		procedures; and <u>ECG-gated</u>
810		<u>ventriculography for evaluation of ventricular</u>
811		<u>performance;</u>
812		
813	IV.A.5.a).(3).(e).(iv)	dictate reports and communicate results
814		promptly and appropriately. The program
815		must provide adequate opportunity for
816		residents to participate in and personally

817 ~~perform and analyze a broad range of~~
818 ~~common clinical nuclear medicine~~
819 ~~procedures. endocrinologic studies,~~
820 ~~including thyroid and parathyroid;~~
821
822 IV.A.5.a).(3).(e).(iv).(a) Thyroid studies must include
823 measurement of iodine uptake and
824 dosimetry calculations for radio-
825 iodine therapy.
826
827 IV.A.5.a).(3).(e).(v) gastrointestinal studies, including transit
828 studies, liver and hepatobiliary, bleeding,
829 and Meckel's diverticulum;
830
831 IV.A.5.a).(3).(e).(vi) infection studies, including gallium, labeled
832 leukocytes, and bone marrow imaging;
833
834 IV.A.5.a).(3).(e).(vii) oncology studies, including sentinel node
835 localization, fluorodeoxyglucose (FDG),
836 adrenal, somatostatin-receptor imaging and
837 other agents as they become available;
838
839 IV.A.5.a).(3).(e).(viii) neurologic studies, including cerebral
840 perfusion, cerebral metabolism and
841 cerebrospinal fluid. This should include
842 studies of dementia, epilepsy, and brain
843 death;
844
845 IV.A.5.a).(3).(e).(ix) pulmonary studies, including perfusion and
846 ventilation for pulmonary embolus, right-to-
847 left shunts, and quantitative assessment of
848 perfusion and ventilation;
849
850 IV.A.5.a).(3).(e).(x) urinary tract studies, including renal
851 perfusion, function and cortical imaging,
852 renal scintigraphy with pharmacologic
853 interventions, and renal transplant
854 evaluation; and,
855
856 IV.A.5.a).(3).(e).(xi) cross-sectional imaging of the brain, head
857 and neck, thorax, abdomen, and pelvis with
858 CT in the context of SPECT/CT and
859 PET/CT.
860
861 ~~must have experience in each of the following categories:~~
862
863 ~~musculoskeletal studies, including bone scanning~~
864 ~~for benign and malignant disease, and bone~~
865 ~~densitometry;~~
866
867 ~~myocardial perfusion imaging procedures~~

868 performed with radioactive perfusion agents in
869 association with treadmill and pharmacologic stress
870 (planar and tomographic, including gated
871 tomographic imaging). Specific applications should
872 include patient monitoring, with special emphasis
873 on electrocardiographic interpretation,
874 cardiopulmonary resuscitation during interventional
875 pharmacologic or exercise stress tests,
876 pharmacology of cardioactive drugs, and hands-on
877 experience with performance of the stress
878 procedure (exercise and pharmacologic agents) for
879 a minimum of 50 patients. Program directors must
880 be able to document the experience of residents in
881 this area, e.g., with logbooks;
882
883 radionuclide ventriculography performed with ECG
884 gating for evaluation of ventricular performance.
885 The experience should include first pass and
886 equilibrium studies and calculation of ventricular
887 performance parameters, e.g., ejection fraction and
888 regional wall motion assessment;
889
890 endocrinologic studies, including thyroid,
891 parathyroid, and adrenal imaging, along with
892 octreotide and other receptor-based imaging
893 studies. Thyroid studies should include
894 measurement of iodine uptake and dosimetry
895 calculations for radio-iodine therapy;
896
897 gastrointestinal studies of the salivary glands,
898 esophagus, stomach, and liver, both
899 reticuloendothelial function and the biliary system.
900 This also includes studies of gastrointestinal
901 bleeding, Meckel diverticulum, and C14 urea breath
902 testing;
903
904 hematologic studies, including red cell and plasma
905 volume, splenic sequestration, hemangioma
906 studies, labeled granulocytes for infection,
907 thrombus imaging, bone marrow imaging, and B12
908 absorption studies;
909
910 oncology studies, involving gallium, thallium,
911 sestamibi, antibodies, peptides, fluorodeoxyglucose
912 (FDG), and other agents as they become available.
913 Oncology experience should include all the
914 common malignancies of the brain, head and neck,
915 thyroid, breast, lung, liver, colon, kidney, bladder
916 and prostate. It should also involve lymphoma,
917 leukemia, melanoma, and musculoskeletal tumors.
918 Hands-on experience with lymphoscintigraphy;

919 including sentinel node mapping, is very important;
920
921 neurologic studies, including cerebral perfusion with
922 both single photon emission computed tomography
923 (SPECT) and positron emission tomography (PET),
924 cerebral metabolism with FDG, and cisternography.
925 This experience should include studies of stroke,
926 dementia, epilepsy, brain death and cerebrospinal
927 fluid dynamics;
928
929 pulmonary studies of perfusion and ventilation
930 performed with radiolabeled macroaggregates and
931 radioactive gas or aerosols used in the diagnosis of
932 pulmonary embolus, as well as for quantitative
933 assessment of perfusion and ventilation;
934
935 genitourinary tract imaging, including renal
936 perfusion and function procedures, clearance
937 methods, renal scintigraphy with pharmacologic
938 interventions, renal transplant evaluation, and
939 vesicoureteral reflux ;therapeutic administration of
940 radiopharmaceuticals, to include patient selection
941 and understanding and calculation of the
942 administered dose. Specific applications should
943 include radioiodine in hyperthyroidism (minimum of
944 10 cases) and thyroid carcinoma (minimum of five
945 cases), radiolabeled antibodies (minimum of three
946 cases) and radionuclides for painful bone disease.
947 Program directors must be able to document the
948 experience of residents in this area, including
949 patient follow-up, (e.g., with logbooks);
950
951 PET imaging of the heart, including studies of
952 myocardial perfusion and myocardial viability;
953
954 PET imaging of the brain, including studies of
955 dementia, epilepsy, and brain tumors;
956
957 PET imaging in oncology, including studies of
958 tumors of the lung, head and neck, esophagus,
959 colon, thyroid, and breast, as well as melanoma,
960 lymphoma, and other tumors as the indications
961 become established;
962
963 co-registration and image fusion of SPECT and
964 PET images with computed tomography (CT) and
965 magnetic resonance imaging (MRI) studies;
966
967 anatomic imaging of brain, head and neck, thorax,
968 abdomen, and pelvis with CT to be able to
969 understand the correlation between anatomic and

