



Saudi Respiratory Care Licensure Examination (SRCLE) Examination Content Guideline



Note: Read this guide before submitting an application to test. At the time of application, you will be required to acknowledge that you have read and understood this guide and the policies and procedures contained within.

Examination Model

General Rules

What are Licensure Examinations?

Licensure Examinations are assessments to ensure that the public will not be harmed by the incompetence of healthcare practitioners. Licensure Examinations assess the ability to apply knowledge, concepts, and principles that constitute the basis of safe and effective health care.

What is Saudi Respiratory Care Licensure Examination (SRCLE)?

The SRCLE is an exam that assesses the readiness of a Respiratory Care Specialists to practice and/or proceed to postgraduate training. It consists of 200 questions and may include up to 10% pilot questions. The exam consists of two parts, each containing 100 questions, with a time allocation of 120 minutes for each part. Also, it includes a scheduled 30-minute break between the two parts. These questions have four to five options from which the candidate will choose one best answer.

The exam contains two types of questions. First, recall questions that test knowledge. Second, scenario-based questions that test other skills (interpretation, analysis, decision-making, reasoning, and problem-solving).

How is the SRCLE pass score established?

In December 2020, the SCFHS conducted a rigorous standard setting exercise with a diverse panel. Following the standard setting exercise, the panel recommended a pass score of 542 on the reporting scale of 200-800. This pass score was reviewed and approved by the CAC.


What is a test blueprint, and what is its purpose?

A test blueprint is a document that reflects the content of the specialty licensure examination and is the plan used for "building" the exam. The blueprint aims to ensure that the included questions relate to the main areas in the specialty in which the candidates are expected to be known.



Saudi Respiratory Care Licensure Examination Blueprint

Section	Percentage (%)	Competency
Patient Data	30	Evaluate Data in the Patient Record
		Perform Clinical Assessment
		Perform Procedures to Gather Clinical Information
		Evaluate Procedure Results
		Recommend Diagnostic Procedures
Troubleshooting, Quality Control of Devices, and Infection Control	20	Assemble / Troubleshoot Devices
		Ensure Infection Prevention
		Perform Quality Control Procedures
Initiation and Modification of Interventions	50	Maintain a Patent Airway Including the Care of Artificial Airways
		Perform Airway Clearance and Lung Expansion Techniques
		Support Oxygenation and Ventilation
		Administer Medications and Specialty Gases
		Ensure Modifications are Made to the Respiratory Care Plan
		Utilize Evidence Based Practice
		Provide Respiratory Care in High-Risk Situations
		Assist a Physician / Provider in Performing Procedures
		Conduct Patient and Family Education

 **Note:** Blueprint distributions of the examination may differ up to +/-5% in each level.



Detailed Content Outline:

Multiple-Choice Examination Detailed Content Outline	Cognitive Level		
	Recall	Application	Analysis
I. PATIENT DATA 30%			
A. Evaluate Data in the Patient Record			
Patient history, for example, history of present illness (HPI) orders medication reconciliation progress notes DNR status / advance directives social, family, and medical history			
2. Physical examination relative to the cardiopulmonary system			
Lines, drains, and airways, for example, chest tube vascular lines artificial airway			
Laboratory results, for example, CBC electrolytes coagulation studies sputum culture and sensitivities cardiac biomarkers			
5. Blood gas analysis and / or hemoximetry (CO-oximetry) results			
Pulmonary function testing results, for example spirometry lung volumes DLCO			
7. 6minute walk test results			
Imaging study results, for example, chest radiograph CT scan ultrasonography and / or echocardiography			



