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Report of Findings from the 2016 Medication Aide Job Analysis and Knowledge Study

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National Council of State Boards of Nursing, Inc. (NCSBN®)

Mission Statement

The National Council of State Boards of Nursing (NCSBN®) provides education, service and research through collaborative leadership to promote evidence-based regulatory excellence for patient safety and public protection.

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EXECUTIVE SUMMARY

Background of Study

The National Council of State Boards of Nursing (NCSBN®) is responsible for assisting its members, the boards of nursing in the U.S. and its member board territories, in the mission of public protection through safe nursing practice. Care provided by certified, entry-level medication aides/assistants (MAs) directly impacts client safety and influences the quality of care provided by licensed nurses. As nursing practice changes, activities performed by those who assist nurses may change, and consequently, the knowledge required to perform those activities may change as well. Job analysis provides a means of identifying the activities and the knowledge needed to carry them out.

Methodology

A number of steps are necessary to perform an analysis of the work performed by certified, entry-level MAs. A modified approach based on the principles of the Developing a Curriculum (DACUM) method of job analysis was implemented to analyze the MA position at the entry-level. The 2016 Medication Aide Job Analysis and Knowledge Study used several methods to describe the work of certified, entry-level MAs in the U.S.: (1) background information review, (2) subject matter expert (SME) and nurse content expert input in the development of activity statements and knowledge statements, and (3) verification of results via a final nurse content review.

In accordance with a modified DACUM approach, SMEs were incorporated throughout the job analysis process (Norton & Moser, 2008). Participants in the 2016 Medication Aide Job Analysis and Knowledge Study felt confident that the final lists of 81 activity statements and 151 knowledge statements resulting from this study are representative of the work performed by certified, entry-level MAs across their work settings.

Demographics, Experiences and Work Environments of Participants

A virtual panel of five registered nurses (RNs) assisted with the development of the activity statements and knowledge statements. The SMEs represented five unique jurisdictions, and consisted of experts who worked with and/or supervised the work of entry-level MAs and experts who educated entry-level MAs. Due to the entry-level nature of the position studied, SMEs possessing various expert backgrounds and degrees of experience were included in the process to further support the job analysis results and allow the study to focus on defining the work of MAs at the entry-level. Panelists represented various ethnic backgrounds and a range of practice settings.

Conclusions

The 2016 Medication Aide Job Analysis and Knowledge Study used several methods to describe the work performed by certified, entry-level MAs in the U.S. The implementation of a modified DACUM job analysis methodology allowed NCSBN to target the study to investigate the work of MAs at the entry-level. Based on this evidence, the findings of this study can be used to evaluate and support the MACE test plan.

Report of Findings from the 2016 Medication Aide Job Analysis and Knowledge Study

National Council of State Boards of Nursing, Inc. (NCSBN®)

BACKGROUND OF STUDY

The National Council of State Boards of Nursing (NCSBN®) is responsible to its members, the boards of nursing in the U.S. and its member board territories, for the preparation of psychometrically sound and legally defensible licensure and certification examinations. The periodic performance of job analysis studies assists NCSBN in evaluating the validity of the test plan that guides content distribution of the certification examination. Furthermore, job analysis studies have long been recognized by measurement and testing professions as important sources of validity evidence for licensure examinations (AERA, APA, & NCME, 2014). Because the U.S. health care industry is continuously changing, job analysis studies are traditionally conducted approximately every five years. The previous medication aide (MA) job analysis was conducted in 2011.

The secondary purpose of this study is to review the essential knowledge needed by certified, entry-level MAs. These knowledge statements will help test developers of the Medication Aide Certification Examination (MACE®) better understand the knowledge necessary to perform entry-level MA activities safely and effectively. It will also help item writers and reviewers with test development activities related to the MACE. However, the knowledge statements are not included in the MACE test plan. The previous MA knowledge study was conducted in 2011.

