

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, 2007*

7
8 Introduction

9
10 Int.A. Definition

11
12 Nuclear medicine is the clinical and laboratory medical specialty that uses
13 radioactive and stable tracers to study physiologic, biochemical and cellular
14 processes for diagnosis, therapy and research.

15
16 Int.B. ~~Duration and Scope of Training~~Education

17
18 Int.B.1. ~~Length of Program~~

19
20 The length of the educational program in nuclear medicine residency
21 ~~program must be 36 months in length.~~ is three years, following one year
22 of preparatory clinical residency training (as described below)

23
24 Int.B.2. ~~Admission Prerequisites~~

25
26 ~~Before entering a nuclear medicine residency, residents must~~
27 ~~satisfactorily complete one year of training in a program accredited by the~~
28 ~~Accreditation Council for Graduate Medical Education (ACGME) or by the~~
29 ~~Royal College of Physicians and Surgeons of Canada, or equivalent.~~
30 ~~While the length of the nuclear medicine residency training is three years,~~
31 ~~residents may enter the program from different training backgrounds. The~~
32 ~~type and length of the prior training will determine the number of years the~~
33 ~~resident will be required to spend in the nuclear medicine program.~~

34
35 Int.B.2.a) ~~For residents who have completed an accredited one year~~
36 ~~program of fundamental clinical education, the length of nuclear~~
37 ~~medicine training is three years. The one year pre-requisite~~
38 ~~program must provide broad clinical education, with primary~~
39 ~~emphasis on the patient and the patient's clinical problems.~~
40 ~~Residents should have a sufficiently broad knowledge of medicine~~
41 ~~to obtain a pertinent history, perform an appropriate physical~~
42 ~~examination, and arrive at a differential diagnosis.~~

43
44 Int.B.2.b) ~~For residents who have completed an accredited patient care~~
45 ~~specialty program, the length of nuclear medicine training is two~~
46 ~~years.~~

47
48 Int.B.2.c) ~~For residents who have completed an accredited program in~~
49 ~~diagnostic radiology, the length of nuclear medicine training is one~~
50 ~~year.~~

52 Int.B.3. Specific Description of Program Format
53
54 Residencies in nuclear medicine must teach the basic skills and clinical
55 competence that constitute the foundations of nuclear medicine practice,
56 and must provide progressive responsibility for and experience in the
57 application of these principles to the management of clinical problems.
58 Clinical experience must include the opportunity to recommend and plan,
59 conduct, supervise, interpret, and dictate reports for nuclear medicine
60 procedures that are appropriate for the existing clinical problem or
61 condition.
62

63 Int.C. Broad Description of Training Objectives and Goals
64
65 The program must be structured so that residents' clinical responsibilities
66 increase progressively during training. At the completion of the training program,
67 residents should be proficient in all areas of clinical nuclear medicine, and be
68 able to function independently as nuclear medicine consultants, plan and perform
69 appropriate nuclear medicine procedures, interpret the test results, and formulate
70 a diagnosis and an appropriate differential diagnosis. Residents should be
71 qualified to recommend therapy or further studies. If radionuclide therapy is
72 indicated, they should be capable of assuming responsibility for patient care.
73 Residents should develop a satisfactory level of clinical maturity, judgment, and
74 technical skill that will, on completion of the program, render them capable of the
75 independent practice of nuclear medicine.
76

77 I. Institutions

78
79 I.A. Sponsoring Institution

80
81 **One sponsoring institution must assume ultimate responsibility for the**
82 **program, as described in the Institutional Requirements, and this**
83 **responsibility extends to resident assignments at all participating sites.**
84

85 **The sponsoring institution and the program must ensure that the program**
86 **director has sufficient protected time and financial support for his or her**
87 **educational and administrative responsibilities to the program.**
88

89 I.A.1. The program director should be provided with no less than the equivalent
90 of one day per week of protected time in order to fulfill the responsibilities
91 inherent in carrying out the administrative activities and meeting the
92 educational goals of the program.
93

94 I.B. Participating Sites

95
96 I.B.1. **There must be a program letter of agreement (PLA) between the**
97 **program and each participating site providing a required**
98 **assignment. The PLA must be renewed at least every five years.**
99

100 **The PLA should:**
101
102

- 103 **I.B.1.a)** identify the faculty who will assume both educational and
104 supervisory responsibilities for residents;
105
- 106 **I.B.1.b)** specify their responsibilities for teaching, supervision, and
107 formal evaluation of residents, as specified later in this
108 document;
109
- 110 **I.B.1.c)** specify the duration and content of the educational
111 experience; and,
112
- 113 **I.B.1.d)** state the policies and procedures that will govern resident
114 education during the assignment.
115
- 116 **I.B.2.** The program director must submit any additions or deletions of
117 participating sites routinely providing an educational experience,
118 required for all residents, of one month full time equivalent (FTE) or
119 more through the Accreditation Council for Graduate Medical
120 Education (ACGME) Accreditation Data System (ADS).
121
- 122 **I.B.3.** ~~Integrated and Non-integrated Sites~~
- 123
- 124 ~~Within a single program some participating sites may qualify as~~
125 ~~integrated, while others are non-integrated. The program should be based~~
126 ~~at the primary clinical site. A program using multiple sites must ensure a~~
127 ~~unified educational experience for the residents. Each participating site~~
128 ~~must offer significant educational opportunities to the overall program.~~
129
- 130 **I.B.3.a)** ~~When another site is utilized and a single program director~~
131 ~~assumes responsibility for the entire residency, including the~~
132 ~~appointment of all residents and teaching staff, that site is~~
133 ~~designated as integrated. Rotations to integrated sites are not~~
134 ~~limited in duration and require prior approval of the Review~~
135 ~~Committee.~~
136
- 137 **I.B.3.b)** ~~Participation by any non-integrated site providing more than three~~
138 ~~months of training must have prior approval by the Review~~
139 ~~Committee, according to criteria similar to those applied to the~~
140 ~~primary institution. A maximum of three months per year but not~~
141 ~~greater than nine months of the three-year nuclear medicine~~
142 ~~program may be spent outside the parent and integrated sites on~~
143 ~~rotation to non-integrated sites.~~
144
- 145 **I.B.3.b).(1)** ~~Service responsibility alone at a non-integrated site is not a~~
146 ~~suitable educational experience.~~
147
- 148 **I.B.3.b).(2)** ~~Non-integrated sites should not be so distant as to make it~~
149 ~~difficult for residents to travel for participation in clinical~~
150 ~~responsibilities or didactic activities, unless there is a~~
151 ~~comparable educational experience at the non-integrated~~
152 ~~sites.~~
153

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

159 **II. Program Personnel and Resources**
160

161 **II.A. Program Director**
162

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

169 **II.A.2. The program director should continue in his or her position for a**
170 **length of time adequate to maintain continuity of leadership and**
171 **program stability.**
172

173 **II.A.3. Qualifications of the program director must include:**
174

175 **II.A.3.a) requisite specialty expertise and documented educational**
176 **and administrative experience acceptable to the Review**
177 **Committee;**
178

179 **II.A.3.b) current certification in the specialty by the American Board of**
180 **Nuclear Medicine, or specialty qualifications that are**
181 **acceptable to the Review Committee; and,**
182

183 **II.A.3.c) current medical licensure and appropriate medical staff**
184 **appointment.**
185

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

191 **II.A.4. The program director must administer and maintain an educational**
192 **environment conducive to educating the residents in each of the**
193 **ACGME competency areas. The program director must:**
194

195 **II.A.4.a) oversee and ensure the quality of didactic and clinical**
196 **education in all sites that participate in the program;**
197

198 **II.A.4.b) approve a local director at each participating site who is**
199 **accountable for resident education;**
200

201 **II.A.4.c) approve the selection of program faculty as appropriate;**
202

203 **II.A.4.d) evaluate program faculty and approve the continued**
204 **participation of program faculty based on evaluation;**

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

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

307 lectures;

308

309 II.A.4.q) ensure that residents entering at the NM3 level achieve the

310 required NM1, NM2 and NM3 competency outcomes by the

311 completion of the NM3 year; ensure that all residents participate in

312 regularly scheduled clinical nuclear medicine conferences and

313 seminars and interdisciplinary conferences. In these conferences,

314 residents are responsible for presenting case materials and

315 discussing the relevant theoretical and practical issues. There

316 should be active resident participation in well-structured seminars

317 and journal clubs that review the pertinent literature with respect to

318 current clinical problems and that include discussion of additional

319 topics to supplement the didactic curriculum; and,

320

321 II.A.4.r) ensure that all residents participate in regularly scheduled, usually

322 daily, procedure interpretation and review conferences. The

323 program must provide the resident with the opportunity to gain

324 progressively independent responsibility for review, technical

325 approval and acceptance, and interpretation and dictation of

326 consultative reports on completed nuclear medicine procedures.