<ul style="list-style-type: none"> • PET scan • ventilation / perfusion scan 			
9. Maternal and perinatal / neonatal history, for example, <ul style="list-style-type: none"> • APGAR scores • gestational age • L / S ratio 			
10. Sleep study results, for example, <ul style="list-style-type: none"> • apnea-hypopnea index (AHI) 			
11. Trends in monitoring results			
a. fluid balance			
b. vital signs			
c. intracranial pressure			
d. ventilator liberation parameters			
e. pulmonary mechanics			
f. noninvasive, for example, <ul style="list-style-type: none"> • pulse oximetry • capnography • transcutaneous 			
g. cardiac evaluation / monitoring results, for example, <ul style="list-style-type: none"> • ECG • hemodynamic parameters 			
12. Determination of a patient's pathophysiological state			
B. Perform Clinical Assessment			
1. Interviewing a patient to assess			
a. level of consciousness and orientation, emotional state, and ability to cooperate			
b. level of pain			
c. shortness of breath, sputum production, and exercise tolerance			
d. smoking history			
e. environmental exposures			
f. activities of daily living			



g. learning needs, for example, <ul style="list-style-type: none"> • Literacy • preferred learning style • social / cultural 			
2. Performing inspection to assess			
a. general appearance			
b. characteristics of the airway, for example, <ul style="list-style-type: none"> • patency • Mallampati classification • tracheal shift 			
c. cough, sputum amount and character			
d. status of a neonate, for example, <ul style="list-style-type: none"> • APGAR score • gestational age 			
e. skin integrity, for example, <ul style="list-style-type: none"> • pressure ulcers • stoma site 			
3. Palpating to assess			
a. pulse, rhythm, intensity			
b. accessory muscle activity			
c. asymmetrical chest movements, tactile fremitus, crepitus, tenderness, tactile rhonchi, and / or tracheal deviation			
4. Performing diagnostic chest percussion			
5. Auscultating to assess			
a. breath sounds			
b. heart sounds and rhythm			
c. blood pressure			
6. Reviewing a chest radiograph to assess			
a. quality of imaging, for example, <ul style="list-style-type: none"> • patient positioning • penetration • lung inflation 			
b. presence and position of airways, lines, and drains			
c. presence of foreign bodies			
d. heart size and position			
e. presence of, or change in,			



i. cardiopulmonary abnormalities, for example, <ul style="list-style-type: none"> • pneumothorax • consolidation • pleural effusion • pulmonary edema • pulmonary artery size 			
ii. diaphragm, mediastinum, and / or trachea			
C. Perform Procedures to Gather Clinical Information			
1. 12 lead ECG			
2. Noninvasive monitoring, for example, <ul style="list-style-type: none"> • pulse oximetry • capnography • transcutaneous 			
3. Peak flow			
4. Mechanics of spontaneous ventilation linked to tidal volume, minute volume, maximal inspiratory pressure, and vital capacity			
5. Blood gas sample collection			
6. Blood gas analysis and / or hemoximetry (CO-oximetry)			
7. Oxygen titration with exercise			
8. Cardiopulmonary calculations, for example, <ul style="list-style-type: none"> • $P(Aa)O_2$ • VD / VT • P / F • OI 			
9. Hemodynamic monitoring			
10. Pulmonary compliance and airways resistance			
11. Plateau pressure			
12. AutoPEEP determination			
13. Spontaneous breathing trial (SBT)			
14. Apnea monitoring			
15. Apnea test (brain death determination)			
16. Overnight pulse oximetry			



17. CPAP / NPPV titration during sleep			
18. Cuff management, for example, <ul style="list-style-type: none"> • tracheal • laryngeal 			
19. Sputum induction			
20. Cardiopulmonary stress testing			
21. 6-minute walk test			
22. Spirometry outside or inside a pulmonary function laboratory			
23. DLCO inside a pulmonary function laboratory			
24. Lung volumes inside a pulmonary function laboratory			
25. Tests of respiratory muscle strength - MIP and MEP			
26. Therapeutic bronchoscopy			
D. Evaluate Procedure Results			
1. 12lead ECG			
2. Noninvasive monitoring, for example, <ul style="list-style-type: none"> • pulse oximetry • capnography • transcutaneous 			
3. Peak flow			
4. Mechanics of spontaneous ventilation linked to tidal volume, minute volume, maximal inspiratory pressure, and vital capacity			
5. Blood gas analysis and / or hemoximetry (CO-oximetry)			
6. Oxygen titration with exercise			
7. Cardiopulmonary calculations, for example, <ul style="list-style-type: none"> • P(Aa)O₂ • V_D / V_T • P / F • OI 			
8. Hemodynamic monitoring			
9. Pulmonary compliance and airways resistance			
10. Plateau pressure			
11. AutoPEEP			
12. Spontaneous breathing trial (SBT)			