This combined job analysis and knowledge study is the latest in a series of studies of MA professionals performed by NCSBN. Results of this study can also be used to assist education programs with having a better understanding of the knowledge requirements relevant to safe and effective work of certified, entry-level MAs.

Methodology

A number of steps are necessary to perform an analysis of the work of certified, entry-level MAs. This section provides a description of the methodology used to conduct the 2016 Medication Aide Job Analysis and Knowledge Study. A modified approach based on the principles of the Developing a Curriculum (DACUM) method of job analysis was implemented to analyze the MA position at the entry-level. In accordance with a modified DACUM approach to job analysis, subject matter experts (SMEs) were incorporated throughout the job analysis process (Norton & Moser, 2008). Descriptions of communication, data collection, the SME panel process, and nurse expert content review and verification procedures are provided.

Communication and Data Collection

To initiate the data collection process and encourage participation in the job analysis and knowledge study, NCSBN distributed email communication to all 21 jurisdiction contacts listed in the Directory of Medication Aide Programs (NCSBN, 2016). The email communication was distributed to MA program directory contacts for both MACE client and non-client jurisdictions, which encouraged participation at the state level. The directory contacts were asked to forward the request on to facilities in their jurisdiction to increase individual facility involvement in the study and to encourage nurses who work with or teach MAs to submit a MACE volunteer application online.

In addition, NCSBN reviewed background information on entry-level MAs, including previous NCSBN MA job analysis and knowledge study reports, NCSBN's Medication Assistant-Certified (MA-C) Model Curriculum, previous research conducted by NCSBN on the MA role, recent trends affecting entry-level MAs and research literature collected through broad searches (Budden, 2011a; Budden, 2011b; NCSBN, 2012a; NCSBN, 2012b; NCSBN, 2007).

Initial Nurse Content Review

Following the review of information on the role of certified, entry-level MAs and recent trends in health care, an internal nurse expert performed an initial review of the content category structure and the 81 activity statements resulting from the *2011 Job Analysis of Medication Aides Employed in Nursing Homes/Long-term Care, Hospitals/Acute Care and Community/Home Health Care Settings* and subsequent test specifications process (NCSBN, 2012a). The primary goal of this review was to ensure the activity statements and category structure remain content valid, representative of

the current range of authorized duties for certified, entry-level MAs, and to provide a foundation for later steps in the job analysis and knowledge study process.

As part of the initial content review of the 81 activity statements, two statements were edited to correct spelling and grammatical errors. Another two statements underwent minor modifications generalizing the statements to apply to the work of entry-level MAs across all jurisdictions. The nurse expert also reviewed the content category structure by which the activity statements are organized, which serves as the MACE test plan.

The nurse expert recommended moving the sole activity statement previously associated with the Rights of Individuals subcategory of Area II to the Specific Legal and Ethical Issues subcategory in Area I, and then deleted the subcategory from Area II. In addition, the nurse edited the subcategory Role of the Medication Aide-Certified (MA-C) in Area I to list two subdivisions as examples because the activity statements were not separately linked to the subdivision level. The nurse expert deleted subcategory Forms of Medication from Area III because no activity statements were linked to the subcategory.

The nurse expert also reviewed the 155 knowledge statements from the *2011 Knowledge Survey of Medication Aides Employed in Nursing Homes/ Long-term Care, Hospitals/Acute Care and Community/Home Health Care Settings* (NCSBN, 2012b), and no changes were made.

Subject Matter Expert (SME) Panel

One panel of SMEs was assembled to assist with the study. Traditional DACUM methodology relies on a panel of expert workers to define job tasks (Norton & Moser, 2008). Differing from a traditional DACUM job analysis, SMEs in this study consisted of experts who worked with and/or supervised the work of entry-level MAs and experts who educated entry-level MAs. Due to the entry-level nature of the position studied and limitations of available SMEs, it was decided that the job analysis results would be strengthened by the participation of SMEs possessing various expert backgrounds and experience working with or educating certified, entry-level MAs, rather than attempting to identify specific "expert" certified, entry-level MAs out of a very limited and likely subjectively-defined population of such individuals.