327

328 II.A.5. The program director must have broad knowledge of, experience with,

329 and commitment to general nuclear medicine, along with sufficient

330 academic and administrative experience to ensure effective

331 implementation of these program requirements and sufficient experience

332 participating as an active faculty member in an ACGME-accredited

333 residency program.

334

335 II.A.6. The program director must demonstrate a strong interest in the education

336 of residents, sound clinical and teaching abilities, support of the goals and

337 objectives of the program, demonstrate a commitment to his or her own

338 continuing medical education, and participate in scholarly activities.

339

340 **II.B. Faculty**

341

342 **II.B.1. At each participating site, there must be a sufficient number of**

343 **faculty with documented qualifications to instruct and supervise all**

344 **residents at that location.**

345

346 **The faculty must:**

347

348 **II.B.1.a) devote sufficient time to the educational program to fulfill**

349 **their supervisory and teaching responsibilities; and to**

350 **demonstrate a strong interest in the education of residents,**

351 **and**

352

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

354 **conducive to educating residents in each of the ACGME**

355 **competency areas.**

356

357

- 358 **II.B.2.** **The physician faculty must have current certification in the specialty**
359 **by the American Board of Nuclear Medicine, or possess**
360 **qualifications acceptable to the Review Committee.**
361
- 362 **II.B.3.** **The physician faculty must possess current medical licensure and**
363 **appropriate medical staff appointment.**
364
- 365 II.B.3.a) In programs affiliated with a medical school, all physician faculty
366 must have an academic appointment.
367
- 368 II.B.3.b) In programs not affiliated with a medical school, all physician
369 faculty must be members of the medical staff of at least one of the
370 participating sites.
371
- 372 **II.B.4.** **The nonphysician faculty must have appropriate qualifications in**
373 **their field and hold appropriate institutional appointments.**
374
- 375 **II.B.5.** **The faculty must establish and maintain an environment of inquiry**
376 **and scholarship with an active research component.**
377
- 378 **II.B.5.a)** **The faculty must regularly participate in organized clinical**
379 **discussions, rounds, journal clubs, and conferences.**
380
- 381 **II.B.5.b)** **Some members of the faculty should also demonstrate**
382 **scholarship by one or more of the following:**
383
- 384 **II.B.5.b).(1)** **peer-reviewed funding;**
385
- 386 **II.B.5.b).(2)** **publication of original research or review articles in**
387 **peer-reviewed journals, or chapters in textbooks;**
388
- 389 **II.B.5.b).(3)** **publication or presentation of case reports or clinical**
390 **series at local, regional, or national professional and**
391 **scientific society meetings; or,**
392
- 393 **II.B.5.b).(4)** **participation in national committees or educational**
394 **organizations.**
395
- 396 **II.B.5.c)** **Faculty should encourage and support residents in scholarly**
397 **activities.**
398
- 399 **II.B.5.d)** **The faculty as a whole must have demonstrated ongoing**
400 **participation in scholarly activities during the past five years.**
401
- 402 **II.B.6.** There must be at least one full-time equivalent physician faculty in
403 addition to the program director.
404
- 405 **II.B.6.a)** Programs must maintain a ratio of at least one full-time equivalent
406 physician faculty per two residents.
407
408

409 **II.C. Other Program Personnel**
410
411 **The institution and the program must jointly ensure the availability of all**
412 **necessary professional, technical, and clerical personnel for the effective**
413 **administration of the program.**
414

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

419 **II.D. Resources**
420

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

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

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

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

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

456 II.D.5. Teaching case files involving diagnostic and therapeutic nuclear medicine
457 procedures should be available and should cover the full spectrum of
458 clinical applications: indexed, coded with correlative and follow-up data,
459 and readily accessible for resident use. There must be a mechanism for

460 maintaining case records and treatment results to facilitate patient follow-
461 up and to provide teaching material. Electronic availability of teaching files
462 is acceptable as a substitute or enhancement of on-site teaching case
463 files.
464

465 **II.E. Medical Information Access**
466

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

471 **III. Resident Appointments**
472

473 **III.A. Eligibility Criteria**
474

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

478 III.A.1. Programs must demonstrate the ability to recruit and retain qualified
479 residents. Residents should be appointed only when their documented
480 prior experience and attitudes demonstrate the presence of abilities
481 necessary to master successfully the clinical knowledge and skills
482 required of all program graduates. All residents must have demonstrated
483 understanding and facility in using the English language. To be eligible for
484 appointment to the program at the NM1 level, residents must have
485 satisfactorily completed one year of education in a program accredited by
486 the ACGME or by the Royal College of Physicians and Surgeons of
487 Canada (RCPSC).
488

489 III.A.1.a) This year must include a minimum of nine months of direct patient
490 care.
491

492 III.A.2. Residents should be reappointed only when their clinical judgment,
493 medical knowledge, history-taking, professional attitudes, moral and
494 ethical behavior, and clinical performance are documented to be entirely
495 satisfactory. To be eligible for appointment to the program at the NM2
496 level, residents must have completed a residency program accredited by
497 the ACGME or RCPSC. The educational program for these residents
498 should be 24 months in length.
499

500 III.A.3. To be eligible for appointment to the program at the NM3 level, residents
501 must have completed a residency program in diagnostic radiology
502 accredited by the ACGME or RCPSC. The educational program for these
503 residents should be 12 months in length.
504

505 **III.B. Number of Residents**
506

507 The program director may not appoint more residents than approved by the
508 Review Committee, unless otherwise stated in the specialty-specific
509 requirements. The program's educational resources must be adequate to
510 support the number of residents appointed to the program.

- 511
512 III.B.1. At the time of the program's regular review, the Review Committee will
513 assess the continued adequacy of the program's resources for the current
514 number of residents.
515
- 516 **III.C. Resident Transfers**
517
- 518 **III.C.1. Before accepting a resident who is transferring from another**
519 **program, the program director must obtain written or electronic**
520 **verification of previous educational experiences and a summative**
521 **competency-based performance evaluation of the transferring**
522 **resident.**
523
- 524 **III.C.2. A program director must provide timely verification of residency**
525 **education and summative performance evaluations for residents**
526 **who leave the program prior to completion.**
527
- 528 **III.D. Appointment of Fellows and Other Learners**
529
- 530 **The presence of other learners (including, but not limited to, residents from**
531 **other specialties, subspecialty fellows, PhD students, and nurse**
532 **practitioners) in the program must not interfere with the appointed**
533 **residents' education. The program director must report the presence of**
534 **other learners to the DIO and GMEC in accordance with sponsoring**
535 **institution guidelines.**
536
- 537 **IV. Educational Program**
538
- 539 **IV.A. The curriculum must contain the following educational components:**
540
- 541 **IV.A.1. Overall educational goals for the program, which the program must**
542 **distribute to residents and faculty annually;**
543
- 544 **IV.A.2. Competency-based goals and objectives for each assignment at**
545 **each educational level, which the program must distribute to**
546 **residents and faculty annually, in either written or electronic form.**
547 **These should be reviewed by the resident at the start of each**
548 **rotation;**
549
- 550 **IV.A.3. Regularly scheduled didactic sessions;**
551
- 552 **IV.A.3.a) There must be a dedicated formal didactic lecture schedule that**
553 **indicates the specific date and time of each lecture, the topic of**
554 **the lecture, the individual presenting the lecture, and the duration**
555 **of the lecture.**
556
- 557 **IV.A.3.a).(1) All residents must attend the regularly scheduled didactic**
558 **lectures.**
559
- 560 **IV.A.3.a).(2) The topics must include;**
561

562	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 SPECT, SPECT/CT, PET, and PET/CT and correlation of nuclear medicine procedures with other pertinent imaging modalities;</u>
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571	IV.A.3.a).(2).(b)	<u>Exercise and pharmacologic stress testing: the pharmacology of cardioactive drugs and physiologic gating techniques;</u>
572		
573		
574		
575	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>
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577		
578		
579		
580	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>
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582		
583		
584		
585		
586	IV.A.3.a).(2).(e)	<u>Fundamentals of existing and emerging molecular imaging techniques, particularly as they relate to current clinical practice.</u>
587		
588		
589		
590	IV.A.3.b)	<u>Basic Science Educational Program</u>
591		
592		<u>All residents must complete a minimum of 200 hours of 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>
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597		
598	IV.A.3.b).(1)	<u>Radiation Physics and Instrumentation, including:</u>
599		
600	IV.A.3.b).(1).(a)	<u>Radiation Physics: structure of matter, modes of radioactive decay, particle and photon emissions, and interactions of radiation with matter;</u>
601		
602		
603		
604	IV.A.3.b).(1).(b)	<u>Instrumentation: principles of instrumentation used in detection, measurement, and imaging of radioactivity with special emphasis on gamma cameras, including SPECT, SPECT/CT, PET and PET/CT systems, and associated electronic instrumentation and computers employed in image production and display. Instruction must be provided in the instrumentation principles of magnetic resonance imaging and multi-slice</u>
605		
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612		

