

**NORTH AMERICAN REGISTRY OF MIDWIVES**

**EXAMINATION PROGRAM TECHNICAL REPORT 2015**

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## **CONTENTS**

	<b><u>Page</u></b>
<b>Introduction</b>	<b>4</b>
<b>Section I: Examination Administration</b>	<b>5</b>
<b>Section II: General Test Results</b>	<b>6</b>
<b>Section III: Scaled Scores</b>	<b>15</b>

## Tables

	<u>Page</u>
<b>Table 1: Examination Statistics</b>	<b>7</b>
<b>Table 2: Pass/Fail Frequency Distribution</b>	<b>8</b>
<b>Table 3: Frequency Distribution of Form N Raw Scores</b>	<b>9</b>
<b>Table 4: Frequency Distribution of Form O Raw Scores</b>	<b>11</b>
<b>Table 5 Test Statistics: Form N and Form O – Section 1</b>	<b>12</b>
<b>Table 6 Test Statistics: Form N and Form O - Section 2</b>	<b>13</b>
<b>Table 7 Test Statistics: Form N and Form O - Section 3</b>	<b>13</b>
<b>Table 8 Test Statistics: Form N and Form O - Section 4</b>	<b>13</b>
<b>Table 9 Test Statistics: Form N and Form O - Section 5</b>	<b>14</b>
<b>Table 10 Test Statistics: Form N and Form O - Section 6</b>	<b>14</b>
<b>Table 11 Test Statistics: Form N and Form O - Section 7</b>	<b>14</b>

## **Introduction**

This report provides an overview of examination program activities and the statistical properties of Forms N and O of the Certified Professional Midwife (C.P.M.) Examination, administered by the *North American Registry of Midwives* (NARM). Successful completion of the C.P.M. examination must be attained before the title of Certified Professional Midwife is conferred.

The forms of the examination discussed in this report were administered via computer in a number of locations at different times throughout the United States during 2015. The data from these administrations were combined and served as the basis for the statistics appearing in this report.

## SECTION I: EXAMINATION ADMINISTRATION

The examination was administered via a computer-based testing (CBT) format under a secure, proctored arrangement. Two forms of the examination were administered: Form N and Form O.

	Examination Forms	
	N	O
Number of Examinees	128	101

This pool of candidates taking Forms N and O were used as the basis of the analyses appearing in this report.

## SECTION II: GENERAL TEST RESULTS

Each test form consisted of a total of 300 questions contained in two separate parts of 150 questions each. The examinations were administered in two 3.5 hour sessions, morning and afternoon. The mean, standard deviation, reliability coefficient and standard error of measurement for Form N and Form O are based on this total of 300 items (see Table 1). The raw score mean is the average number of items answered correctly by the group of examinees. For example, the table shows that the mean or average raw score for Form N was 251.45.

The Kuder-Richardson-20 (or KR-20) reliability reflects the degree of consistency in the test scores.

The Standard Error of Measurement is interpreted as a standard deviation of the errors of measurement for the test, and is directly influenced by both the size of the standard deviation and the degree of unreliability of the test. For Form N the standard error of measurement is equal to 6.40. The greater the standard error of measurement, the more the score reflects chance factors.

Table 2 summarizes the pass/fail statistics for Form N and Form O in terms of both the raw number of candidates and the percentage of candidates. For example, 93 of the 128 candidates (or 72.66%) who took Form N passed the exam.

Table 3 and Table 4 presents the frequency distributions of the raw scores for Form N and Form O, along with univariate statistics including the mean, median, mode, standard deviation, skewness and kurtosis statistic. Skewness measures the extent to which the scores are symmetric about the mean. The value obtained for Form N, for example (-1.84038) indicates that the distribution of scores is slightly skewed to the left (i.e., "negatively skewed"). This is also reflected in the fact that the median is higher than the mean. Kurtosis measures the flatness of a distribution or the heaviness of its tails. The standard is the normal distribution with a value of 0. Distributions with short tails and few extreme scores have negative kurtosis. The positive kurtosis indicated for Form N points to a distribution with a larger number of extreme scores. The frequency distributions in Table 3 (Form N) and Table 4 (Form O) include the number, percentage, and cumulative percentage of candidates who obtained each raw score. For instance, in Table 3, we can see that 3 examinees (or 2.3% of the total pool of 128 candidates) obtained a raw score of 239 on Form N of the exam, and that approximately 25.9% of the candidates achieved a score of 239 or lower.

