

## Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

**eTable 1 - American Board of Family Medicine Certification Examination Registration Questionnaire 2014**

Question Number	Current Item	Responses
1	Race	a. American Indian or Alaska Native b. Asian c. Black or African American d. Native Hawaiian or Other Pacific Islander e. White
2	Ethnicity	a. Non-Hispanic b. Hispanic or Latino
3	What was your level of educational debt (undergraduate & graduate) at the end of medical school?	a. None b. Less than \$25,000 c. \$25,000-74,999 d. \$75,000-149,999 e. \$150,000-249,999 f. >\$250,000
4	Did you participate in a loan repayment program?	a. No b. Yes
5	If yes, what type of loan repayment?	a. J1 Visa b. National Health Service Corps c. Military d. Hospital Sponsored e. Employer Sponsored f. State Sponsored g. Federal Sponsored h. Other (free text)
6	After graduation my primary practice site will be: (select best option)	a. Free Standing Ambulatory Clinic b. Hospital Based Clinic c. Urgent Care Clinic d. Emergency Department e. Hospital (e.g Hospitalist) f. Patient's Home g. Nursing home h. Hospice i. Public Health Department j. Work Site k. School l. Correctional Facility m. other (free text) n. Unknown, do not have contract yet
7	Which of the following describe(s) your	a. Private solo or group practice

Question Number	Current Item	Responses
	primary practice site ownership? (Select one)	<ul style="list-style-type: none"> <li>b. Freestanding urgent care center</li> <li>c. Hospital emergency department</li> <li>d. Hospital outpatient department</li> <li>e. Ambulatory surgical center</li> <li>f. Industrial outpatient facility</li> <li>g. Mental health center</li> <li>h. Non-federal government clinic (e.g., state, county, city, maternal and child health, etc.)</li> <li>i. Federally Qualified Health Center or Look-Alike</li> <li>j. Rural Health Clinic</li> <li>k. Indian Health Service Institutional setting (School-based Clinic, Nursing home, prison)</li> <li>l. Academic Health Center / Faculty Practice</li> <li>m. Health maintenance organization (e.g., Kaiser Permanente)</li> <li>n. Federal (Military, Veterans Administration/Department of Defense)</li> <li>o. Public Health Service</li> <li>p. Other _____ (Free text)</li> </ul>
8	At your primary practice site, will you be a full- or part-owner, employee, or an independent contractor?	<ul style="list-style-type: none"> <li>a. Owner</li> <li>b. Employee</li> <li>c. Contractor</li> </ul>
9	I plan on providing the following care in my practice after graduation: (yes / no ) to each	<ul style="list-style-type: none"> <li>a. Inpatient care</li> <li>b. Acute / Same Day Care</li> <li>c. Chronic Disease Management</li> <li>d. Preventive Services</li> <li>e. Pain management</li> <li>f. Palliative Care</li> <li>g. Office surgery</li> <li>h. Major surgery</li> <li>i. Pre-operative Care</li> <li>j. Post-operative Care</li> <li>k. Sports medicine</li> <li>l. Occupational/Industrial Medicine</li> <li>m. Mental Health</li> <li>n. Musculo-Skeletal problems</li> <li>o. Women's health</li> <li>p. Nursing Home Care</li> <li>q. Home Visits</li> <li>r. Prenatal Care</li> <li>s. Obstetrical Deliveries</li> <li>t. Newborn Care, office</li> <li>u. Newborn Care, nursery</li> </ul>

Question Number	Current Item	Responses
		v. Care of children p. Other <b>(free text option)</b>
10	I plan on doing the following procedures in my practice after graduation: (yes / no ) to each	a. Office skin procedures b. Endometrial biopsy c. Simple fracture care d. Central/arterial lines e. Colonoscopy f. Flexible Sigmoidoscopy f. Endoscopy g. Thoracentesis h. Paracentesis i. Lumbar Puncture j. Cardiac stress tests k. Musculoskeletal ultrasound l. Prenatal ultrasound m. Cosmetic procedures (botulinum toxin injection, varicose veins) n. Joint aspiration/injection o. Neonatal Circumcision p. IUD insertion q. implantable long acting contraception insertion or removal
11	Are you planning on completing a fellowship after residency?	a. Yes b. No c. Unsure
12	Which type of fellowship are you entering? (select only one)	a. Adolescent Medicine b. Geriatrics c. Hospice and Palliative Medicine d. Sleep Medicine e. Sports Medicine f. Academic / Faculty Development g. Addiction Medicine h. Behavioral Medicine i. Emergency Medicine j. HIV Care k. Hospital Medicine l. Integrative Medicine m. International / Global Health n. Maternity Care / OB o. Medical Informatics p. Pain Management q. Preventive Medicine r. Research s. Rural Health