613 computed tomography;
614
615 IV.A.3.b).(2) Radiation Protection and Regulations, including:
616
617 IV.A.3.b).(2).(a) means of reducing radiation exposure, radiation
618 dose limits, evaluation of radiation overexposure,
619 medical management of persons overexposed to
620 ionizing radiation, management and disposal of
621 radioactive substances, and establishment of
622 radiation safety programs in accordance with
623 federal and state regulations;
624
625 IV.A.3.b).(3) Mathematics pertaining to the use and measurement of
626 radioactivity, including statistics and medical decision
627 making;
628
629 IV.A.3.b).(4) Chemistry of radioactive material for medical use, including
630 reactor, cyclotron, and generator production of
631 radionuclides; radiochemistry; and formulation of
632 radiopharmaceuticals; and,
633
634 IV.A.3.b).(5) Radiation biology: biological effects of ionizing radiation
635 and calculation of radiation dose;
636
637 IV.A.3.c) All residents and faculty must participate in regularly scheduled
638 clinical nuclear medicine seminars, journal clubs and
639 interdisciplinary conferences. Residents must present case
640 materials and discuss relevant theoretical and patient
641 management issues.
642
643 **IV.A.4. Delineation of resident responsibilities for patient care, progressive**
644 **responsibility for patient management, and supervision of residents**
645 **over the continuum of the program; and,**
646
647 **IV.A.5. ACGME Competencies**
648
649 **The program must integrate the following ACGME competencies**
650 **into the curriculum:**
651
652 **IV.A.5.a) Patient Care**
653
654 **Residents must be able to provide patient care that is**
655 **compassionate, appropriate, and effective for the treatment of**
656 **health problems and the promotion of health. Residents:**
657
658 IV.A.5.a).(1) will ~~completing~~ the NM1 year must demonstrate
659 competency in:
660
661 IV.A.5.a).(1).(a) initial patient evaluation to include pertinent ~~obtain~~
662 patient information relevant to the requested ~~test or~~
663 therapy procedure using patient interview, chart

664		and computer data base review, <u>the performance of</u>
665		<u>a focused physical examination as indicated,</u> and
666		contact <u>communication</u> with the referring physician;
667		
668	IV.A.5.a).(1).(b)	<u>selection of appropriate nuclear medicine</u>
669		<u>procedures in bone, thyroid, hepatobiliary, and</u>
670		<u>cardiac imaging;</u>
671		
672	IV.A.5.a).(1).(c)	<u>supervision of the performance of nuclear medicine</u>
673		<u>procedures in bone, thyroid, hepatobiliary, and</u>
674		<u>cardiac imaging as well as the preliminary review</u>
675		<u>and interpretation of the resulting images;</u>
676		
677	IV.A.5.a).(1).(d)	<u>therapeutic administration of radioiodine for benign</u>
678		<u>thyroid disease including: patient selection,</u>
679		<u>evaluating risks and benefits, determining the</u>
680		<u>administered dose, patient identity verification,</u>
681		<u>obtaining informed consent, documenting</u>
682		<u>pregnancy status, using administrative controls to</u>
683		<u>prevent a medical event, complying with federal</u>
684		<u>and state regulations regarding medical use of</u>
685		<u>radiopharmaceuticals, counseling patients and their</u>
686		<u>families about radiation safety issues, and</u>
687		<u>scheduling and performing post-therapy follow-up.</u>
688		
689	IV.A.5.a).(2)	<u>completing the NM2 year must demonstrate competency</u>
690		<u>in:</u>
691		
692	IV.A.5.a).(2).(a)	will select <u>selection of appropriate procedures(s) or</u>
693		therapy based on the referring physician's request
694		and the patient's history;
695		
696	IV.A.5.a).(2).(b)	This involves selection of the appropriate
697		radiopharmaceutical, dose, imaging technique, data
698		analysis, <u>basic supervisory skills, and image</u>
699		<u>presentation, and preliminary interpretation in the</u>
700		<u>performance of parathyroid, gastrointestinal,</u>
701		<u>infection, pulmonary, urinary tract procedures, and</u>
702		<u>positron emission tomography (PET) studies. It also</u>
703		<u>includes review of image quality, defining the need</u>
704		<u>for additional images and correlation with other</u>
705		<u>imaging studies such as x-rays, CT, MRI, or</u>
706		<u>ultrasound;</u>
707		
708	IV.A.5.a).(2).(c)	<u>the interpretation of PET studies performed for</u>
709		<u>oncologic indications;</u>
710		
711	IV.A.5.a).(2).(d)	<u>the preparation of radiopharmaceuticals including</u>
712		<u>preparing patient doses and performing quality</u>
713		<u>control measures;</u>
714		

715 will communicate results promptly and clearly to the
716 referring physician or other appropriate health care
717 workers. This communication should include clear and
718 succinct dictation of the results;

719
720 IV.A.5.a).(2).(e) will conduct the therapeutic administration of
721 radioiodine for thyroid malignancy, procedures,
722 Therapeutic procedures must be done in
723 consultation with an attending physician who is a
724 licensed user of radioactive material. These
725 procedures should include including dose
726 calculation, patient selection, evaluating risks and
727 benefits, determining the administered dose,
728 patient identity verification, obtaining explanation of
729 informed consent, documenting of pregnancy
730 status, using administrative controls to prevent a
731 medical event, complying with federal and state
732 regulations regarding the medical use of
733 radiopharmaceuticals, counseling of patients and
734 their families on about radiation safety issues, and
735 scheduling and performing post-therapy follow-up
736 after therapy;

737
738 will maintain records (logs) of participation in nuclear
739 cardiology pharmacologic and exercise studies, and in all
740 types of therapy procedures;

741
742 IV.A.5.a).(3) completing the NM3 year must demonstrate competency
743 in:
744

745 IV.A.5.a).(3).(a) should attain sequentially increasing competence in
746 selecting the most appropriate nuclear medicine
747 studies, performing these studies in the technically
748 correct manner, interpreting the information
749 obtained, correlating this information with other
750 diagnostic studies, and treating and following up
751 the patient who receives radionuclide therapy.
752 Under adequate faculty supervision, the resident
753 should participate directly in the performance of
754 imaging studies, non-imaging measurements and
755 assays, and therapeutic procedures recommending,
756 planning, conducting, supervising, interpreting, and
757 reporting diagnostic and therapeutic nuclear
758 medicine procedures appropriate for the clinical
759 problem or condition;

760
761 IV.A.5.a).(3).(b) correlating the nuclear medicine procedure with
762 clinical information, laboratory, and other
763 procedural or imaging studies;
764
765

766	IV.A.5.a).(3).(c)	<u>interpreting positron emission tomography studies performed for non-oncologic indications;</u>
767		
768		
769	IV.A.5.a).(3).(d)	<u>therapeutic administration of radiopharmaceuticals including patient selection, evaluating risks and benefits, determining the administered dose, patient identity verification, obtaining informed consent, documenting pregnancy status, using administrative controls to prevent a medical event, complying with federal and state regulations regarding the medical use of radiopharmaceuticals, counseling patients and their families about radiation safety issues, and scheduling and performing post-therapy follow-up;</u>
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780		
781	IV.A.5.a).(3).(e)	<u>must be provided structured opportunities to interpreting the following:</u>
782		
783		
784	IV.A.5.a).(3).(e).(i)	<u>learn the indications, contraindications, complications, and limitations of specific procedures; musculoskeletal studies for benign and malignant disease;</u>
785		
786		
787		
788		
789	IV.A.5.a).(3).(e).(ii)	<u>develop technical proficiency in performing these procedures; myocardial perfusion imaging with treadmill and pharmacologic stress. This should include patient monitoring, with special emphasis on electrocardiographic interpretation;</u>
790		
791		
792		
793		
794		
795		
796	IV.A.5.a).(3).(e).(iii)	<u>learn to interpret the results of these procedures; and ECG-gated ventriculography for evaluation of ventricular performance;</u>
797		
798		
799		
800		
801	IV.A.5.a).(3).(e).(iv)	<u>dictate reports and communicate results promptly and appropriately. The program must provide adequate opportunity for residents to participate in and personally perform and analyze a broad range of common clinical nuclear medicine procedures. endocrinologic studies, including thyroid and parathyroid. Thyroid studies must include measurement of iodine uptake and dosimetry calculations for radio-iodine therapy;</u>
802		
803		
804		
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812		
813	IV.A.5.a).(3).(e).(v)	<u>gastrointestinal studies, including transit studies, liver and hepatobiliary, bleeding, and Meckel's diverticulum;</u>
814		
815		
816		