970 functional imaging. This training should include a
971 minimum of 4 months of CT experience that may
972 be combined with a rotation that includes PET-CT
973 or SPECT-CT, although rotation on a CT service is
974 desirable for part of the training. The experience
975 must emphasize correlation of CT images
976 associated with PET-CT or SPECT-CT. The
977 resident must acquire sufficient experience with
978 such studies under the supervision of qualified
979 faculty to be able to supervise the performance and
980 accurately correlate the CTs associated with PET-
981 CT or SPECT-CT studies. This requirement does
982 not apply to residents who have completed training
983 in an ACGME-approved diagnostic radiology
984 program; and,

985
986 experience in radiation oncology and medical
987 oncology. This is essential because of the
988 increasing close interaction with these specialties.
989 The experience can consist of one month rotations
990 or an equivalent experience through participation in
991 patient management conferences and clinics.
992

993 IV.A.5.a).(4) at all levels must:

994
995 IV.A.5.a).(4).(a) demonstrate compliance with radiation safety rules
996 and regulations, including Nuclear Regulatory
997 Commission (NRC) or agreement state rules, local
998 regulations, and the ALARA (as low as reasonably
999 achievable) principle for radiation protection; and,

1000
1001 IV.A.5.a).(4).(b) have certification training in both basic and
1002 advanced cardiac life support.
1003

1004 **IV.A.5.b) Medical Knowledge**

1005
1006 **Residents must demonstrate knowledge of established and**
1007 **evolving biomedical, clinical, epidemiological and social-**
1008 **behavioral sciences, as well as the application of this**
1009 **knowledge to patient care. Residents:**

1010
1011 IV.A.5.b).(1) will closely follow scientific progress in nuclear medicine,
1012 and learn to incorporate it effectively for modifying and
1013 improving diagnostic and therapeutic procedures;
1014 completing the NM1 year should demonstrate basic
1015 knowledge of radiation safety; nuclear medicine
1016 instrumentation, including quality control; nuclear medicine
1017 procedures, including bone scans, thyroid uptake and
1018 scans; radioiodine therapy for hyperthyroidism;
1019 hepatobiliary scans; myocardial perfusion; and gated
1020 ventriculography;

1021		
1022	IV.A.5.b).(2)	will become familiar with and regularly read the major journals in nuclear medicine. During the residency this will involve regular participation in journal club; <u>completing the NM2 year should demonstrate basic knowledge in radiopharmacy; nuclear medicine procedures, including parathyroid, gastrointestinal, infection, pulmonary and urinary tract; radioiodine therapy for thyroid malignancy; positron emission tomography for oncologic indications; and cross-sectional imaging of the thorax, abdomen, and pelvis with CT in the context of SPECT/CT and PET/CT; and,</u>
1023		
1024		
1025		
1026		
1027		
1028		
1029		
1030		
1031		
1032		
1033		
1034	IV.A.5.b).(3)	will use computer technology including internet web sites and CDROM teaching disks; <u>completing the NM3 year should demonstrate competence in their knowledge of all topics included in the didactic curriculum.</u>
1035		
1036		
1037		
1038		
1039	IV.A.5.b).(4)	will participate in the annual in-service examination;
1040		
1041	IV.A.5.b).(5)	know and comply with radiation safety rules and regulations, including NRC and/or agreement state rules, local regulations, and the ALARA (as low as reasonably achievable) principles for personal radiation protection;
1042		
1043		
1044		
1045		
1046	IV.A.5.b).(6)	will understand and use QC (quality control) procedures for imaging devices, laboratory instrumentation, and radiopharmaceuticals;
1047		
1048		
1049		
1050	IV.A.5.b).(7)	must have didactic instruction in the following areas: (Those residents who have completed an ACGME-accredited program in Diagnostic Radiology are exempted from a) and d)):
1051		
1052		
1053		
1054		
1055	IV.A.5.b).(7).(a)	Physics: structure of matter, modes of radioactive decay, particle and photon emissions, and interactions of radiation with matter;
1056		
1057		
1058		
1059	IV.A.5.b).(7).(b)	Instrumentation: principles of instrumentation used in detection, measurement, and imaging of radioactivity with special emphasis on gamma cameras, including SPECT and PET devices, and associated electronic instrumentation and computers employed in image production and display. Instruction must be provided in the instrumentation principles involved in magnetic resonance imaging and multi-slice computed tomography;
1060		
1061		
1062		
1063		
1064		
1065		
1066		
1067		
1068		
1069		
1070	IV.A.5.b).(7).(c)	Mathematics, statistics, and computer sciences: probability distributions; medical decision making;
1071		