A panel of five registered nurses (RNs) was assembled virtually to assist with the study. The panelists represented three of the four NCSBN geographic areas and a range of practice settings. Despite several attempts by NCSBN to involve SMEs from Area IV, none were available to attend the virtual panel. *See Appendix A for a description of SME background information.*

SME Panel Process

NCSBN convened the virtual SME panel on May 25, 2016, to perform several tasks crucial to the success of the job analysis study. SMEs connected to a webinar where they reviewed and discussed information as a group and provided feedback to a NCSBN facilitator via teleconference.

Prior to the panel, SMEs were asked to be familiar with job descriptions, orientation and training materials, performance evaluations, and educational materials from their work settings. Using this information, as well as their own expert knowledge of certified, entry-level MA work, the panel participated in a group discussion to identify the major components of entry-level MA work. SMEs then reviewed the category structure used to organize activities performed by certified, entry-level MAs that resulted from the previous job analysis and test specification process; SMEs were shown both the original version and the changes made by the nurse expert at the initial nurse content review. SMEs were careful to review the category structure to ensure that it was clear, understandable and logical. The SMEs supported all but one change to the category structure made during the initial nurse content review. Based on a group consensus process, the panel decided to keep the Rights of Individuals subcategory and its single linked activity statement intact from Area II.

Once the list of content area categories was confirmed by the panel, SMEs participated in a structured group discussion to identify trends and changes in entry-level MA work since the previous job analysis in 2011. Following the modified DACUM approach, SMEs brainstormed the major

duties performed by MAs as a group, and going one step further, identified and discussed any changes to the MA duties since the previous job analysis study was conducted (Norton & Moser, 2008). Following the discussion, SMEs were shown the list of activity statements from the previous job analysis study, including the minor changes made during the internal nurse content review (NCSBN, 2012a). The SMEs supported all changes to specific activity statements made during the nurse content review, with the exception of moving the statement linked to Rights of Individuals in Area II as previously discussed. SMEs conveyed that the activities performed by entry-level MAs are congruent with the existing list of activity statements; therefore, the existing activity statements containing the edits made by the nurse content review provided a foundation by which further changes could be considered.

The list of activity statements was grouped by content area to facilitate the review and discussion around major duty areas. SMEs were asked to identify any gaps in the list of activity statements and address their findings with the group. Each activity was reviewed for applicability to newly certified MA work and the relationship to the delivery of safe care to members of the public. Care was taken to construct or modify activity statements at approximately the same level of specificity and to avoid redundancy.

Although some minor inconsistencies in activities based in specific care settings and environments arose in the discussion, the SMEs decided not to edit the associated activity statements because the inconsistencies identified were largely based on processes specific to individual facilities. Out of the 81 activity statements resulting from the previous job analysis study and nurse content review, only one activity statement was revised at the SME panel to ensure that it applied to work performed by MAs at the entry-level across all jurisdictions.

The SMEs felt confident that the activity statements provided an accurate representation of the activities performed by certified, entry-level MAs. SMEs finalized the list of activity statements, resulting in a total of 81 statements following the panel.

SMEs also reviewed the list of 155 knowledge statements from the previous knowledge survey (NCSBN, 2012b). The SMEs deleted four knowledge statements to eliminate redundancies, and edited three statements for clarity and spelling errors, resulting in a total of 151 knowledge statements following the panel.

Final Nurse Content Review

Verification methodology for a DACUM job analysis varies widely, and inherently increases when a modified DACUM approach is used. Although the DACUM methodology associated with Holland College does not support the need to verify job analysis results using the DACUM method, NCSBN established that the verification of results was essential due to the modified nature of the approach used (Norton & Moser, 2008).