- 817 IV.A.5.a).(3).(e).(vi) infection studies, including gallium, labeled
818 leukocytes, and bone marrow imaging;
819
820 IV.A.5.a).(3).(e).(vii) oncology studies, including sentinel node
821 localization, fluorodeoxyglucose (FDG),
822 adrenal, somatostatin-receptor imaging and
823 other agents as they become available;
824
825 IV.A.5.a).(3).(e).(viii) neurologic studies, including cerebral
826 perfusion, cerebral metabolism and
827 cerebrospinal fluid. This should include
828 studies of dementia, epilepsy, and brain
829 death;
830
831 IV.A.5.a).(3).(e).(ix) pulmonary studies including perfusion and
832 ventilation for pulmonary embolus, right-to-
833 left shunts, and quantitative assessment of
834 perfusion and ventilation;
835
836 IV.A.5.a).(3).(e).(x) urinary tract studies, including renal
837 perfusion, function and cortical imaging,
838 renal scintigraphy with pharmacologic
839 interventions, and renal transplant
840 evaluation;
841
842 IV.A.5.a).(3).(e).(xi) cross-sectional imaging of the brain, head
843 and neck, thorax, abdomen, and pelvis with
844 CT in the context of SPECT/CT and
845 PET/CT.

847 ~~must have experience in each of the following categories:~~
848

849 ~~musculoskeletal studies, including bone scanning~~
850 ~~for benign and malignant disease, and bone~~
851 ~~densitometry;~~
852

853 ~~myocardial perfusion imaging procedures~~
854 ~~performed with radioactive perfusion agents in~~
855 ~~association with treadmill and pharmacologic stress~~
856 ~~(planar and tomographic, including gated~~
857 ~~tomographic imaging). Specific applications should~~
858 ~~include patient monitoring, with special emphasis~~
859 ~~on electrocardiographic interpretation,~~
860 ~~cardiopulmonary resuscitation during interventional~~
861 ~~pharmacologic or exercise stress tests,~~
862 ~~pharmacology of cardioactive drugs, and hands-on~~
863 ~~experience with performance of the stress~~
864 ~~procedure (exercise and pharmacologic agents) for~~
865 ~~a minimum of 50 patients. Program directors must~~
866 ~~be able to document the experience of residents in~~
867 ~~this area, e.g., with logbooks;~~

868
869 radionuclide ventriculography performed with ECG
870 gating for evaluation of ventricular performance.
871 The experience should include first pass and
872 equilibrium studies and calculation of ventricular
873 performance parameters, e.g., ejection fraction and
874 regional wall motion assessment;
875
876 endocrinologic studies, including thyroid,
877 parathyroid, and adrenal imaging, along with
878 octreotide and other receptor-based imaging
879 studies. Thyroid studies should include
880 measurement of iodine uptake and dosimetry
881 calculations for radio-iodine therapy;
882
883 gastrointestinal studies of the salivary glands,
884 esophagus, stomach, and liver, both
885 reticuloendothelial function and the biliary system.
886 This also includes studies of gastrointestinal
887 bleeding, Meckel diverticulum, and C14 urea breath
888 testing;
889
890 hematologic studies, including red cell and plasma
891 volume, splenic sequestration, hemangioma
892 studies, labeled granulocytes for infection,
893 thrombus imaging, bone marrow imaging, and B12
894 absorption studies;
895
896 oncology studies, involving gallium, thallium,
897 sestamibi, antibodies, peptides, fluorodeoxyglucose
898 (FDG), and other agents as they become available.
899 Oncology experience should include all the
900 common malignancies of the brain, head and neck,
901 thyroid, breast, lung, liver, colon, kidney, bladder
902 and prostate. It should also involve lymphoma,
903 leukemia, melanoma, and musculoskeletal tumors.
904 Hands-on experience with lymphoscintigraphy,
905 including sentinel node mapping, is very important;
906
907 neurologic studies, including cerebral perfusion with
908 both single photon emission computed tomography
909 (SPECT) and positron emission tomography (PET),
910 cerebral metabolism with FDG, and cisternography.
911 This experience should include studies of stroke,
912 dementia, epilepsy, brain death and cerebrospinal
913 fluid dynamics;
914
915 pulmonary studies of perfusion and ventilation
916 performed with radiolabeled macroaggregates and
917 radioactive gas or aerosols used in the diagnosis of
918 pulmonary embolus, as well as for quantitative

919 assessment of perfusion and ventilation;
920
921 genitourinary tract imaging, including renal
922 perfusion and function procedures, clearance
923 methods, renal scintigraphy with pharmacologic
924 interventions, renal transplant evaluation, and
925 vesicoureteral reflux; therapeutic administration of
926 radiopharmaceuticals, to include patient selection
927 and understanding and calculation of
928 the administered dose. Specific applications should
929 include radioiodine in hyperthyroidism (minimum of
930 10 cases) and thyroid carcinoma (minimum of five
931 cases), radiolabeled antibodies (minimum of three
932 cases) and radionuclides for painful bone disease.
933 Program directors must be able to document the
934 experience of residents in this area, including
935 patient follow-up, (e.g., with logbooks);
936
937 PET imaging of the heart, including studies of
938 myocardial perfusion and myocardial viability;
939
940 PET imaging of the brain, including studies of
941 dementia, epilepsy, and brain tumors;
942
943 PET imaging in oncology, including studies of
944 tumors of the lung, head and neck, esophagus,
945 colon, thyroid, and breast, as well as melanoma,
946 lymphoma, and other tumors as the indications
947 become established;
948
949 co-registration and image fusion of SPECT and
950 PET images with computed tomography (CT) and
951 magnetic resonance imaging (MRI) studies;
952
953 anatomic imaging of brain, head and neck, thorax,
954 abdomen, and pelvis with CT to be able to
955 understand the correlation between anatomic and
956 functional imaging. This training should include a
957 minimum of 4 months of CT experience that may
958 be combined with a rotation that includes PET-CT
959 or SPECT-CT, although rotation on a CT service is
960 desirable for part of the training. The experience
961 must emphasize correlation of CT images
962 associated with PET-CT or SPECT-CT. The
963 resident must acquire sufficient experience with
964 such studies under the supervision of qualified
965 faculty to be able to supervise the performance and
966 accurately correlate the CTs associated with PET-
967 CT or SPECT-CT studies. This requirement does
968 not apply to residents who have completed training
969 in an ACGME-approved diagnostic radiology

970		program; and,
971		
972		experience in radiation oncology and medical
973		oncology. This is essential because of the
974		increasing close interaction with these specialties.
975		The experience can consist of one month rotations
976		or an equivalent experience through participation in
977		patient management conferences and clinics.
978		
979	IV.A.5.a).(4)	<u>at all levels must:</u>
980		
981	IV.A.5.a).(4).(a)	<u>demonstrate compliance with radiation safety rules</u>
982		<u>and regulations, including NRC and/or agreement</u>
983		<u>state rules, local regulations, and the ALARA (as</u>
984		<u>low as is reasonably achievable) principle for</u>
985		<u>radiation protection; and</u>
986		
987	IV.A.5.a).(4).(b)	<u>have training in both basic life-support and maintain</u>
988		<u>current certification in advanced cardiac life-</u>
989		<u>support.</u>
990		
991	IV.A.5.b)	Medical Knowledge
992		
993		Residents must demonstrate knowledge of established and
994		evolving biomedical, clinical, epidemiological and social-
995		behavioral sciences, as well as the application of this
996		knowledge to patient care. Residents:
997		
998	IV.A.5.b).(1)	<u>will closely follow scientific progress in nuclear medicine,</u>
999		<u>and learn to incorporate it effectively for modifying and</u>
1000		<u>improving diagnostic and therapeutic procedures;</u>
1001		<u>completing the NM1 year should demonstrate basic</u>
1002		<u>knowledge of radiation safety; nuclear medicine</u>
1003		<u>instrumentation including quality control; nuclear medicine</u>
1004		<u>procedures including bone scans, thyroid uptake and</u>
1005		<u>scans; radioiodine therapy for hyperthyroidism;</u>
1006		<u>hepatobiliary scans; myocardial perfusion; and gated</u>
1007		<u>ventriculography;</u>
1008		
1009	IV.A.5.b).(2)	<u>will become familiar with and regularly read the major</u>
1010		<u>journals in nuclear medicine. During the residency this will</u>
1011		<u>involve regular participation in journal club; completing the</u>
1012		<u>NM2 year should demonstrate basic knowledge in</u>
1013		<u>radiopharmacy; nuclear medicine procedures including</u>
1014		<u>parathyroid, gastrointestinal, infection, pulmonary and</u>
1015		<u>urinary tract; radioiodine therapy for thyroid malignancy;</u>
1016		<u>positron emission tomography for oncologic indications;</u>
1017		<u>and cross-sectional imaging of the thorax, abdomen, and</u>
1018		<u>pelvis with CT in the context of SPECT-CT and PET/CT;</u>
1019		
1020	IV.A.5.b).(3)	<u>will use computer technology including internet web sites</u>