1072		basic aspects of computer structure, function,
1073		programming, and processing; applications of
1074		mathematics to tracer kinetics; compartmental
1075		modeling; and quantification of physiologic
1076		processes;
1077		
1078	IV.A.5.b).(7).(d)	Radiation biology and protection: biological effects
1079		of ionizing radiation, means of reducing radiation
1080		exposure, calculation of the radiation dose,
1081		evaluation of radiation overexposure, medical
1082		management of persons overexposed to ionizing
1083		radiation, management and disposal of radioactive
1084		substances, and establishment of radiation safety
1085		programs in accordance with federal and state
1086		regulations; and,
1087		
1088	IV.A.5.b).(7).(e)	Radiopharmaceuticals: reactor, cyclotron, and
1089		generator production of radionuclides;
1090		radiochemistry; pharmacokinetics; and formulation
1091		of radiopharmaceuticals. Specifically, instruction
1092		should include the chemistry of byproduct materials
1093		for medical use; ordering and unpacking radioactive
1094		materials safely and performing the related
1095		radiation surveys; calibrating instruments used to
1096		determine the activity of dosages and performing
1097		checks for proper operation of survey meters;
1098		calculating and safely preparing patient or human
1099		research subject dosages; using administrative
1100		controls to prevent a medical event involving the
1101		use of unsealed byproduct material; using
1102		procedures to contain spilled byproduct material
1103		safely and using proper decontamination
1104		procedures; eluting generator systems appropriate
1105		for preparation of radioactive drugs for imaging and
1106		localization studies or that need a written directive;
1107		measuring and testing the eluate for radionuclide
1108		purity, and processing the eluate with reagent kits
1109		to prepare labeled radioactive drugs; and
1110		administering dosages of radioactive drugs for
1111		uptake, dilution, excretion, and imaging and
1112		localization studies.
1113		
1114	IV.A.5.b).(8)	should have continuing extensive instruction in the relevant
1115		basic sciences. This should include formal lectures and
1116		formal labs, with an appropriate balance of time allocated
1117		to the major subject areas, which must include physical
1118		science and instrumentation; radiobiology and radiation
1119		protection; mathematics; radiopharmaceutical chemistry;
1120		and computer science. Instruction in the basic sciences
1121		should not be limited to only didactic sessions. The
1122		resident's activities also should include laboratory

1123		experience and regular contact with basic scientists in their
1124		clinical adjunctive roles;
1125		
1126	IV.A.5.b).(9)	must have didactic instruction in both diagnostic imaging
1127		and non-imaging nuclear medicine applications and
1128		therapeutic applications. The instruction must be well
1129		organized, thoughtfully integrated, and carried out on a
1130		regularly scheduled basis. Instruction must include the
1131		following areas:
1132		
1133	IV.A.5.b).(9).(a)	Diagnostic use of radiopharmaceuticals: clinical
1134		indications, technical performance, and
1135		interpretation of in vivo imaging of the body organs
1136		and systems, using external detectors and
1137		scintillation cameras, including SPECT and PET
1138		and correlation of nuclear medicine procedures with
1139		other pertinent imaging modalities such as plain
1140		film radiography, angiography, computed
1141		tomography, bone densitometry, ultrasonography,
1142		and magnetic resonance imaging;
1143		
1144	IV.A.5.b).(9).(b)	Exercise and pharmacologic stress testing: the
1145		pharmacology of cardioactive drugs; physiologic
1146		gating techniques; patient monitoring during
1147		interventional procedures; management of cardiac
1148		emergencies, including electrocardiographic
1149		interpretation and cardiopulmonary life support; and
1150		correlation of nuclear medicine procedures with
1151		other pertinent imaging modalities such as
1152		angiography, computed tomography, bone density
1153		measurement, ultrasonography, and magnetic
1154		resonance imaging;
1155		
1156	IV.A.5.b).(9).(c)	Non-imaging studies: training and experience in the
1157		application of a variety of non-imaging procedures,
1158		including instruction in the principles of
1159		immunology; preparation of radiolabeled
1160		antibodies; uptake measurements; in vitro studies
1161		including Schilling test, glomerular filtration rate, red
1162		blood cell mass and plasma volume, and breath
1163		tests;
1164		
1165	IV.A.5.b).(9).(d)	Therapeutic uses of unsealed
1166		radiopharmaceuticals: patient selection and
1167		management, including dose administration and
1168		dosimetry, radiation toxicity, and radiation
1169		protection considerations in the treatment of
1170		metastatic cancer and bone pain, primary
1171		neoplasms, solid tumors, and malignant effusions;
1172		and the treatment of hematologic, endocrine, and
1173		metabolic disorders; and,

1174
1175 IV.A.5.b).(9).(e) Fundamentals of the operation of a positron
1176 tomography imaging center, including medical
1177 cyclotron operation for production of PET
1178 radionuclides such as fluorodeoxyglucose (FDG);
1179 experience in PET radiopharmaceutical synthesis,
1180 and image acquisition and processing.

1181
1182 **IV.A.5.c) Practice-based Learning and Improvement**

1183
1184 **Residents must demonstrate the ability to investigate and**
1185 **evaluate their care of patients, to appraise and assimilate**
1186 **scientific evidence, and to continuously improve patient care**
1187 **based on constant self-evaluation and life-long learning.**
1188 **Residents are expected to develop skills and habits to be able**
1189 **to meet the following goals:**

1190
1191 **IV.A.5.c).(1) identify strengths, deficiencies, and limits in one's**
1192 **knowledge and expertise;**

1193
1194 **IV.A.5.c).(2) set learning and improvement goals;**

1195
1196 **IV.A.5.c).(3) identify and perform appropriate learning activities;**

1197
1198 **IV.A.5.c).(4) systematically analyze practice using quality**
1199 **improvement methods, and implement changes with**
1200 **the goal of practice improvement;**

1201
1202 **IV.A.5.c).(5) incorporate formative evaluation feedback into daily**
1203 **practice;**

1204
1205 **IV.A.5.c).(6) locate, appraise, and assimilate evidence from**
1206 **scientific studies related to their patients' health**
1207 **problems;**

1208
1209 **IV.A.5.c).(7) use information technology to optimize learning; and,**

1210
1211 **IV.A.5.c).(8) participate in the education of patients, families,**
1212 **students, residents and other health professionals.**

1213
1214 ~~develop and continuously improve skills in obtaining~~
1215 ~~medical knowledge using new techniques as they develop~~
1216 ~~in information technology. This includes:~~

1217
1218 ~~using the internet and computer data bases to~~
1219 ~~search for patient information, disease, and~~
1220 ~~technique information. Residents should also be~~
1221 ~~familiar with viewing and manipulating images with~~
1222 ~~the computer, both locally and remotely;~~