Each form of the test consists of seven sections. The following indicates the number of items in each of the seven sections of Form N and Form O:

Section	Number of Items	
	Form N	Form O
1	15	15
2	15	15
3	30	30
4	74	74
5	105	105
6	46	46
7	15	15
<b>Total</b>	300	

Tables 5 through 11 present test statistics for each of the seven sections including the raw score mean and median, standard deviation and Kuder-Richardson-20 reliability coefficient.

**Table 1: Examination Statistics**

	Form N	Form O
<b>Number of Scored Items</b>	300	300
<b>Total Number of Examinees</b>	128	101
<b>Raw Score Mean</b>	251.44	251.64
<b>Raw Score Standard Deviation</b>	26.13	17.63
<b>KR-20 Reliability Coefficient</b>	0.94	0.91
<b>Standard Error of Measurement</b>	6.40	5.29
<b>Raw Passing Score</b>	243	243
<b>Percent Passing Score</b>	81.00	81.00
<b>Decision Consistency (Livingston)</b>	0.93	0.88

**Table 2: Pass/Fail Frequency Distribution**

	<b>Form N</b>	<b>Form O</b>
<b>Pass</b>	93 (72.66%)	74 (73.27%)
<b>Fail</b>	35 (27.34%)	27 (26.73%)
<b>Total</b>	128 (100.00%)	101 (100.0%)



**Table 3: Frequency Distribution of Form N Raw Scores**

<b>Raw Score</b>	<b>Frequency</b>	<b>Cumulative Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
144	1	1	0.8	0.8
147	1	2	0.8	1.6
158	1	3	0.8	2.4
162	1	4	0.8	3.2
189	1	5	0.8	4
209	2	7	1.6	5.6
213	1	8	0.8	6.4
216	1	9	0.8	7.2
217	1	10	0.8	8
218	4	14	3	11
223	1	15	0.8	11.8
225	1	16	0.8	12.6
230	2	18	1.6	14.2
231	1	19	0.8	15
232	1	20	0.8	15.8
233	1	21	0.8	16.6
235	2	23	1.6	18.2
236	3	26	2.3	20.5
237	3	29	2.3	22.8
238	1	30	0.8	23.6
239	3	33	2.3	25.9
240	1	34	0.8	26.7
241	1	35	0.8	27.5
244	1	36	0.8	28.3
245	2	38	1.6	29.9
246	1	39	0.8	30.7
247	3	42	2.3	33
248	3	45	2.3	35.3
249	2	47	1.6	36.9
250	2	49	1.6	38.5
251	2	51	1.6	40.1
252	1	52	0.8	40.9
253	2	54	1.6	42.5
254	1	55	0.8	43.3
255	4	59	3	46.3
256	1	60	0.8	47.1
257	2	62	1.6	48.7
258	5	67	3.9	52.6
259	3	70	2.3	54.9
260	5	75	3.9	58.8
261	3	78	2.3	61.1
262	6	84	4.7	65.8

263	1	85	0.8	66.6
264	2	87	1.6	68.2
265	3	90	2.3	70.5
267	4	94	3	73.5
268	3	97	2.3	75.8
269	1	98	0.8	76.6
270	2	100	1.6	78.2
271	4	104	3	81.2
273	5	109	3.9	85.1
274	3	112	2.3	87.4
275	2	114	1.6	89
276	1	115	0.8	89.8
277	1	116	0.8	90.6
278	1	117	0.8	91.4
279	2	119	1.6	93
280	2	121	1.6	94.6
283	1	122	0.8	95.4
284	2	124	1.6	97
285	2	126	1.6	98.6
286	1	127	0.8	99.4
287	1	128	0.8	100