1021		and CDROM teaching disks; completing the NM3 year
1022		should demonstrate competence in their knowledge of all
1023		topics included in the didactic curriculum.
1024		
1025	IV.A.5.b).(4)	will participate in the annual in-service examination;
1026		
1027	IV.A.5.b).(5)	know and comply with radiation safety rules and
1028		regulations, including NRC and/or agreement state rules,
1029		local regulations, and the ALARA (as low as reasonably
1030		achievable) principles for personal radiation protection;
1031		
1032	IV.A.5.b).(6)	will understand and use QC (quality control) procedures for
1033		imaging devices, laboratory instrumentation, and
1034		radiopharmaceuticals;
1035		
1036	IV.A.5.b).(7)	must have didactic instruction in the following areas:
1037		(Those residents who have completed an ACGME-
1038		accredited program in Diagnostic Radiology are exempted
1039		from a) and d));
1040		
1041	IV.A.5.b).(7).(a)	Physics: structure of matter, modes of radioactive
1042		decay, particle and photon emissions, and
1043		interactions of radiation with matter;
1044		
1045	IV.A.5.b).(7).(b)	Instrumentation: principles of instrumentation used
1046		in detection, measurement, and imaging of
1047		radioactivity with special emphasis on gamma
1048		cameras, including SPECT and PET devices, and
1049		associated electronic instrumentation and
1050		computers employed in image production and
1051		display. Instruction must be provided in the
1052		instrumentation principles involved in magnetic
1053		resonance imaging and multi-slice computed
1054		tomography;
1055		
1056	IV.A.5.b).(7).(c)	Mathematics, statistics, and computer sciences:
1057		probability distributions; medical decision making;
1058		basic aspects of computer structure, function,
1059		programming, and processing; applications of
1060		mathematics to tracer kinetics; compartmental
1061		modeling; and quantification of physiologic
1062		processes;
1063		
1064	IV.A.5.b).(7).(d)	Radiation biology and protection: biological effects
1065		of ionizing radiation, means of reducing radiation
1066		exposure, calculation of the radiation dose,
1067		evaluation of radiation overexposure, medical
1068		management of persons overexposed to ionizing
1069		radiation, management and disposal of radioactive
1070		substances, and establishment of radiation safety
1071		programs in accordance with federal and state

1072		regulations; and,
1073		
1074	IV.A.5.b).(7).(e)	Radiopharmaceuticals: reactor, cyclotron, and generator production of radionuclides;
1075		radiochemistry; pharmacokinetics; and formulation
1076		of radiopharmaceuticals. Specifically, instruction
1077		should include the chemistry of byproduct materials
1078		for medical use; ordering and unpacking radioactive
1079		materials safely and performing the related
1080		radiation surveys; calibrating instruments used to
1081		determine the activity of dosages and performing
1082		checks for proper operation of survey meters;
1083		calculating and safely preparing patient or human
1084		research subject dosages; using administrative
1085		controls to prevent a medical event involving the
1086		use of unsealed byproduct material; using
1087		procedures to contain spilled byproduct material
1088		safely and using proper decontamination
1089		procedures; eluting generator systems appropriate
1090		for preparation of radioactive drugs for imaging and
1091		localization studies or that need a written directive;
1092		measuring and testing the eluate for radionuclide
1093		purity, and processing the eluate with reagent kits
1094		to prepare labeled radioactive drugs; and
1095		administering dosages of radioactive drugs for
1096		uptake, dilution, excretion, and imaging and
1097		localization studies.
1098		
1099		
1100	IV.A.5.b).(8)	should have continuing extensive instruction in the relevant
1101		basic sciences. This should include formal lectures and
1102		formal labs, with an appropriate balance of time allocated
1103		to the major subject areas, which must include physical
1104		science and instrumentation; radiobiology and radiation
1105		protection; mathematics; radiopharmaceutical chemistry;
1106		and computer science. Instruction in the basic sciences
1107		should not be limited to only didactic sessions. The
1108		resident's activities also should include laboratory
1109		experience and regular contact with basic scientists in their
1110		clinical adjunctive roles;
1111		
1112	IV.A.5.b).(9)	must have didactic instruction in both diagnostic imaging
1113		and non-imaging nuclear medicine applications and
1114		therapeutic applications. The instruction must be well
1115		organized, thoughtfully integrated, and carried out on a
1116		regularly scheduled basis. Instruction must include the
1117		following areas:
1118		
1119	IV.A.5.b).(9).(a)	Diagnostic use of radiopharmaceuticals: clinical
1120		indications, technical performance, and
1121		interpretation of in vivo imaging of the body organs
1122		and systems, using external detectors and

1123 scintillation cameras, including SPECT and PET
1124 and correlation of nuclear medicine procedures with
1125 other pertinent imaging modalities such as plain
1126 film radiography, angiography, computed
1127 tomography, bone densitometry, ultrasonography,
1128 and magnetic resonance imaging;

1129
1130 IV.A.5.b).(9).(b) Exercise and pharmacologic stress testing: the
1131 pharmacology of cardioactive drugs; physiologic
1132 gating techniques; patient monitoring during
1133 interventional procedures; management of cardiac
1134 emergencies, including electrocardiographic
1135 interpretation and cardiopulmonary life support; and
1136 correlation of nuclear medicine procedures with
1137 other pertinent imaging modalities such as
1138 angiography, computed tomography, bone density
1139 measurement, ultrasonography, and magnetic
1140 resonance imaging;

1141
1142 IV.A.5.b).(9).(c) Non-imaging studies: training and experience in the
1143 application of a variety of non-imaging procedures,
1144 including instruction in the principles of
1145 immunology; preparation of radiolabeled
1146 antibodies; uptake measurements; in-vitro studies
1147 including Schilling test, glomerular filtration rate, red
1148 blood cell mass and plasma volume, and breath
1149 tests;

1150
1151 IV.A.5.b).(9).(d) Therapeutic uses of unsealed
1152 radiopharmaceuticals: patient selection and
1153 management, including dose administration and
1154 dosimetry, radiation toxicity, and radiation
1155 protection considerations in the treatment of
1156 metastatic cancer and bone pain, primary
1157 neoplasms, solid tumors, and malignant effusions;
1158 and the treatment of hematologic, endocrine, and
1159 metabolic disorders; and,

1160
1161 IV.A.5.b).(9).(e) Fundamentals of the operation of a positron
1162 tomography imaging center, including medical
1163 cyclotron operation for production of PET
1164 radionuclides such as fluorodeoxyglucose (FDG),
1165 experience in PET radiopharmaceutical synthesis,
1166 and image acquisition and processing.

1167 **IV.A.5.c) Practice-based Learning and Improvement**

1168 **Residents must demonstrate the ability to investigate and**
1169 **evaluate their care of patients, to appraise and assimilate**
1170 **scientific evidence, and to continuously improve patient care**
1171 **based on constant self-evaluation and life-long learning.**
1172
1173

1174		Residents are expected to develop skills and habits to be able
1175		to meet the following goals:
1176		
1177	IV.A.5.c).(1)	identify strengths, deficiencies, and limits in one’s
1178		knowledge and expertise;
1179		
1180	IV.A.5.c).(2)	set learning and improvement goals;
1181		
1182	IV.A.5.c).(3)	identify and perform appropriate learning activities;
1183		
1184	IV.A.5.c).(4)	systematically analyze practice using quality
1185		improvement methods, and implement changes with
1186		the goal of practice improvement;
1187		
1188	IV.A.5.c).(5)	incorporate formative evaluation feedback into daily
1189		practice;
1190		
1191	IV.A.5.c).(6)	locate, appraise, and assimilate evidence from
1192		scientific studies related to their patients’ health
1193		problems;
1194		
1195	IV.A.5.c).(7)	use information technology to optimize learning; and,
1196		
1197	IV.A.5.c).(8)	participate in the education of patients, families,
1198		students, residents and other health professionals.
1199		
1200		develop and continuously improve skills in obtaining
1201		medical knowledge using new techniques as they develop
1202		in information technology. This includes:
1203		
1204		using the internet and computer data bases to
1205		search for patient information, disease, and
1206		technique information. Residents should also be
1207		familiar with viewing and manipulating images with
1208		the computer, both locally and remotely;
1209		
1210		improving one’s understanding of diseases and
1211		patient care by attending inter-specialty
1212		conferences, correlative conferences, mortality and
1213		morbidity conferences, and utilization conferences;
1214		and,
1215		
1216	IV.A.5.c).(9)	regularly obtain follow-up information, which is essential for
1217		determining the accuracy of study interpretation, and
1218		correlate the clinical findings with their study interpretation;
1219		
1220	IV.A.5.c).(10)	<u>demonstrate the application of performance improvement</u>
1221		<u>principles by following scientific progress in nuclear</u>
1222		<u>medicine and molecular imaging; and</u>
1223		
1224		