1223
1224 ~~improving one's understanding of diseases and~~

1225		patient care by attending inter-specialty
1226		conferences, correlative conferences, mortality and
1227		morbidity conferences, and utilization conferences;
1228		and,
1229		
1230	IV.A.5.c).(9)	regularly obtain follow-up information, which is essential for
1231		determining the accuracy of study interpretation and
1232		correlate the clinical findings with their study interpretation;
1233		and,
1234		
1235	IV.A.5.c).(10)	<u>evaluate their personal practice utilizing scientific evidence,</u>
1236		<u>best practices, and/or self-assessment programs or</u>
1237		<u>modules for practice improvement. This reflective process</u>
1238		<u>must be demonstrated as part of an individual learning</u>
1239		<u>plan in the Resident Learning Portfolio (as described in</u>
1240		<u>IV.A.6.a).(4)).</u>
1241		
1242	IV.A.5.d)	Interpersonal and Communication Skills
1243		
1244		Residents must demonstrate interpersonal and
1245		communication skills that result in the effective exchange of
1246		information and collaboration with patients, their families,
1247		and health professionals. Residents are expected to:
1248		
1249	IV.A.5.d).(1)	communicate effectively with patients, families, and
1250		the public, as appropriate, across a broad range of
1251		socioeconomic and cultural backgrounds;
1252		
1253	IV.A.5.d).(2)	communicate effectively with physicians, other health
1254		professionals, and health related agencies;
1255		
1256	IV.A.5.d).(3)	work effectively as a member or leader of a health care
1257		team or other professional group;
1258		
1259	IV.A.5.d).(4)	act in a consultative role to other physicians and
1260		health professionals; and,
1261		
1262	IV.A.5.d).(5)	maintain comprehensive, timely, and legible medical
1263		records, if applicable.
1264		
1265		communicate clearly and effectively, and work well with
1266		each of the following groups:
1267		
1268		patients and their families;
1269		
1270		physicians in nuclear medicine and radiology;
1271		
1272		referring physicians from other specialties;
1273		
1274		nuclear medicine technologists; and,
1275		

- 1276 other health care workers throughout the site.
- 1277
- 1278 IV.A.5.d).(6) must have on-call responsibilities and provide consultation
- 1279 for emergency procedures performed. demonstrate
- 1280 competence by the completion of the NM1 year in:
- 1281
- 1282 IV.A.5.d).(6).(a) preparing a preliminary basic nuclear medicine
- 1283 procedure report; and
- 1284
- 1285 IV.A.5.d).(6).(b) communicating the final procedure results promptly
- 1286 and clearly to the referring physician.
- 1287
- 1288 IV.A.5.d).(7) demonstrate competence by the completion of the NM2
- 1289 year in:
- 1290
- 1291 IV.A.5.d).(7).(a) preparing a complete and concise nuclear medicine
- 1292 procedure interpretation report;
- 1293
- 1294 IV.A.5.d).(7).(b) providing effective contributions to the
- 1295 interdisciplinary and clinical didactic conferences;
- 1296 and
- 1297
- 1298 IV.A.5.d).(7).(c) educating patients and their families in diagnostic
- 1299 and therapeutic nuclear medicine procedures.
- 1300
- 1301 IV.A.5.d).(8) demonstrate competence by the completion of the NM3
- 1302 year in:
- 1303
- 1304 IV.A.5.d).(8).(a) communicating the final procedure interpretation,
- 1305 an appropriate differential diagnosis, and any
- 1306 clinical, diagnostic or therapeutic
- 1307 recommendations; and
- 1308
- 1309 IV.A.5.d).(8).(b) supervising and teaching junior residents, residents
- 1310 from other services, and students on rotations in
- 1311 nuclear medicine.
- 1312

IV.A.5.e)

Professionalism

Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Residents are expected to demonstrate:

- 1313
- 1314
- 1315
- 1316
- 1317
- 1318
- 1319 **IV.A.5.e).(1) compassion, integrity, and respect for others;**
- 1320
- 1321 **IV.A.5.e).(2) responsiveness to patient needs that supersedes self-**
- 1322 **interest;**
- 1323
- 1324 **IV.A.5.e).(3) respect for patient privacy and autonomy;**
- 1325
- 1326 **IV.A.5.e).(4) accountability to patients, society and the profession;**

1327		and,
1328		
1329	IV.A.5.e).(5)	sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.
1330		
1331		
1332		
1333		
1334	IV.A.5.e).(6)	professional behavior, including:
1335		
1336	IV.A.5.e).(6).(a)	a consistent demonstration of completely ethical behavior;
1337		
1338		
1339	IV.A.5.e).(6).(b)	a respect for the dignity of patients and all members of the medical team; and,
1340		
1341		
1342	IV.A.5.e).(6).(c)	a responsiveness to patients' needs by demonstrating integrity, honesty, compassion, and commitment.
1343		
1344		
1345		
1346	IV.A.5.f)	Systems-based Practice
1347		
1348		Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care. Residents are expected to:
1349		
1350		
1351		
1352		
1353		
1354	IV.A.5.f).(1)	work effectively in various health care delivery settings and systems relevant to their clinical specialty;
1355		
1356		
1357		
1358	IV.A.5.f).(2)	coordinate patient care within the health care system relevant to their clinical specialty;
1359		
1360		
1361	IV.A.5.f).(3)	incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate;
1362		
1363		
1364		
1365	IV.A.5.f).(4)	advocate for quality patient care and optimal patient care systems;
1366		
1367		
1368	IV.A.5.f).(5)	work in interprofessional teams to enhance patient safety and improve patient care quality; and,
1369		
1370		
1371	IV.A.5.f).(6)	participate in identifying system errors and implementing potential systems solutions.
1372		
1373		
1374	IV.A.5.f).(7)	work in a variety of health care settings, and understand the inter-relationship with other health care professionals. Specifically, residents should be aware of:
1375		
1376		
1377		