In the final phase of the study, all proposed changes to activity statements were again reviewed by an internal nurse expert to ensure that all content was valid and representative of the current range of authorized duties for certified, entry-level MAs. Following this nurse content review, the list of 81 activity statements was finalized. *See Appendix B for the final list of activity statements resulting from the study.*

The nurse expert also reviewed and approved all changes to the knowledge statements made by the panel of SMEs. Following this review, the list of 151 knowledge statements was finalized. *See Appendix C for the final list of knowledge statements.*

Summary

Participants in the 2016 Job Analysis and Knowledge Study of MAs felt confident that the activity statements are representative of the work performed by certified, entry-level MAs in their work settings. By using a modified DACUM job analysis methodology, NCSBN was able to analyze the MA position at the entry-level. The minor modifications made to the activity statements that resulted from the previous job analysis study and the parallel nature of the 2016 activity statements support the validity of the results, and further support the job analysis information compiled on the certified, entry-level MA position.

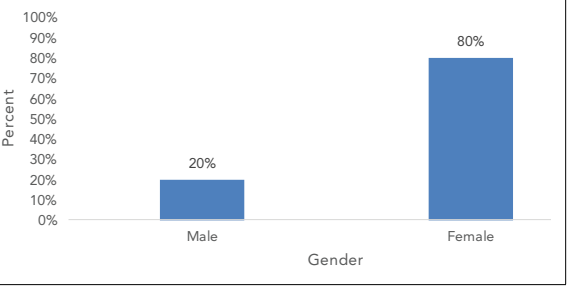
DEMOGRAPHICS, EXPERIENCES AND WORK ENVIRONMENTS OF PARTICIPANTS

The demographic information for the virtual job analysis and knowledge study SME panel, including gender, racial and ethnic background, is presented, followed by jurisdiction representation, education and current practice setting.

Gender of SME Panel Members

At the SME panel, 80% of participants reported being female whereas the remaining 20% reported being male. *See Figure 1.*

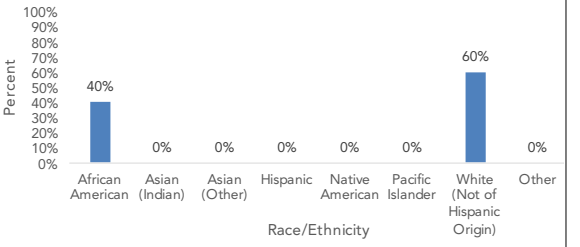
Figure 1. Gender of SME Panel Members



Race/Ethnicity of SME Panel Members

Panelists reported their race/ethnicity as follows: 60% White (not of Hispanic Origin), and 40% African American. *See Figure 2.*

Figure 2. Race/Ethnicity of SME Panel Members



SME Panel Member Representation by Jurisdiction

Each of the SMEs represented a unique jurisdiction as shown in *Table 1.*

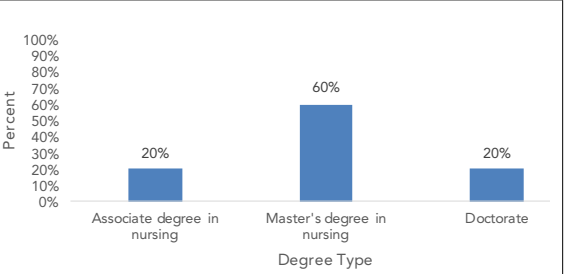
Highest Level of Education Completed by SME Panel Members

Table 1. SME Panel Member Representation by Jurisdiction

Jurisdiction	Percent
IA	20
KY	20
NC	20
VA	20
WY	20

The majority of SMEs had completed a master's degree in nursing (60%), while 20% held an associate degree in nursing and the remaining 20% had completed a doctorate. *See Figure 3.*

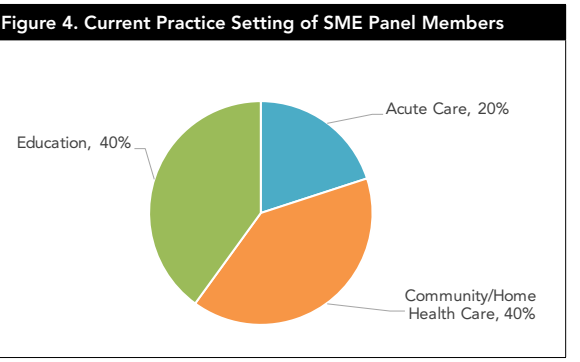
Figure 3. Highest Level of Education Completed by SME Panel Members