1225	IV.A.5.c).(11)	<u>evaluate their personal practice utilizing scientific evidence,</u>
1226		<u>best practices, and/or self-assessment programs or</u>
1227		<u>modules for practice improvement. This reflective process</u>
1228		<u>must be demonstrated as part of an individual learning</u>
1229		<u>plan in the resident's learning portfolio.</u>
1230		
1231	IV.A.5.d)	Interpersonal and Communication Skills
1232		
1233		Residents must demonstrate interpersonal and
1234		communication skills that result in the effective exchange of
1235		information and collaboration with patients, their families,
1236		and health professionals. Residents are expected to:
1237		
1238	IV.A.5.d).(1)	communicate effectively with patients, families, and
1239		the public, as appropriate, across a broad range of
1240		socioeconomic and cultural backgrounds;
1241		
1242	IV.A.5.d).(2)	communicate effectively with physicians, other health
1243		professionals, and health related agencies;
1244		
1245	IV.A.5.d).(3)	work effectively as a member or leader of a health care
1246		team or other professional group;
1247		
1248	IV.A.5.d).(4)	act in a consultative role to other physicians and
1249		health professionals; and,
1250		
1251	IV.A.5.d).(5)	maintain comprehensive, timely, and legible medical
1252		records, if applicable.
1253		
1254		communicate clearly and effectively, and work well with
1255		each of the following groups:
1256		
1257		patients and their families;
1258		
1259		physicians in nuclear medicine and radiology;
1260		
1261		referring physicians from other specialties;
1262		
1263		nuclear medicine technologists; and,
1264		
1265		other health care workers throughout the site.
1266		
1267	IV.A.5.d).(6)	must have on-call responsibilities and provide consultation
1268		for emergency procedures performed. <u>demonstrate</u>
1269		<u>competence by the completion of the NM1 year in the</u>
1270		<u>following:</u>
1271		
1272	IV.A.5.d).(6).(a)	<u>preparing a preliminary basic nuclear medicine</u>
1273		<u>procedure report; and</u>
1274		
1275		

1276	IV.A.5.d).(6).(b)	<u>communicating the final procedure results promptly and clearly to the referring physician;</u>
1277		
1278		
1279	IV.A.5.d).(7)	<u>demonstrate competence by the completion of the NM2 year in the following:</u>
1280		
1281		
1282	IV.A.5.d).(7).(a)	<u>preparing a complete and concise nuclear medicine procedure interpretation report;</u>
1283		
1284		
1285	IV.A.5.d).(7).(b)	<u>providing effective contributions to the interdisciplinary and clinical didactic conferences;</u>
1286		<u>and</u>
1287		
1288		
1289	IV.A.5.d).(7).(c)	<u>educating patients and their families in diagnostic and therapeutic nuclear medicine procedures;</u>
1290		
1291		
1292	IV.A.5.d).(8)	<u>demonstrate competence by the completion of the NM3 year in the following:</u>
1293		
1294		
1295	IV.A.5.d).(8).(a)	<u>communicating the final procedure interpretation, an appropriate differential diagnosis, and any clinical, diagnostic or therapeutic recommendations; and</u>
1296		
1297		
1298		
1299		
1300	IV.A.5.d).(8).(b)	<u>supervising and teaching junior residents, residents from other services, and students on rotations in nuclear medicine.</u>
1301		
1302		
1303		
1304	IV.A.5.e)	Professionalism
1305		
1306		Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Residents are expected to demonstrate:
1307		
1308		
1309		
1310	IV.A.5.e).(1)	compassion, integrity, and respect for others;
1311		
1312	IV.A.5.e).(2)	responsiveness to patient needs that supersedes self-interest;
1313		
1314		
1315	IV.A.5.e).(3)	respect for patient privacy and autonomy;
1316		
1317	IV.A.5.e).(4)	accountability to patients, society and the profession;
1318		and,
1319		
1320	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.
1321		
1322		
1323		
1324		
1325	IV.A.5.e).(6)	professional behavior, including:
1326		

- 1327 IV.A.5.e).(6).(a) ~~a consistent demonstration of completely ethical~~
 1328 ~~behavior;~~
 1329
 1330 IV.A.5.e).(6).(b) ~~a respect for the dignity of patients and all~~
 1331 ~~members of the medical team; and,~~
 1332
 1333 IV.A.5.e).(6).(c) ~~a responsiveness to patients' needs by~~
 1334 ~~demonstrating integrity, honesty, compassion, and~~
 1335 ~~commitment.~~

IV.A.5.f)

Systems-based Practice

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:

- 1344
 1345 **IV.A.5.f).(1)** **work effectively in various health care delivery**
 1346 **settings and systems relevant to their clinical**
 1347 **specialty;**
 1348
 1349 **IV.A.5.f).(2)** **coordinate patient care within the health care system**
 1350 **relevant to their clinical specialty;**
 1351
 1352 **IV.A.5.f).(3)** **incorporate considerations of cost awareness and**
 1353 **risk-benefit analysis in patient and/or population-**
 1354 **based care as appropriate;**
 1355
 1356 **IV.A.5.f).(4)** **advocate for quality patient care and optimal patient**
 1357 **care systems;**
 1358
 1359 **IV.A.5.f).(5)** **work in interprofessional teams to enhance patient**
 1360 **safety and improve patient care quality; and,**
 1361
 1362 **IV.A.5.f).(6)** **participate in identifying system errors and**
 1363 **implementing potential systems solutions.**
 1364
 1365 IV.A.5.f).(7) ~~work in a variety of health care settings, and understand~~
 1366 ~~the inter-relationship with other health care professionals.~~
 1367 ~~Specifically, residents should be aware of:~~
 1368
 1369 IV.A.5.f).(7).(a) ~~work conditions in hospitals, out-patient clinics,~~
 1370 ~~diagnostic centers, and private practice settings;~~
 1371
 1372 IV.A.5.f).(7).(b) ~~resource allocation and methods directed towards~~
 1373 ~~controlling health care costs such as Diagnostic~~
 1374 ~~Related Groups (DRGs), APC, and pre-certification~~
 1375 ~~by medical insurers;~~
 1376
 1377

1378	IV.A.5.f).(7).(c)	the concept of providing optimal patient care by
1379		selecting the most cost-effective procedures and by
1380		using or recommending other diagnostic tests that
1381		might complement the nuclear medicine
1382		procedures; this involves also an awareness of the
1383		relevant risk-benefit considerations; and,
1384		
1385	IV.A.5.f).(7).(d)	basic financial and business skills to function
1386		effectively in current health care delivery systems;
1387		this includes an understanding and knowledge of
1388		coding, procedure charges, billing practices, and
1389		reimbursement mechanisms.
1390		
1391	IV.A.5.f).(8)	have instruction in quality management and improvement:
1392		principles of quality management and performance
1393		improvement, efficacy assessment, and compliance with
1394		pertinent regulations of the Nuclear Regulatory
1395		Commission and the Joint Commission on the
1396		Accreditation of Healthcare Organizations.
1397		
1398	IV.A.6.	<u>Curriculum Organization and Resident Experiences</u> The Two-year Clinical
1399		<u>Curriculum Content</u>
1400		
1401		The two-year clinical curriculum should provide the general Nuclear
1402		Medicine content as described in Section IV.A.5.a.7 above, with less
1403		emphasis on endocrinologic, gastrointestinal, hematologic, and
1404		pulmonary studies (Section IV.A.5.a.7 subsection d, e, f, and i). The two
1405		year curriculum should include the minimum number of cases as stated
1406		above, i.e., radioiodine in hyperthyroidism (minimum of 10 cases), thyroid
1407		carcinoma (minimum of five cases), radiolabeled antibodies (minimum of
1408		three cases), and radionuclides for painful bone disease. Program
1409		directors must be able to document the experience of residents in this
1410		area, including patient follow-up, e.g. with logbooks.
1411		
1412	IV.A.6.a)	<u>Residents entering the program at any level must:</u>
1413		
1414	IV.A.6.a).(1)	<u>participate in a radiopharmacy rotation. This experience</u>
1415		<u>must include:</u>
1416		
1417	IV.A.6.a).(1).(a)	<u>ordering, receiving, and unpacking radioactive</u>
1418		<u>materials safely and performing the related</u>
1419		<u>radiation surveys;</u>
1420		
1421	IV.A.6.a).(1).(b)	<u>performing quality control procedures on</u>
1422		<u>instruments used to determine the activity of</u>
1423		<u>dosages, and performing checks for proper</u>
1424		<u>operation of survey meters;</u>
1425		
1426	IV.A.6.a).(1).(c)	<u>calculating, measuring, and safely preparing patient</u>
1427		<u>or human research subject dosages;</u>
1428		