1378	IV.A.5.f).(7).(a)	work conditions in hospitals, out-patient clinics, diagnostic centers, and private practice settings;
1379		
1380		
1381	IV.A.5.f).(7).(b)	resource allocation and methods directed towards controlling health care costs such as Diagnostic Related Groups (DRGs), APC, and pre-certification by medical insurers;
1382		
1383		
1384		
1385		
1386	IV.A.5.f).(7).(c)	the concept of providing optimal patient care by selecting the most cost-effective procedures and by using or recommending other diagnostic tests that might complement the nuclear medicine procedures; this involves also an awareness of the relevant risk-benefit considerations; and,
1387		
1388		
1389		
1390		
1391		
1392		
1393	IV.A.5.f).(7).(d)	basic financial and business skills to function effectively in current health care delivery systems; this includes an understanding and knowledge of coding, procedure charges, billing practices, and reimbursement mechanisms.
1394		
1395		
1396		
1397		
1398		
1399	IV.A.5.f).(8)	have instruction in quality management and improvement: principles of quality management and performance improvement, efficacy assessment, and compliance with pertinent regulations of the Nuclear Regulatory Commission and the Joint Commission on the Accreditation of Healthcare Organizations.
1400		
1401		
1402		
1403		
1404		
1405		
1406	IV.A.6.	<u>Curriculum Organization and Resident Experiences</u> The Two-year Clinical Curriculum Content
1407		
1408		
1409		The two-year clinical curriculum should provide the general Nuclear Medicine content as described in Section IV.A.5.a.7 above, with less emphasis on endocrinologic, gastrointestinal, hematologic, and pulmonary studies (Section IV.A.5.a.7 subsection d, e, f, and i). The two year curriculum should include the minimum number of cases as stated above, i.e., radioiodine in hyperthyroidism (minimum of 10 cases), thyroid carcinoma (minimum of five cases), radiolabeled antibodies (minimum of three cases), and radionuclides for painful bone disease. Program directors must be able to document the experience of residents in this area, including patient follow-up, e.g. with logbooks.
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1419		
1420	IV.A.6.a)	<u>Residents entering the program at any level must:</u>
1421		
1422	IV.A.6.a).(1)	<u>participate in a radiopharmacy rotation. This experience must include:</u>
1423		
1424		
1425	IV.A.6.a).(1).(a)	<u>ordering, receiving, and unpacking radioactive materials safely and performing the related radiation surveys;</u>
1426		
1427		
1428		

1429	IV.A.6.a).(1).(b)	<u>performing quality control procedures on instruments used to determine the activity of dosages, and performing checks for proper operation of survey meters;</u>
1430		
1431		
1432		
1433		
1434	IV.A.6.a).(1).(c)	<u>calculating, measuring, and safely preparing patient or human research subject dosages;</u>
1435		
1436		
1437	IV.A.6.a).(1).(d)	<u>using administrative controls to prevent a medical event involving the use of unsealed byproduct material;</u>
1438		
1439		
1440		
1441	IV.A.6.a).(1).(e)	<u>using procedures to safely contain spilled radioactive material and using proper decontamination procedures; and,</u>
1442		
1443		
1444		
1445	IV.A.6.a).(1).(f)	<u>administering dosages of radioactive drugs to patients or human research subjects.</u>
1446		
1447		
1448	IV.A.6.a).(2)	<u>participate with appropriate supervision in the performance of nuclear medicine imaging and non-imaging procedures to include instrumentation quality control;</u>
1449		
1450		
1451		
1452	IV.A.6.a).(3)	<u>participate in basic radiation safety and survey procedures;</u>
1453		
1454	IV.A.6.a).(4)	<u>maintain a Resident Learning Portfolio. This portfolio must be maintained by each resident, must be reviewed with the program director as part of the semiannual evaluation, and must include the following:</u>
1455		
1456		
1457		
1458		
1459	IV.A.6.a).(4).(a)	<u>Patient Care</u>
1460		
1461	IV.A.6.a).(4).(a).(i)	<u>documentation of participation in the following required nuclear medicine procedures:</u>
1462		
1463		
1464		
1465	IV.A.6.a).(4).(a).(i).(a)	<u>10 cases of oral administration of less than or equal to 1.22 gigabecquerels (33 millicuries) of sodium iodide I-131, for which a written directive is required;</u>
1466		
1467		
1468		
1469		
1470		
1471	IV.A.6.a).(4).(a).(i).(b)	<u>five cases of oral administration greater than 1.22 gigabecquerels (33 millicuries) of sodium iodide I-131, for which a written directive is required;</u>
1472		
1473		
1474		
1475		
1476		
1477	IV.A.6.a).(4).(a).(i).(c)	<u>three cases of parenteral administration of any beta emitter, or a photon-emitting radionuclide with a</u>
1478		
1479		