Question Number	Current Item	Responses
		t. Women's Health u. Other (free text)
13	If another year of training were available in your residency program, how likely would you be to pursue that?	a. Not at all likely b. Somewhat likely c. Moderately likely d. Extremely likely
14	How prepared are you to lead quality improvement projects?	a. Not at all prepared b. Somewhat prepared c. Moderately well prepared d. Extremely well prepared
15	How prepared are you to perform population health management?	a. Not at all prepared b. Somewhat prepared c. Moderately well prepared d. Extremely well prepared
16	How prepared are you to provide care in different settings (e.g., home, nursing home, assisted living)?	a. Not at all prepared b. Somewhat prepared c. Moderately well prepared d. Extremely well prepared
17	How prepared are you to use electronic and other information tools (e.g., registries, decision aids) for managing population health?	a. Not at all prepared b. Somewhat prepared c. Moderately well prepared d. Extremely well prepared
18	How satisfied are you with the opportunities your program provides to help you develop a comprehensive scope of practice?	a. Not at all satisfied b. Somewhat satisfied c. Moderately satisfied d. Extremely satisfied

**eTable 2 – American Board of Family Medicine Maintenance of Certification Examination Registration Questionnaire 2014**

Question Number	Item	Responses
1	Number of Years in Practice	free response with <i>auto-fill</i>
2	Race	a. American Indian or Alaska Native b. Asian c. Black or African American d. Native Hawaiian or Other Pacific Islander e. White
3	Ethnicity	a. Non-Hispanic b. Hispanic or Latino
4	Percentage of Your Time by Type of Practice of Professional Activity (must total 100%)	a. Direct patient care b. Research c. Administration d. Teaching
5	a. Primary practice address b. Practice #2 address	a. Primary practice site address b. Practice #2 address
6	Percent clinical time in (must total 100%)	a. Primary practice b. Practice #2
7	Are you a full- or part-owner, employee, or an independent contractor?	a. Owner b. Employee c. Contractor
8	My primary practice site is: (select best option)	a. Free Standing Ambulatory Clinic b. Hospital Based Clinic c. Urgent Care Clinic d. Emergency Department e. Hospital f. Patient's Home g. Nursing home h. Hospice i. Public Health Department j. Work Site k. School l. Correctional Facility m. other (free text)
9	Besides your primary practice site, where else do you routinely see patients? (select all that apply)	a. Free Standing Ambulatory Clinic b. Hospital Based Clinic c. Urgent Care Clinic d. Emergency Department e. Hospital f. Patient's Home

Question Number	Item	Responses
		<ul style="list-style-type: none"> <li>g. Nursing home</li> <li>h. Hospice</li> <li>i. Public Health Department</li> <li>j. Work Site</li> <li>k. School</li> <li>l. Correctional Facility</li> <li>m. other (free text)</li> </ul>
10	Which of the following describe(s) your primary practice site ownership? (Select one)	<ul style="list-style-type: none"> <li>a. Private solo or group practice</li> <li>b. Freestanding urgent care center</li> <li>c. Hospital emergency department</li> <li>d. Hospital outpatient department</li> <li>e. Ambulatory surgical center</li> <li>f. Industrial outpatient facility</li> <li>g. Mental health center</li> <li>h. Non-federal government clinic (e.g., state, county, city, maternal and child health, etc.)</li> <li>i. Federally Qualified Health Center or Look-Alike</li> <li>j. Rural Health Clinic</li> <li>k. Indian Health Service</li> <li>l. Institutional setting (School-based Clinic, Nursing home, prison)</li> <li>m. Academic Health Center / Faculty Practice</li> <li>n. Health maintenance organization (e.g., Kaiser Permanente)</li> <li>o. Federal (Military, Veterans Administration/Department of Defense)</li> <li>p. Public Health Service</li> <li>q. Other ____ (Free text)</li> </ul>
11	Which of the following describes your primary practice site size? (Select one)	<ul style="list-style-type: none"> <li>a. Solo practice</li> <li>b. Small (2-5 Providers)</li> <li>c. Medium (6-20 Providers)</li> <li>d. Large (&gt;20 Providers)</li> <li>e. Other free text</li> </ul>
12	Which of the following describes your primary practice site specialty mix?	<ul style="list-style-type: none"> <li>a. Single specialty</li> <li>b. Multi-specialty</li> </ul>
13	The following types of providers work in my primary practice site: (Select all that apply)	<ul style="list-style-type: none"> <li>a. Nurse Practitioner or Advanced Practice Nurse</li> <li>b. Registered Nurse</li> <li>c. Licensed Practice Nurse</li> <li>d. Physician Assistant</li> <li>e. Behavioral Specialist, non-MD</li> <li>f. Social Worker</li> <li>g. Psychiatrist</li> <li>h. Physical or Occupational Therapist</li> <li>i. Certified Nurse Midwife</li> <li>j. PharmD or Pharmacist</li> <li>k. n/a</li> </ul>