Current Practice Setting of SME Panel Members

SMEs represented a range of practice settings, including acute care (20%), community/home health care (40%), and education (40%). *See Figure 4.*

Figure 4. Current Practice Setting of SME Panel Members



Summary of Demographics, Experiences and Work Environments of Participants

Overall, five SMEs participated in the virtual job analysis and knowledge study of certified, entry-level MAs. All SMEs held an active, unencumbered RN license. The SMEs had worked in their current position an average of 18.2 years overall, and represented five unique jurisdictions and a range of practice settings.

CONCLUSION

The 2016 Medication Aide Job Analysis and Knowledge Study used several methods to describe the work of certified, entry-level MAs in the U.S.: (1) background information review, (2) expert input of SMEs and a nurse content expert in the development of activity statements and knowledge statements, and (3) verification of results via a final nurse content review. The implementation of a modified DACUM job analysis methodology allowed NCSBN to target the study to investigate the work of MAs at the entry-level. Based on the evidence reported here and the expert opinion garnered through previous phases of this study, the range of authorized duties for MAs is comparable to the activities previously performed by MAs and the findings of this study can be used to evaluate and support the MACE test plan.

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APPENDIX A: SME PANEL MEMBER DESCRIPTIONS

SME Panel Member Descriptions by NCSBN Area
Area I ▪ One SME with 41 years of nursing experience participated from Wyoming. She currently works at a hospital as a Professional Development Supervisor. She is an RN who holds a master's degree in nursing education, and has many years of experience both teaching entry-level MAs and supervising entry-level MAs in the clinical setting.
Area II ▪ One SME from Iowa works as an Assistant Program Manager at a community college. He has been in his current position for 22 years, and has experience educating entry-level MAs. He is an RN who graduated from an associate degree in nursing program and has worked in the field of nursing for approximately 29 years.
Area III ▪ One SME participated from Virginia who has worked for a community health organization as a Nurse Trainer for the last 15 years. She is involved in the administration and implementation of MA training programs at her organization, educates entry-level MAs, and developed an orientation and mentoring process for other MA educators. She holds a doctorate degree in nursing and has worked in the field of nursing for over 17 years. ▪ The SME from Kentucky has worked as a Professor at a community/technical college for the past 13 years, although she has worked in nursing for approximately 18 years overall. She is an RN who holds a master's degree in nursing education, and she is responsible for the MA training program at her institution, including the development and delivery of course materials, instruction in the lab, and supervising entry-level MAs in the clinical setting. ▪ The SME from North Carolina has worked alongside and oriented entry-level MAs in her role as an On-site Agency Supervisor for the last three years. She holds a master's degree, and she is an RN and a family nurse practitioner with over four years of experience in the field of nursing.
Area IV ▪ Area IV was not represented on the panel despite several attempts by NCSBN to involve SMEs from Area IV.