1480		<u>photon energy less than 150 keV, for</u>
1481		<u>which a written directive is required</u>
1482		<u>and/or parenteral administration of</u>
1483		<u>any other radionuclide, for which a</u>
1484		<u>written directive is required; and,</u>
1485		
1486	IV.A.6.a).(4).(a).(i).(d)	<u>50 cardiovascular pharmacologic</u>
1487		<u>and/or exercise stress studies.</u>
1488		
1489	IV.A.6.a).(4).(a).(ii)	<u>documentation of participation in therapeutic</u>
1490		<u>procedures, including date, diagnosis, and</u>
1491		<u>dose of each therapy;</u>
1492		
1493	IV.A.6.a).(4).(a).(iii)	<u>documentation of participation in stress</u>
1494		<u>myocardial studies including date,</u>
1495		<u>radiopharmaceutical, and type of stress</u>
1496		<u>(exercise or pharmacologic); and,</u>
1497		
1498	IV.A.6.a).(4).(a).(iii).(a)	<u>It is suggested that residents</u>
1499		<u>document the completion of a</u>
1500		<u>minimum of 25 pediatric nuclear</u>
1501		<u>medicine procedures per year.</u>
1502		
1503	IV.A.6.a).(4).(a).(iv)	<u>documentation of basic cardiac life support</u>
1504		<u>(BCLS) and advanced cardiac life support</u>
1505		<u>(ACLS) certification.</u>
1506		
1507	IV.A.6.a).(4).(b)	<u>Medical Knowledge</u>
1508		
1509	IV.A.6.a).(4).(b).(i)	<u>documentation of conference presentations,</u>
1510		<u>external courses and meetings attended,</u>
1511		<u>and self-assessment modules completed;</u>
1512		
1513	IV.A.6.a).(4).(b).(ii)	<u>documentation of compliance with</u>
1514		<u>regulatory-based training requirements;</u>
1515		<u>and</u>
1516		
1517	IV.A.6.a).(4).(b).(iii)	<u>documentation of performance on the</u>
1518		<u>annual in-training examination.</u>
1519		
1520	IV.A.6.a).(4).(c)	<u>Practice-based Learning and Improvement</u>
1521		
1522	IV.A.6.a).(4).(c).(i)	<u>annual resident self-assessment and</u>
1523		<u>learning plan.</u>
1524		
1525	IV.A.6.a).(4).(d)	<u>Interpersonal and Communication Skills</u>
1526		
1527	IV.A.6.a).(4).(d).(i)	<u>formal faculty evaluation of report quality.</u>
1528		
1529	IV.A.6.a).(4).(e)	<u>Professionalism</u>
1530		

1531	IV.A.6.a).(4).(e).(i)	<u>documentation of compliance with</u>
1532		<u>institutional and departmental policies; and,</u>
1533		
1534	IV.A.6.a).(4).(e).(ii)	<u>status of medical license.</u>
1535		
1536	IV.A.6.a).(4).(f)	<u>Systems-based Practice</u>
1537		
1538	IV.A.6.a).(4).(f).(i)	<u>documentation of participation in identifying</u>
1539		<u>and implementing potential systems</u>
1540		<u>solutions.</u>
1541		
1542	IV.A.6.a).(4).(g)	<u>Scholarly Activities</u>
1543		
1544	IV.A.6.a).(4).(g).(i)	<u>documentation of scholarly activity, such as</u>
1545		<u>publications, announcement of</u>
1546		<u>presentations;</u>
1547		
1548	IV.A.6.a).(4).(g).(ii)	<u>any additional materials requested by the</u>
1549		<u>program director; and,</u>
1550		
1551	IV.A.6.a).(4).(g).(iii)	<u>submission of a scholarly activity to the</u>
1552		<u>program director for evaluation by the</u>
1553		<u>completion of the NM3 year.</u>
1554		
1555	IV.A.6.b)	<u>Residents entering the program at the NM1 level must:</u>
1556		
1557	IV.A.6.b).(1)	<u>participate in the stress component of myocardial perfusion</u>
1558		<u>exams;</u>
1559		
1560	IV.A.6.b).(2)	<u>participate in radioiodine therapy for benign thyroid</u>
1561		<u>disease;</u>
1562		
1563	IV.A.6.b).(3)	<u>participate with appropriate supervision in the performance</u>
1564		<u>of nuclear medicine procedures including bone scans,</u>
1565		<u>thyroid uptake and scans, hepatobiliary scans, and</u>
1566		<u>myocardial perfusion procedures;</u>
1567		
1568	IV.A.6.b).(4)	<u>formulate a scholarly activity or research project and</u>
1569		<u>identify a faculty mentor for this activity during the NM1</u>
1570		<u>year; and</u>
1571		
1572	IV.A.6.b).(5)	<u>have no more than three months of elective rotations</u>
1573		<u>during the program; and,</u>
1574		
1575	IV.A.6.b).(6)	<u>not exceed a total of three months of dedicated research</u>
1576		<u>time during the program.</u>
1577		
1578	IV.A.6.c)	<u>Residents promoted to or entering the program at the NM2 level</u>
1579		<u>must:</u>
1580		
1581	IV.A.6.c).(1)	<u>participate in a minimum of six months of CT experience;</u>

- 1582
 1583 IV.A.6.c).(1).(a) A minimum of four months must be obtained on a
 1584 diagnostic radiology CT service.
 1585
 1586 IV.A.6.c).(1).(b) The remaining two months may be continued on
 1587 the diagnostic CT service and/or may be combined
 1588 with a rotation that includes PET/CT or SPECT/CT.
 1589
 1590 IV.A.6.c).(1).(c) This experience must be supervised by qualified
 1591 faculty.
 1592
 1593 IV.A.6.c).(1).(d) Residents who have satisfactorily completed an
 1594 ACGME-, RCPSC-, or AOA-accredited diagnostic
 1595 radiology program are exempt from the
 1596 requirement.
 1597
 1598 IV.A.6.c).(2) have no more than two months of elective rotations during
 1599 the program. This does not apply to residents entering at
 1600 the NM1 or NM3 level; and,
 1601
 1602 IV.A.6.c).(3) not exceed a total of two months of dedicated research
 1603 time during the program.
 1604
 1605 IV.A.6.d) Residents entering the program at the NM3 level must:
 1606
 1607 IV.A.6.d).(1) have no more than one month of elective rotations; and,
 1608
 1609 IV.A.6.d).(2) not exceed a total of one month of dedicated research time
 1610 during the program.
 1611
 1612 IV.A.7. ~~The One-year Clinical Curriculum Content~~
 1613
 1614 ~~The one year clinical curriculum should emphasize PET, cardiac studies~~
 1615 ~~and therapy (sections V.B.4.b), c), g), k), l), m), n) in the context of~~
 1616 ~~general nuclear medicine. The one year curriculum should include the~~
 1617 ~~minimum number of cases as stated above, i.e.: radioiodine in~~
 1618 ~~hyperthyroidism (minimum of 10 cases), thyroid carcinoma (minimum of~~
 1619 ~~five cases), radiolabeled antibodies (minimum of three cases) and~~
 1620 ~~radionuclides for painful bone disease. Program directors must be able to~~
 1621 ~~document the experience of residents in this area, including patient follow~~
 1622 ~~up, e.g. with logbooks.~~
 1623
 1624 **IV.B. Residents' Scholarly Activities**
 1625
 1626 **IV.B.1. The curriculum must advance residents' knowledge of the basic**
 1627 **principles of research, including how research is conducted,**
 1628 **evaluated, explained to patients, and applied to patient care.**
 1629
 1630 **IV.B.2. Residents should participate in scholarly activity.**
 1631
 1632 IV.B.2.a) All residents must participate in a scholarly project under faculty