1429	IV.A.6.a).(1).(d)	<u>using administrative controls to prevent a medical event involving the use of unsealed byproduct material;</u>
1430		
1431		
1432		
1433	IV.A.6.a).(1).(e)	<u>using procedures to safely contain spilled radioactive material and using proper decontamination procedures;</u>
1434		
1435		
1436		
1437	IV.A.6.a).(1).(f)	<u>administering dosages of radioactive drugs to patients or human research subjects;</u>
1438		
1439		
1440	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>
1441		
1442		
1443		
1444	IV.A.6.a).(3)	<u>participate in basic radiation safety and survey procedures;</u>
1445		
1446	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>
1447		
1448		
1449		
1450		
1451	IV.A.6.a).(4).(a)	<u>Patient Care</u>
1452		
1453	IV.A.6.a).(4).(a).(i)	<u>documentation of participation in the following required nuclear medicine procedures:</u>
1454		
1455		
1456		
1457	IV.A.6.a).(4).(a).(i).(a)	<u>ten 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>
1458		
1459		
1460		
1461		
1462		
1463	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>
1464		
1465		
1466		
1467		
1468		
1469	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 photon energy less than 150 keV, for which a written directive is required and/or parenteral administration of any other radionuclide, for which a written directive is required; and</u>
1470		
1471		
1472		
1473		
1474		
1475		
1476		
1477		
1478		
1479	IV.A.6.a).(4).(a).(i).(d)	<u>50 cardiovascular pharmacologic</u>

1480		<u>and/or exercise stress studies.</u>
1481		
1482	IV.A.6.a).(4).(a).(ii)	<u>documentation of participation in therapeutic procedures including date, diagnosis, and dose of each therapy;</u>
1483		
1484		
1485		
1486	IV.A.6.a).(4).(a).(iii)	<u>documentation of participation in stress myocardial studies including date, radiopharmaceutical, and type of stress (exercise or pharmacologic); and</u>
1487		
1488		
1489		
1490		
1491	IV.A.6.a).(4).(a).(iii).(a)	<u>It is suggested that residents document the completion of 25 pediatric nuclear medicine procedures per year.</u>
1492		
1493		
1494		
1495		
1496	IV.A.6.a).(4).(a).(iv)	<u>documentation of ACLS certification;</u>
1497		
1498	IV.A.6.a).(4).(b)	<u>Medical Knowledge</u>
1499		
1500	IV.A.6.a).(4).(b).(i)	<u>documentation of conference presentations, external courses and meetings attended, and self-assessment modules completed;</u>
1501		
1502		
1503		
1504	IV.A.6.a).(4).(b).(ii)	<u>documentation of compliance with regulatory-based training requirements; and</u>
1505		
1506		
1507		
1508	IV.A.6.a).(4).(b).(iii)	<u>documentation of performance on the annual in-training examination;</u>
1509		
1510		
1511	IV.A.6.a).(4).(c)	<u>Practice-based Learning and Improvement</u>
1512		
1513		<u>annual resident self-assessment and learning plan.</u>
1514		
1515	IV.A.6.a).(4).(d)	<u>Interpersonal and Communication Skills</u>
1516		
1517		<u>formal faculty evaluation of report quality;</u>
1518		
1519	IV.A.6.a).(4).(e)	<u>Professionalism</u>
1520		
1521	IV.A.6.a).(4).(e).(i)	<u>documentation of compliance with institutional and departmental policies; and,</u>
1522		
1523		
1524	IV.A.6.a).(4).(e).(ii)	<u>status of medical license;</u>
1525		
1526	IV.A.6.a).(4).(f)	<u>Systems-based Practice</u>
1527		
1528		<u>documentation of participation in identifying and implementing potential systems solutions;</u>
1529		
1530		

1531	IV.A.6.a).(4).(g)	<u>Scholarly Activities</u>
1532		
1533	IV.A.6.a).(4).(g).(i)	<u>documentation of scholarly activity, such as</u>
1534		<u>publications, announcement of</u>
1535		<u>presentations;</u>
1536		
1537	IV.A.6.a).(4).(g).(ii)	<u>any additional materials requested by the</u>
1538		<u>program director; and</u>
1539		
1540	IV.A.6.a).(4).(g).(iii)	<u>submission of a scholarly activity to the</u>
1541		<u>program director for evaluation by the</u>
1542		<u>completion of the NM3 year.</u>
1543		
1544	IV.A.6.b)	<u>Residents entering the program at the NM1 level must:</u>
1545		
1546	IV.A.6.b).(1)	<u>participate in the stress component of myocardial perfusion</u>
1547		<u>exams;</u>
1548		
1549	IV.A.6.b).(2)	<u>participate in radioiodine therapy for benign thyroid</u>
1550		<u>disease;</u>
1551		
1552	IV.A.6.b).(3)	<u>participate with appropriate supervision in the performance</u>
1553		<u>of nuclear medicine procedures including bone scans,</u>
1554		<u>thyroid uptake and scans, hepatobiliary scans, and</u>
1555		<u>myocardial perfusion procedures;</u>
1556		
1557	IV.A.6.b).(4)	<u>formulate a scholarly activity or research project and</u>
1558		<u>identify a faculty mentor for this activity during the NM1</u>
1559		<u>year; and</u>
1560		
1561	IV.A.6.b).(5)	<u>have no more than 3 months of elective rotations during</u>
1562		<u>the program;</u>
1563		
1564	IV.A.6.c)	<u>Residents promoted to or entering the program at the NM2 level</u>
1565		<u>must:</u>
1566		
1567	IV.A.6.c).(1)	<u>participate in a minimum of 6 months of CT experience;</u>
1568		
1569	IV.A.6.c).(1).(a)	<u>A minimum of 4 months must be obtained on a</u>
1570		<u>diagnostic radiology CT service and include</u>
1571		<u>experience in CT interpretation and report dictation;</u>
1572		
1573	IV.A.6.c).(1).(b)	<u>This experience must be supervised by qualified</u>
1574		<u>faculty.</u>
1575		
1576	IV.A.6.c).(1).(c)	<u>Residents who have satisfactorily completed an</u>
1577		<u>ACGME- or RCPSC-accredited diagnostic</u>
1578		<u>radiology residency are exempt from the</u>
1579		<u>requirement.</u>
1580		
1581	IV.A.6.c).(2)	<u>have no more than two months of elective rotations during</u>

1582 the program. This does not apply to residents entering at
1583 the NM1 or NM3 level.

1584
1585 IV.A.6.d) Residents entering the program at the NM3 level must have no
1586 more than one month of elective rotations.

1587
1588 IV.A.7. ~~The One-year Clinical Curriculum Content~~

1589
1590 ~~The one year clinical curriculum should emphasize PET, cardiac studies~~
1591 ~~and therapy (sections V.B.4.b), c), g), k), l), m), n) in the context of~~
1592 ~~general nuclear medicine. The one year curriculum should include the~~
1593 ~~minimum number of cases as stated above, i.e.: radioiodine in~~
1594 ~~hyperthyroidism (minimum of 10 cases), thyroid carcinoma (minimum of~~
1595 ~~five cases), radiolabeled antibodies (minimum of three cases) and~~
1596 ~~radionuclides for painful bone disease. Program directors must be able to~~
1597 ~~document the experience of residents in this area, including patient follow~~
1598 ~~up, e.g. with logbooks.~~

1599
1600 **IV.B. Residents' Scholarly Activities**

1601
1602 **IV.B.1. The curriculum must advance residents' knowledge of the basic**
1603 **principles of research, including how research is conducted,**
1604 **evaluated, explained to patients, and applied to patient care.**

1605
1606 **IV.B.2. Residents should participate in scholarly activity.**

1607
1608 IV.B.2.a) All residents must participate in a scholarly project under faculty
1609 supervision.

1610
1611 IV.B.2.b) The scholarly project should take the form of laboratory research,
1612 clinical research, or the analysis of disease processes, imaging
1613 techniques, or practice management issues.