APPENDIX B: 2016 MA ACTIVITY STATEMENTS

2016 MA Activity Statements	
#	**Activity Statement**
1	Communicate information effectively to client, family, guardian or health care team
2	Withhold medication as directed
3	Recognize limitations within range of authorized duties
4	Seek guidance when performing an unfamiliar task
5	Reinforce client teaching
6	Serve as an advocate for the client
7	Encourage clients to participate in their own health care choices (self-advocacy)
8	Perform within the range of authorized job duties
9	Provide culturally sensitive care
10	Observe and report any change in the client's condition
11	Use effective time management skills
12	Report client's adverse reaction to medication
13	Complete incident/accident report
14	Maintain client confidentiality (e.g., HIPAA, FERPA)
15	Identify ethical issues affecting staff or client
16	Maintain security of controlled substances
17	Count controlled medication
18	Report client abuse, neglect and exploitation
19	Report unsafe practice by a health care worker (e.g., improper use of gloves, substance abuse, medication theft)
20	Report violation of client rights
21	Reference policies/procedures for prevention of incidents and accidents
22	Reference resources for medication information (e.g., drug book, pharmacist, nurse, information technology)
23	Review medication record for changes
24	Review medication orders for completeness (e.g., dose, time, route, frequency, name of medication)
25	Administer non-routine medication (e.g., stat, one-time, PRN)
26	Document client information as required for medication administration (e.g., vital signs, weight)
27	Document medication administration
28	Document medication errors
29	Maintain security of medication
30	Date medication when first used (e.g., ear drops, eye drops)
31	Monitor the supply of medication
32	Store medication correctly
33	Dispose of unused or expired medication
34	Perform appropriate medication checks before administration
35	Identify expiration date prior to administration of medication
36	Verify client identity prior to medication administration
37	Maintain clean technique when administering medication
38	Maintain a clean work environment
39	Maintain equipment for medication administration
40	Follow infection control policy and procedures

2016 MA Activity Statements	
#	**Activity Statement**
41	Administer medication prepared by self, not others
42	Verify that oral medication is swallowed
43	Initiate emergency care for a client who is choking
44	Follow the "Rights" of medication administration
45	Assist client with self-administration of medication
46	Position a client for medication administration
47	Prepare medication for administration per order (e.g., crushing, mix with food or water)
48	Follow medication directions and warning labels
49	Administer buccal medication
50	Administer ear medication
51	Administer eye medication
52	Administer metered dose inhaler
53	Administer nasal medication
54	Administer pre-measured nebulized medication
55	Administer oral medication
56	Administer rectal medication
57	Administer sublingual medication
58	Administer topical medication
59	Administer transdermal medication (e.g., patch)
60	Administer vaginal medication
61	Identify factors that may alter how medication affects the body (e.g., diet, disease, gender, psychological)
62	Identify the classifications of medication
63	Maintain client rights (e.g., privacy, confidentiality, treatment)
64	Monitor and report medication administration safety hazards
65	Report medication errors
66	Observe and report adverse reactions and/or side effects of medication
67	Observe and report client findings (e.g., high or low blood sugar, blood pressure)
68	Give and receive report (e.g., communication log, shift report)
69	Notify appropriate personnel of change in client's condition
70	Observe and report response to medication
71	Interpret symbols, common abbreviations, and terminology used in medication administration
72	Recognize medication dosage outside of the normal range
73	Identify purpose of medication
74	Recognize expected response to medication
75	Identify signs and/or symptoms of medication side effects
76	Recognize precautions for medication administration
77	Recognize contraindications for medication administration
78	Identify client allergies (e.g., medication, food, chemicals)
79	Identify sources of medication interactions (e.g., medication, food)
80	Measure medication for administration
81	Measure client vital signs (e.g., temperature, pulse, respiration, and blood pressure)

APPENDIX C: 2016 MA KNOWLEDGE STATEMENTS

2016 MA Knowledge Statements	
#	**Knowledge Statement**
1	"Rights" of medication administration
2	Abdominal thrust technique
3	Adverse reactions to medications
4	Approved medical abbreviations and symbols
5	Assisting client with reading and understanding labels
6	Assisting client with self-administration of medication
7	Authorized duties
8	Barriers to communication
9	Baseline client health status/condition
10	Basic medical terminology
11	Buccal administration
12	Change in client health status/condition
13	Clean technique
14	Client allergies
15	Client identification methods
16	Client medication schedule
17	Client positioning for medication administration
18	Client rights
19	Client teaching
20	Client's right to self-administer medications
21	Client-specific instructions
22	Communicating information to healthcare team
23	Complete medication orders
24	Conditions making medications dangerous to use
25	Confidentiality
26	Controlled substances and medications
27	Controlled substance counts
28	Controlled versus non controlled medication
29	Cultural and religious sensitivity and awareness
30	Dating medications
31	Disinfection process
32	Documentation of medication administration
33	Documentation of response to medication
34	Documentation requirements
35	Documenting the effectiveness of medication
36	Ear administration
37	Effective communication (e.g., verbal and non-verbal)
38	Effective communication techniques and resources
39	Effectiveness of medication
40	Effects of medication interactions
41	Efficient medication administration practices