- 1633 supervision.
- 1634
- 1635 IV.B.2.a).(1) The scholarly project should take the form of laboratory
- 1636 research, clinical research, or the analysis of disease
- 1637 processes, imaging techniques, or practice management
- 1638 issues.
- 1639
- 1640 IV.B.2.a).(2) The results of such projects must be published or
- 1641 presented at institutional, local, regional, or national
- 1642 meetings, and included in the Resident Learning Portfolio.
- 1643
- 1644 IV.B.2.a).(3) The program must specify how each project will be
- 1645 evaluated.
- 1646
- 1647 **IV.B.3. The sponsoring institution and program should allocate adequate**
- 1648 **educational resources to facilitate resident involvement in scholarly**
- 1649 **activities.**
- 1650
- 1651 **V. Evaluation**
- 1652
- 1653 **V.A. Resident Evaluation**
- 1654
- 1655 **V.A.1. Formative Evaluation**
- 1656
- 1657 **V.A.1.a) The faculty must evaluate resident performance in a timely**
- 1658 **manner during each rotation or similar educational**
- 1659 **assignment, and document this evaluation at completion of**
- 1660 **the assignment.**
- 1661
- 1662 **V.A.1.b) The program must:**
- 1663
- 1664 **V.A.1.b).(1) provide objective assessments of competence in**
- 1665 **patient care, medical knowledge, practice-based**
- 1666 **learning and improvement, interpersonal and**
- 1667 **communication skills, professionalism, and systems-**
- 1668 **based practice;**
- 1669
- 1670 **V.A.1.b).(2) use multiple evaluators (e.g., faculty, peers, patients,**
- 1671 **self, and other professional staff);**
- 1672
- 1673 **V.A.1.b).(3) document progressive resident performance**
- 1674 **improvement appropriate to educational level; and,**
- 1675
- 1676 **V.A.1.b).(4) provide each resident with documented semiannual**
- 1677 **evaluation of performance with feedback.**
- 1678
- 1679 **V.A.1.c) The evaluations of resident performance must be accessible**
- 1680 **for review by the resident, in accordance with institutional**
- 1681 **policy.**
- 1682
- 1683 **V.A.1.d) Residents must participate in the annual in-training examination.**

1684 The results of this examination must be used only to identify
1685 deficiencies in knowledge and to assist in developing a
1686 remediation plan.

1687
1688 **V.A.2. Summative Evaluation**
1689

1690 **The program director must provide a summative evaluation for each**
1691 **resident upon completion of the program. This evaluation must**
1692 **become part of the resident's permanent record maintained by the**
1693 **institution, and must be accessible for review by the resident in**
1694 **accordance with institutional policy. This evaluation must:**

1695
1696 **V.A.2.a) document the resident's performance during the final period**
1697 **of education, and**

1698
1699 **V.A.2.b) verify that the resident has demonstrated sufficient**
1700 **competence to enter practice without direct supervision.**

1701
1702 **V.B. Faculty Evaluation**
1703

1704 **V.B.1. At least annually, the program must evaluate faculty performance as**
1705 **it relates to the educational program.**

1706
1707 **V.B.2. These evaluations should include a review of the faculty's clinical**
1708 **teaching abilities, commitment to the educational program, clinical**
1709 **knowledge, professionalism, and scholarly activities.**

1710
1711 **V.B.3. This evaluation must include at least annual written confidential**
1712 **evaluations by the residents.**

1713
1714 **V.B.3.a) Faculty must receive annual feedback from these resident**
1715 **evaluations.**

1716
1717 **V.C. Program Evaluation and Improvement**
1718

1719 **V.C.1. The program must document formal, systematic evaluation of the**
1720 **curriculum at least annually. The program must monitor and track**
1721 **each of the following areas:**

1722
1723 **V.C.1.a) resident performance;**

1724
1725 **V.C.1.b) faculty development;**

1726
1727 **V.C.1.c) graduate performance, including performance of program**
1728 **graduates on the certification examination; and,**

1729
1730 **V.C.1.d) program quality. Specifically:**

1731
1732 **V.C.1.d).(1) Residents and faculty must have the opportunity to**
1733 **evaluate the program confidentially and in writing at**
1734 **least annually, and**