Question Number	Item	Responses
14	Do you provide the following? (Yes / no for each option)	<ul style="list-style-type: none"> <li>a. Inpatient care</li> <li>b. Acute / Same Day Care</li> <li>c. Chronic Disease Management</li> <li>d. Preventive Services</li> <li>e. Pain management</li> <li>f. Palliative Care</li> <li>g. Office surgery</li> <li>h. Major surgery</li> <li>i. Pre-operative Care</li> <li>j. Post-operative Care</li> <li>k. Sports Medicine</li> <li>l. Occupational/Industrial Medicine</li> <li>m. Mental Health</li> <li>n. Musculo-Skeletal Care</li> <li>o. Women's health</li> <li>p. Other (free text option)</li> </ul>
15	Do you see patients who are in the following age ranges? (Yes/No)	<ul style="list-style-type: none"> <li>a. Age &lt; 5</li> <li>b. Age 5-12</li> <li>c. Age 13-18</li> <li>d. Age 19-64</li> <li>e. Age 65-74</li> <li>f. Age 75 and older</li> </ul>
16	Do you use a language other than English to interact with patients?	<ul style="list-style-type: none"> <li>a. Yes, Spanish</li> <li>b. Yes, Other (free text option)</li> <li>c. No</li> </ul>
17	Are you a member of a medical school faculty?	<ul style="list-style-type: none"> <li>a. No</li> <li>b. Yes, Part-time</li> <li>c. Yes, Full-time</li> </ul>
18	Are you a member of a residency faculty?	<ul style="list-style-type: none"> <li>a. No</li> <li>b. Yes, Part-time</li> <li>c. Yes, Full-time</li> </ul>
19	HOW MANY OBSTETRICAL DELIVERIES DO YOU DO PER YEAR?	<ul style="list-style-type: none"> <li>a. None</li> <li>b. 1 to 25</li> <li>c. 26 to 50</li> <li>d. More than 50</li> </ul>
20	Do you perform the following types of deliveries? yes / no	<ul style="list-style-type: none"> <li>a. Normal spontaneous vaginal deliveries</li> <li>b. Operative vaginal deliveries (forceps / vacuum)</li> <li>c. Caesarian deliveries</li> </ul>
21	Which of the following best describes what happens when one of your patients becomes pregnant? (select best option)	<ul style="list-style-type: none"> <li>a. I Manage Prenatal Care and Deliver</li> <li>b. I Manage Prenatal Care and Coordinate Delivery with Other Providers</li> <li>c. I Manage Non-Pregnancy Related Issues, and Refer the Patient to Other Providers Who Will Follow the Pregnancy</li> </ul>

Question Number	Item	Responses
		d. I Refer the Patient to Other Providers Who Will Follow The Pregnancy and Manage All Non-Pregnancy Related Problems
22	Do you take care of newborn infants?	a. Yes, office b. Yes, nursery c. Yes, both d. No
23	Do you have admitting privileges in any hospital?	a. Yes b. No
24	When one of your adult patients is admitted to the hospital for a medical condition, which of the following <i>best describes</i> your typical role in managing the patient in the hospital?	a. I Manage the Patient Personally b. You or one of Your Partners Manages the Patient c. A Hospitalist Group Manages the Patient d. Other <u>free text</u> e. Not Applicable, I am a hospitalist f. Not Applicable
25	If you are certified by another ABMS primary specialty board, please indicate	23 options for all other ABMS primary boards
26	Approximately what is the size of your patient panel?	a. Free text entry for number b. I don't know c. Does not apply
26	Patient Centered Medical Home (PCMH) Yes/No	a. Is your practice a certified PCMH? b. If not, are you considering applying? (only available if answers no to a)
27	Do you use an electronic medical record system at your primary practice site?	a. Yes b. No
Module 4	I regularly perform the following procedures: Yes/No	a. Office skin procedures b. Endometrial biopsy c. Simple fracture care d. Central/arterial lines e. Colonoscopy f. Flexible Sigmoidoscopy f. Endoscopy g. Thoracentesis h. Paracentesis i. Lumbar Puncture j. Cardiac stress tests k. Musculoskeletal ultrasound l. Prenatal ultrasound m. Cosmetic procedures (botulinum toxin injection, varicose veins) n. Joint aspiration/injection o. Neonatal Circumcision p. IUD insertion q. implantable long acting contraception insertion or removal