2016 MA Knowledge Statements	
#	**Knowledge Statement**
42	Expected response to medication
43	Expiration date location
44	Expiration dates of medications
45	Eye administration
46	Factors that affect medication utilization in the body
47	FERPA
48	Giving report
49	Herbal supplements
50	HIPAA
51	How to respond to signs and symptoms of high blood sugar
52	How to respond to signs and symptoms of low blood sugar
53	Incident/accident reports
54	Incidents/accidents
55	Infection control
56	Initiating emergency care procedures for a choking client
57	Medical terminology
58	Medication administration
59	Medication administration documentation
60	Medication administration equipment and supplies
61	Medication administration measurements
62	Medication administration rights
63	Medication administration safety and hazards
64	Medication brand/generic names
65	Medication changes on medication record
66	Medication classifications
67	Medication contraindications
68	Medication directions
69	Medication disposal documentation
70	Medication disposal procedures
71	Medication error
72	Medication error documentation
73	Medication error reporting
74	Medication measurement devices
75	Medication orders
76	Medication preparation techniques
77	Medication purpose
78	Medication records
79	Medication related symptoms that require monitoring of signs
80	Medication restocking
81	Medication security
82	Medication side effects
83	Medication storage
84	Medication storage requirements

2016 MA Knowledge Statements	
#	**Knowledge Statement**
85	Medication warning labels
86	Medications that require measurements prior to administration
87	Metered dose inhaler
88	Nasal administration
89	Nebulized administration
90	Non-routine medication administration
91	Normal blood sugar ranges
92	Normal medication dosages
93	Normal versus abnormal values
94	Normal vital sign ranges
95	Oral medication administration techniques
96	Organizing medication administration to multiple clients
97	Own limitations and when to seek assistance
98	Oxygen administration equipment and supplies
99	Oxygen administration safety considerations
100	Policies and procedures
101	Prescription/Over The Counter (OTC)
102	Prioritizing care
103	Procedure to implement the "Rights" of medication administration
104	Procedures to follow when an incident/accident occurs
105	Procedures to follow when client receives wrong medication
106	Procedures to follow when client refuses to take medication
107	Procedures to follow when client's medication is not administered
108	Procedures to follow when client's medication is not available
109	Procedures used for medication refills, new orders and changes
110	Procedures used when medication is discontinued
111	Professional ethics
112	Proper techniques for disposal of syringes
113	Purpose of the medication
114	Receiving report
115	Rectal administration
116	Reporting information to nurse
117	Reporting procedures
118	Reporting requirements and process
119	Requirements for medication labels
120	Resource information for medication (e.g., drug book)
121	Roles and responsibilities of healthcare team
122	Safe practice
123	Scope of practice
124	Setting professional boundaries
125	Side effects of medications
126	Signs and/or symptoms of high blood sugar
127	Signs and/or symptoms of low blood sugar

2016 MA Knowledge Statements	
#	**Knowledge Statement**
128	Special administration instructions
129	Special documentation instructions
130	Special medication instructions
131	Sublingual administration
132	Team building
133	Techniques to verify medication is swallowed
134	Three separate medication administration safety checks
135	Time management skills
136	Timeliness of medication record review
137	Topical administration
138	Transdermal administration
139	Transdermal medication safety considerations
140	Types of client abuse
141	Types of client exploitation
142	Types of client neglect
143	Types of medication errors
144	Types of medication interactions
145	Use of medication records and other forms
146	Vaginal administration
147	Various medication forms
148	Vital sign equipment and use
149	Vital signs
150	Wasteful care practices (e.g., overuse of products)
151	When not to administer medications

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