**Sample Size:** 128

**Minimum:** 144

**Mean:** 251.44

**Mode:** 262

**Standard Deviation:** 26.13

**Skewness:** -1.84038

**Maximum:** 287

**Median:** 258

**Kurtosis:** 4.779173

**Table 4: Frequency Distribution of Form O Raw Scores**

<b>Raw Score</b>	<b>Frequency</b>	<b>Cumulative Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
198	1	1	1	1
207	1	2	1	2
209	1	3	1	3
214	1	4	1	4
216	2	6	2	6
218	1	7	1	7
225	1	8	1	8
229	1	9	1	9
230	1	10	1	10
233	1	11	1	11
234	4	15	4	15
235	1	16	1	16
236	4	20	4	20
237	2	22	2	22
238	1	23	1	23
239	1	24	1	24
240	1	25	1	25
242	2	27	2	27
243	2	29	2	29
244	2	31	2	31
245	3	34	3	34
246	2	36	2	36
247	2	38	2	38
248	2	40	2	40
249	2	42	2	42
250	3	45	3	45
251	2	47	2	47
252	2	49	2	49
254	1	50	1	50
255	5	55	5	55
257	3	58	3	58
258	6	64	6	64
259	1	65	1	65
260	2	67	2	67
261	4	71	4	71
262	1	72	1	72
263	2	74	2	74
264	3	77	3	77

265	4	81	4	81
266	1	82	1	82
267	1	83	1	83
268	2	85	2	85
269	2	87	2	87
270	1	88	1	88
271	1	89	1	89
272	3	92	3	92
273	2	94	2	94
274	1	95	1	95
275	1	96	1	96
277	1	97	1	97
278	1	98	1	98
282	1	99	1	99
287	1	100	1	99
292	1	101	1	100

**Sample Size:** 101

**Minimum:** 198

**Mean:** 251.64

**Mode:** 258

**Standard Deviation:** 17.63

**Skewness:** -0.56475

**Maximum:** 292

**Median:** 255

**Kurtosis:** 0.484342

**Table 5: Test Statistics: Form N and Form O – Section 1**

<b>Statistic</b>	<b>Form N</b>	<b>Form O</b>
Number of Tests Graded	128	101
Number of Graded Items	15	15
Mean Score	12.45	12.33
Median Score	13	12
Standard Deviation	2.10	1.90
K-R 20 Reliability Coefficient	0.54	0.43

**Table 6: Test Statistics: Form N and Form O – Section 2**

<b>Statistic</b>	<b>Form N</b>	<b>Form O</b>
Number of Tests Graded	128	101
Number of Graded Items	15	15
Mean Score	12.68	12.99
Median Score	13	13
Standard Deviation	1.69	1.63
K-R 20 Reliability Coefficient	0.54	0.43

**Table 7: Test Statistics: Form N and Form O – Section 3**

<b>Statistic</b>	<b>Form N</b>	<b>Form O</b>
Number of Tests Graded	128	101
Number of Graded Items	30	30
Mean Score	24.85	24.88
Median Score	25	25
Standard Deviation	2.96	2.65
K-R 20 Reliability Coefficient	0.70	0.60

**Table 8: Test Statistics: Form N and Form O – Section 4**

<b>Statistic</b>	<b>Form N</b>	<b>Form O</b>
Number of Tests Graded	128	101
Number of Graded Items	74	74
Mean Score	62.37	62.08
Median Score	64	63
Standard Deviation	7.52	5.23
K-R 20 Reliability Coefficient	0.85	0.79

**Table 9: Test Statistics: Form N and Form O – Section 5**

<b>Statistic</b>	<b>Form N</b>	<b>Form O</b>
Number of Tests Graded	128	101
Number of Graded Items	105	105
Mean Score	88.02	88.57
Median Score	90	89
Standard Deviation	9.56	6.55
K-R 20 Reliability Coefficient	0.89	0.84

**Table 10: Test Statistics: Form N and Form O – Section 6**

<b>Statistic</b>	<b>Form N</b>	<b>Form O</b>
Number of Tests Graded	128	101
Number of Graded Items	46	46
Mean Score	39.27	38.88
Median Score	40	39
Standard Deviation	4.08	2.92
K-R 20 Reliability Coefficient	0.78	0.70

**Table 11: Test Statistics: Form N and Form O – Section 7**

<b>Statistic</b>	<b>Form N</b>	<b>Form O</b>
Number of Tests Graded	128	101
Number of Graded Items	15	15
Mean Score	11.80	11.91
Median Score	12	12
Standard Deviation	1.88	2.02

K-R 20 Reliability Coefficient	0.54	0.43
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### **SECTION III: SCALED SCORES**

The following conversion formula was used for determining the equivalent scaled scores for each raw score. The scaled scores are expressed over a range of 0 to 99, with 75 as passing.

Form N and Form O:

$$\text{Scaled Score} = .43859649 \times \text{Raw Score} - 31.578947$$

In the unlikely event of a scaled score below zero, it will be reported as zero.