1614
1615 IV.B.2.c) The results of such projects must be published or presented at
1616 institutional, local, regional, or national meetings, and included in
1617 the resident's learning portfolio.

1618
1619 IV.B.2.d) The program must specify how each project will be evaluated.

1620
1621 **IV.B.3. The sponsoring institution and program should allocate adequate**
1622 **educational resources to facilitate resident involvement in scholarly**
1623 **activities.**

1624
1625 **V. Evaluation**

1626
1627 **V.A. Resident Evaluation**

1628
1629 **V.A.1. Formative Evaluation**

1630
1631 **V.A.1.a) The faculty must evaluate resident performance in a timely**
1632 **manner during each rotation or similar educational**

- 1633 assignment, and document this evaluation at completion of
 1634 the assignment.
- 1635
- 1636 **V.A.1.b) The program must:**
- 1637
- 1638 **V.A.1.b).(1) provide objective assessments of competence in**
 1639 **patient care, medical knowledge, practice-based**
 1640 **learning and improvement, interpersonal and**
 1641 **communication skills, professionalism, and systems-**
 1642 **based practice;**
- 1643
- 1644 **V.A.1.b).(2) use multiple evaluators (e.g., faculty, peers, patients,**
 1645 **self, and other professional staff);**
- 1646
- 1647 **V.A.1.b).(3) document progressive resident performance**
 1648 **improvement appropriate to educational level; and,**
- 1649
- 1650 **V.A.1.b).(4) provide each resident with documented semiannual**
 1651 **evaluation of performance with feedback.**
- 1652
- 1653 **V.A.1.c) The evaluations of resident performance must be accessible**
 1654 **for review by the resident, in accordance with institutional**
 1655 **policy.**
- 1656
- 1657 **V.A.1.d) Residents must participate in the annual in-training examination.**
 1658 **The results of this examination must be used only to identify**
 1659 **deficiencies in knowledge and to assist in developing a**
 1660 **remediation plan.**
- 1661
- 1662 **V.A.2. Summative Evaluation**
- 1663
- 1664 **The program director must provide a summative evaluation for each**
 1665 **resident upon completion of the program. This evaluation must**
 1666 **become part of the resident’s permanent record maintained by the**
 1667 **institution, and must be accessible for review by the resident in**
 1668 **accordance with institutional policy. This evaluation must:**
- 1669
- 1670 **V.A.2.a) document the resident’s performance during the final period**
 1671 **of education, and**
- 1672
- 1673 **V.A.2.b) verify that the resident has demonstrated sufficient**
 1674 **competence to enter practice without direct supervision.**
- 1675
- 1676 **V.B. Faculty Evaluation**
- 1677
- 1678 **V.B.1. At least annually, the program must evaluate faculty performance as**
 1679 **it relates to the educational program.**
- 1680
- 1681 **V.B.2. These evaluations should include a review of the faculty’s clinical**
 1682 **teaching abilities, commitment to the educational program, clinical**
 1683 **knowledge, professionalism, and scholarly activities.**

- 1684
1685 **V.B.3. This evaluation must include at least annual written confidential**
1686 **evaluations by the residents.**
1687
1688 V.B.3.a) Faculty must receive annual feedback from these resident
1689 evaluations.
1690
1691 **V.C. Program Evaluation and Improvement**
1692
1693 **V.C.1. The program must document formal, systematic evaluation of the**
1694 **curriculum at least annually. The program must monitor and track**
1695 **each of the following areas:**
1696
1697 **V.C.1.a) resident performance;**
1698
1699 **V.C.1.b) faculty development;**
1700
1701 **V.C.1.c) graduate performance, including performance of program**
1702 **graduates on the certification examination; and,**
1703
1704 **V.C.1.d) program quality. Specifically:**
1705
1706 **V.C.1.d).(1) Residents and faculty must have the opportunity to**
1707 **evaluate the program confidentially and in writing at**
1708 **least annually, and**
1709
1710 **V.C.1.d).(2) The program must use the results of residents’**
1711 **assessments of the program together with other**
1712 **program evaluation results to improve the program.**
1713
1714 **V.C.2. If deficiencies are found, the program should prepare a written plan**
1715 **of action to document initiatives to improve performance in the**
1716 **areas listed in section V.C.1. The action plan should be reviewed**
1717 **and approved by the teaching faculty and documented in meeting**
1718 **minutes.**
1719
1720 V.C.3. ~~Performance of program graduates on the certification examination~~
1721 ~~should be used as one measure of evaluating program effectiveness. As~~
1722 ~~part of the overall evaluation of the program, the Review Committee will~~
1723 ~~take into consideration the information provided by the ABNM regarding~~
1724 ~~resident performance over the most recent five-year period. A program’s~~
1725 ~~graduates must achieve a pass rate on the American Board of Nuclear~~
1726 ~~Medicine certifying examination of at least 50% for first-time takers of the~~
1727 ~~examination in the past five years.~~
1728
1729 **VI. Resident Duty Hours in the Learning and Working Environment**
1730
1731 **VI.A. Principles**
1732
1733 **VI.A.1. The program must be committed to and be responsible for**
1734 **promoting patient safety and resident well-being and to providing a**

1786 period, inclusive of call.
1787
1788 **VI.D.3. Adequate time for rest and personal activities must be provided.**
1789 **This should consist of a 10-hour time period provided between all**
1790 **daily duty periods and after in-house call.**
1791
1792 **VI.E. On-call Activities**
1793
1794 **VI.E.1. In-house call must occur no more frequently than every third night,**
1795 **averaged over a four-week period.**
1796
1797 **VI.E.2. Continuous on-site duty, including in-house call, must not exceed 24**
1798 **consecutive hours. Residents may remain on duty for up to six**
1799 **additional hours to participate in didactic activities, transfer care of**
1800 **patients, conduct outpatient clinics, and maintain continuity of**
1801 **medical and surgical care.**
1802
1803 **VI.E.3. No new patients may be accepted after 24 hours of continuous duty.**
1804
1805 VI.E.3.a) A new patient is defined as any patient for whom the resident has
1806 not previously provided care within the past 24 hours.
1807
1808 **VI.E.4. At-home call (or pager call)**
1809
1810 **VI.E.4.a) The frequency of at-home call is not subject to the every-**
1811 **third-night, or 24+6 limitation. However at-home call must not**
1812 **be so frequent as to preclude rest and reasonable personal**
1813 **time for each resident.**
1814
1815 **VI.E.4.b) Residents taking at-home call must be provided with one day**
1816 **in seven completely free from all educational and clinical**
1817 **responsibilities, averaged over a four-week period.**
1818
1819 **VI.E.4.c) When residents are called into the hospital from home, the**
1820 **hours residents spend in-house are counted toward the 80-**
1821 **hour limit.**
1822
1823 VI.E.5. Residents must have on-call responsibilities and provide consultation for
1824 emergency procedures performed during the time they are on-call.
1825
1826 **VI.F. Moonlighting**
1827
1828 **VI.F.1. Moonlighting must not interfere with the ability of the resident to**
1829 **achieve the goals and objectives of the educational program.**
1830
1831 **VI.F.2. Internal moonlighting must be considered part of the 80-hour weekly**
1832 **limit on duty hours.**
1833
1834

- 1835 **VI.G. Duty Hours Exceptions**
1836
1837 **A Review Committee may grant exceptions for up to 10% or a maximum of**
1838 **88 hours to individual programs based on a sound educational rationale.**
1839
1840 **VI.G.1. In preparing a request for an exception the program director must**
1841 **follow the duty hour exception policy from the ACGME Manual on**
1842 **Policies and Procedures.**
1843
1844 **VI.G.2. Prior to submitting the request to the Review Committee, the**
1845 **program director must obtain approval of the institution's GMEC and**
1846 **DIO.**
1847
1848 **VII. Experimentation and Innovation**
1849
1850 **Requests for experimentation or innovative projects that may deviate from the**
1851 **institutional, common and/or specialty specific program requirements must be**
1852 **approved in advance by the Review Committee. In preparing requests, the**
1853 **program director must follow Procedures for Approving Proposals for**
1854 **Experimentation or Innovative Projects located in the ACGME Manual on Policies**
1855 **and Procedures. Once a Review Committee approves a project, the sponsoring**
1856 **institution and program are jointly responsible for the quality of education offered**
1857 **to residents for the duration of such a project.**
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1861 ACGME: June, 2002; Effective Date: January 1, 2003
1862 Editorial Revision (Common Program Requirements): ACGME approved: February 2003;
1863 Effective Date July 2004
1864 ACGME Approved: September 2005; Effective Date: July 2007
1865 Revised Common Program Requirements Effective: July 1, 2007
1866 Editorial Revision December 1, 2007