**eTable 3 – Characteristics of Recertifying Family Physicians Completing the Procedures Question Set Compared to all Recertifying Physicians**

	Question Set 1 (n=2699)		Question Set 2 (n=2707)		Question Set 3 (n=2726)		Question Set 4 (Procedure Module) (n=2714)		All Recertifiers (n=10846)		P-value <sup>a</sup>
Mean Age (95% Confidence Interval)	51.1 (50.8-51.4)		51.4 (51.1-51.8)		50.9 (50.6-51.2)		51.5 (51.2-51.8)		51.2 (51.1-51.4)		0.03
Mean Scope Score (95% Confidence Interval)	15.4 (15.3-15.5)		15.5 (15.3-15.6)		15.5 (15.4-15.6)		15.4 (15.3-15.5)		15.5 (15.4-15.5)		0.42
	Total Number	Percentage (95% CI)	Total Number	Percentage (95% CI)	Total Number	Percentage (95% CI)	Total Number	Percentage (95% CI)	Total Number	Percentage (95% CI)	
Male Gender	1667	61.8 (59.9- 63.6)	1712	63.2 (61.4- 65.1)	1708	62.7 (60.8- 64.5)	1730	63.7 (61.9- 65.6)	6817	62.9 (61.9- 63.8)	0.47
MD Degree	2449	90.7 (89.6- 91.8)	2466	91.1 (90.0- 92.2)	2453	90.0 (88.9- 91.1)	2461	90.7 (89- 58-91.77)	9829	90.6 (90.1- 91.2)	0.56
International Medical Graduate <sup>b</sup>	510	19.0 (17.5- 20.5)	511	19.1 (17.6- 20.5)	519	19.2 (17.7- 20.7)	562	20.8 (19.3- 22.4)	2102	19.5 (18.8- 20.3)	0.27
Years in Practice											
1 - 10	668	24.7 (23.1- 26.4)	672	24.8 (23.2- 26.5)	712	26.1 (24.5- 27.8)	695	25.6 (24.0- 27.3)	2747	25.3 (14.5- 26.1)	
11 – 20	939	34.8 (33.0- 36.6)	917	22.9 (32.1- 35.7)	980	36.0 (34.1- 37.8)	909	33.5 (31.7- 35.3)	3745	34.5 (33.6- 35.4)	0.27
21-30	804	29.8 (28.1- 31.5)	799	29.5 (27.8- 31.2)	739	27.1 (25.4- 28.8)	789	29.1 (27.4- 30.8)	3131	28.9 (28.0- 29.74)	
31+	288	10.7 (9.5- 11.8)	319	11.8 (10.6- 13.0)	295	10.8 (9.7- 12.0)	321	11.8 (10.6- 13.0)	1223	11.3 (10.7- 11.9)	

<sup>a</sup>P-value represents test for difference between modules with either ANOVA or Chi-Square tests.

<sup>b</sup>International Medical Graduate data is missing for 84 participants.

**eTable 4 – Comparison of Intentions to Perform Specific Clinical Activities by Older Initial Certifiers with Recertifiers with 1 to 10 Years of Practice Experience**