- 1735
1736 **V.C.1.d).(2)** **The program must use the results of residents’**
1737 **assessments of the program together with other**
1738 **program evaluation results to improve the program.**
1739
- 1740 **V.C.2.** **If deficiencies are found, the program should prepare a written plan**
1741 **of action to document initiatives to improve performance in the**
1742 **areas listed in section V.C.1. The action plan should be reviewed**
1743 **and approved by the teaching faculty and documented in meeting**
1744 **minutes.**
1745
- 1746 **V.C.3.** ~~Performance of program graduates on the certification examination~~
1747 ~~should be used as one measure of evaluating program effectiveness. As~~
1748 ~~part of the overall evaluation of the program, the Review Committee will~~
1749 ~~take into consideration the information provided by the ABNM regarding~~
1750 ~~resident performance over the most recent five-year period. At least 50%~~
1751 ~~of a program’s graduates from the preceding five years taking the~~
1752 ~~American Board of Nuclear Medicine certifying examination for the first~~
1753 ~~time should pass.~~
1754
- 1755 **VI. Resident Duty Hours in the Learning and Working Environment**
1756
- 1757 **VI.A. Principles**
1758
- 1759 **VI.A.1.** **The program must be committed to and be responsible for**
1760 **promoting patient safety and resident well-being and to providing a**
1761 **supportive educational environment.**
1762
- 1763 **VI.A.2.** **The learning objectives of the program must not be compromised by**
1764 **excessive reliance on residents to fulfill service obligations.**
1765
- 1766 **VI.A.3.** **Didactic and clinical education must have priority in the allotment of**
1767 **residents’ time and energy.**
1768
- 1769 **VI.A.4.** **Duty hour assignments must recognize that faculty and residents**
1770 **collectively have responsibility for the safety and welfare of patients.**
1771
- 1772 **VI.B. Supervision of Residents**
1773
- 1774 **The program must ensure that qualified faculty provide appropriate**
1775 **supervision of residents in patient care activities.**
1776
- 1777 **VI.B.1.** Faculty supervision must be available at all sites of education.
1778
- 1779 **VI.B.2.** Therapeutic procedures must be done under the direct supervision of a
1780 physician faculty member who is an authorized user of the therapeutic
1781 material.
1782
- 1783 **VI.B.3.** The level of responsibility or independence given to residents should be
1784 based on the resident’s knowledge, skills, and experience.
1785

- 1786 VI.B.4. Residents must always have physician faculty backup when taking night,
1787 weekend, or holiday call.
- 1788
- 1789 VI.B.5. All nuclear medicine procedures done by residents must be reviewed,
1790 and all reports must be signed, by the supervising physician faculty.
- 1791
- 1792 **VI.C. Fatigue**
- 1793
- 1794 **Faculty and residents must be educated to recognize the signs of fatigue**
1795 **and sleep deprivation and must adopt and apply policies to prevent and**
1796 **counteract its potential negative effects on patient care and learning.**
- 1797
- 1798 **VI.D. Duty Hours (the terms in this section are defined in the ACGME Glossary**
1799 **and apply to all programs)**
- 1800
- 1801 **Duty hours are defined as all clinical and academic activities related to the**
1802 **program; i.e., patient care (both inpatient and outpatient), administrative**
1803 **duties relative to patient care, the provision for transfer of patient care,**
1804 **time spent in-house during call activities, and scheduled activities, such as**
1805 **conferences. Duty hours do *not* include reading and preparation time spent**
1806 **away from the duty site.**
- 1807
- 1808 **VI.D.1. Duty hours must be limited to 80 hours per week, averaged over a**
1809 **four-week period, inclusive of all in-house call activities.**
- 1810
- 1811 **VI.D.2. Residents must be provided with one day in seven free from all**
1812 **educational and clinical responsibilities, averaged over a four-week**
1813 **period, inclusive of call.**
- 1814
- 1815 **VI.D.3. Adequate time for rest and personal activities must be provided.**
1816 **This should consist of a 10-hour time period provided between all**
1817 **daily duty periods and after in-house call.**
- 1818
- 1819 **VI.E. On-call Activities**
- 1820
- 1821 **VI.E.1. In-house call must occur no more frequently than every third night,**
1822 **averaged over a four-week period.**
- 1823
- 1824 **VI.E.2. Continuous on-site duty, including in-house call, must not exceed 24**
1825 **consecutive hours. Residents may remain on duty for up to six**
1826 **additional hours to participate in didactic activities, transfer care of**
1827 **patients, conduct outpatient clinics, and maintain continuity of**
1828 **medical and surgical care.**
- 1829
- 1830 **VI.E.3. No new patients may be accepted after 24 hours of continuous duty.**
- 1831
- 1832 VI.E.3.a) A new patient is defined as any patient for whom the resident has
1833 not provided care within the past 24 hours.
- 1834
- 1835 **VI.E.4. At-home call (or pager call)**
- 1836

- 1837 VI.E.4.a) The frequency of at-home call is not subject to the every-
1838 third-night, or 24+6 limitation. However at-home call must not
1839 be so frequent as to preclude rest and reasonable personal
1840 time for each resident.
- 1841
- 1842 VI.E.4.b) Residents taking at-home call must be provided with one day
1843 in seven completely free from all educational and clinical
1844 responsibilities, averaged over a four-week period.
- 1845
- 1846 VI.E.4.c) When residents are called into the hospital from home, the
1847 hours residents spend in-house are counted toward the 80-
1848 hour limit.
- 1849
- 1850 VI.E.5. Residents must have on-call responsibilities and provide consultation for
1851 emergency procedures performed during the time they are on-call.
- 1852

1853 VI.F. Moonlighting

- 1854
- 1855 VI.F.1. Moonlighting must not interfere with the ability of the resident to
1856 achieve the goals and objectives of the educational program.
- 1857
- 1858 VI.F.2. Internal moonlighting must be considered part of the 80-hour weekly
1859 limit on duty hours.
- 1860

1861 VI.G. Duty Hours Exceptions

- 1862
- 1863 A Review Committee may grant exceptions for up to 10% or a maximum of
1864 88 hours to individual programs based on a sound educational rationale.
- 1865
- 1866 VI.G.1. In preparing a request for an exception the program director must
1867 follow the duty hour exception policy from the ACGME Manual on
1868 Policies and Procedures.
- 1869
- 1870 VI.G.2. Prior to submitting the request to the Review Committee, the
1871 program director must obtain approval of the institution's GMEC and
1872 DIO.
- 1873

1874 VII. Experimentation and Innovation

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1876 Requests for experimentation or innovative projects that may deviate from the
1877 institutional, common and/or specialty specific program requirements must be
1878 approved in advance by the Review Committee. In preparing requests, the
1879 program director must follow Procedures for Approving Proposals for
1880 Experimentation or Innovative Projects located in the ACGME Manual on Policies
1881 and Procedures. Once a Review Committee approves a project, the sponsoring
1882 institution and program are jointly responsible for the quality of education offered
1883 to residents for the duration of such a project.

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