Type of Service	Certifier Age ≥ 38 (n=320)		Recertifier 1-10 Years of Practice (n=2747)		P-Value <sup>a</sup>
Mean Scope Score (95% Confidence Interval)	17.6 (17.2-18.0)		15.3 (15.2-15.4)		<0.001
	Total Number	Percentage (95% CI)	Total Number	Percentage (95% CI)	
Acute/Same Day Care	296	92.5 (89.6-95.4)	2496	90.9 (89.8-91.9)	0.33
Chronic Disease Management	296	92.5 (89.6-95.4)	2386	86.9 (85.6-88.1)	0.004
Preventive Services	297	92.8 (90.0-95.6)	2371	86.3 (85.0-87.6)	0.001
Obstetrical Care	68	21.3 (16.8-25.7)	252	9.2 (8.1-10.3)	<0.001
Prenatal Care	169	52.8 (47.3-58.3)	333	12.1 (10.9-13.3)	<0.001
Newborn Care	230	71.9 (66.9-76.8)	1523	55.4 (53.6-57.3)	<0.001
Pediatric Care	281	87.8 (84.2-91.4)	2428	88.4 (87.2-89.6)	0.76
Women's Health	272	85.0 (81.1-88.9)	2206	80.3 (78.8-81.8)	0.04
Mental Health	233	72.8 (67.9-77.7)	2126	77.4 (75.8-79.0)	0.07
Musculoskeletal Care	289	90.3 (87.1-93.6)	2468	89.8 (88.7-91.0)	0.79
Sports Medicine	204	63.8 (58.5-69.0)	1743	63.5 (61.6-65.3)	0.91
Occupational Medicine	145	45.3 (39.9-50.8)	935	34.0 (32.3-35.8)	<0.001
Office Surgery	216	67.5 (62.4-72.6)	1594	58.0 (56.2-59.9)	0.001
Pre-Operative Care	244	76.3 (71.6-80.9)	1988	72.4 (70.7-74.0)	0.14
Post-Operative Care	179	55.9 (50.5-61.4)	1141	41.5 (39.7-43.4)	<0.001
Major Surgery	17	5.3 (2.9-7.8)	85	3.1 (2.4-3.7)	0.04
Inpatient Care	200	62.5 (57.2-67.8)	926	33.7 (31.9-35.5)	<0.001
Pain Management	208	65.0 (59.8-70.2)	1722	62.7 (60.9-64.5)	0.42
Palliative Care	174	54.4 (48.9-59.8)	1234	44.9 (43.1-46.8)	0.001
Nursing Home Care	164	51.3 (45.8-56.7)	322	11.7 (10.5-12.9)	<0.001
Home Visits	168	52.5 (47.0-58.0)	171	6.2 (5.3-7.1)	<0.001

<sup>a</sup>All p-values for differences in means or percentages (t-tests and Chi-square tests) were for comparisons between categories of certifiers.

**eTable 5 – Comparison of Intentions to Perform Specific Clinical Activities by Initial Certifiers with Employment Contracts with Recertifiers with 1 to 10 Years of Practice Experience**

Type of Service	Initial Certifier With Employment Contract (n=1891)		Recertifier with 1-10 Years of Practice Experience (n=2747)		P-Value <sup>a</sup>
	Mean Scope Score (95% Confidence Interval)				
		17.6 (17.4-17.8)		15.3 (15.2-15.4)	<.001
	Total Number	Percentage (95% CI)	Total Number	Percentage (95% CI)	
Acute/Same Day Care	1761	93.1 (92.0-94.3)	2496	90.9 (89.8-91.9)	0.005
Chronic Disease Management	1772	93.7 (92.6-94.8)	2386	86.9 (85.6-88.1)	<.001
Preventive Services	1785	94.4 (93.3-95.4)	2371	86.3 (85.0-87.6)	<.001
Obstetrical Care	423	22.4 (20.5-24.2)	252	9.2 (8.1-10.3)	<.001
Prenatal Care	887	46.9 (44.7-49.2)	333	12.1 (10.9-13.3)	<.001
Newborn Care	1470	77.7 (75.9-79.6)	1523	55.4 (53.6-57.3)	<.001
Pediatric Care	1686	89.2 (87.8-90.6)	2428	88.4 (87.2-89.6)	0.41
Women's Health	1632	86.3 (84.8-87.9)	2206	80.3 (78.8-81.8)	<.001
Mental Health	1543	81.6 (79.8-83.3)	2126	77.4 (75.8-79.0)	<.001
Musculoskeletal Care	1759	93.0 (91.9-94.2)	2468	89.8 (88.7-91.0)	<.001
Sports Medicine	1420	75.1 (73.1-77.0)	1743	63.5 (61.6-65.3)	<.001
Occupational Medicine	799	42.3 (40.0-44.4)	935	34.0 (32.3-35.8)	<.001
Office Surgery	1230	65.0 (62.9-67.2)	1594	58.0 (56.2-59.9)	<.001
Pre-Operative Care	1478	78.2 (76.3-80.0)	1988	72.4 (70.7-74.0)	<.001
Post-Operative Care	923	48.8 (46.6-51.1)	1141	41.5 (39.7-43.4)	<.001
Major Surgery	82	4.3 (3.4-5.3)	85	3.1 (2.4-3.7)	0.03
Inpatient Care	1036	54.8 (52.5-57.0)	926	33.7 (31.9-35.5)	<.001
Pain Management	1216	64.3 (62.1-66.4)	1722	62.7 (60.9-64.5)	0.26
Palliative Care	978	51.7 (49.5-54.0)	1234	44.9 (43.1-46.8)	<.001
Nursing Home Care	695	36.8 (34.6-38.9)	322	11.7 (10.5-12.9)	<.001
Home Visits	782	41.4 (39.1-43.6)	171	6.2 (5.3-7.1)	<.001

<sup>a</sup>All p-values for differences in means or percentages (t-tests and Chi-square tests) were for comparisons between categories of certifiers.