13. Apnea monitoring			
14. Apnea test (brain death determination)			
15. Overnight pulse oximetry			
16. CPAP / NPPV titration during sleep			
17. Cuff status, for example, <ul style="list-style-type: none"> • laryngeal • tracheal 			
18. Cardiopulmonary stress testing			
19. 6-minute walk test			
20. Spirometry outside or inside a pulmonary function laboratory			
21. DLCO inside a pulmonary function laboratory			
22. Lung volumes inside a pulmonary function laboratory			
23. Tests of respiratory muscle strength - MIP and MEP			
E. Recommend Diagnostic Procedures			
1. Testing for tuberculosis			
2. Laboratory tests, for example, <ul style="list-style-type: none"> • CBC • electrolytes • coagulation studies • sputum culture and sensitivities • cardiac biomarkers 			
3. Imaging studies			
4. Bronchoscopy			
a. diagnostic			
b. therapeutic			
5. Bronchoalveolar lavage (BAL)			
6. Pulmonary function testing			
7. Noninvasive monitoring, for example, <ul style="list-style-type: none"> • pulse oximetry • capnography • transcutaneous 			
8. Blood gas and/or hemoximetry (CO-oximetry)			
9. ECG			
10. Exhaled gas analysis, for example, <ul style="list-style-type: none"> • CO₂ 			



<ul style="list-style-type: none"> • CO • FENO 			
11. Hemodynamic monitoring			
12. Sleep studies			
13. Thoracentesis			

II. TROUBLESHOOTING AND QUALITY CONTROL OF DEVICES, AND INFECTION CONTROL 20%			
A. Assemble / Troubleshoot Devices			
1. Medical gas delivery interfaces, for example, <ul style="list-style-type: none"> • mask • cannula • heated high-flow nasal cannula • alarms 			
2. Long-term oxygen therapy			
3. Medical gas delivery, metering, and /or clinical analyzing devices, for example, <ul style="list-style-type: none"> • concentrator • liquid system • flowmeter • regulator • gas cylinder • blender • air compressor • gas analyzers 			
4. CPAP / NPPV with patient interfaces			
5. Humidifiers			
6. Nebulizers			
7. Metered-dose inhalers, spacers, and valved holding chambers			
8. Dry-powder inhalers (DPI)			
9. Resuscitation equipment, for example, <ul style="list-style-type: none"> •self-inflating resuscitator •flow-inflating resuscitator •AED 			
10. Mechanical ventilators			
11. Intubation equipment			
12. Artificial airways			



13. Suctioning equipment, for example, <ul style="list-style-type: none"> • regulator • canister • tubing • catheter 			
14. Blood analyzers, for example, <ul style="list-style-type: none"> • hemoximetry (CO-oximetry) • pointofcare • blood gas 			
15. Patient breathing circuits			
16. Hyperinflation devices			
17. Secretion clearance devices			
18. Heliox delivery device			
19. Nitric Oxide Delivery Devices/Analysis			
20. Polysomnography Equipment			
21. Portable spirometer			
22. Testing equipment in a pulmonary function laboratory			
23. Pleural drainage			
24. Noninvasive monitoring, for example, <ul style="list-style-type: none"> • pulse oximeter • capnometer • transcutaneous 			
25. Bronchoscopes and light sources			
26. Hemodynamic monitoring			
a. pressure transducers b. catheters, for example, <ul style="list-style-type: none"> • arterial • pulmonary artery 			
B. Ensure Infection Prevention			
1. Adhering to infection prevention policies and procedures, for example, <ul style="list-style-type: none"> • Standard Precautions • donning/doffing • isolation 			
2. Adhering to disinfection policies and procedures			
3. Proper handling of biohazardous materials			



C. Perform Quality Control Procedures			
1. Blood analyzers			
2. Gas analyzers			
3. Pulmonary function equipment for testing			
a. spirometry results			
b. lung volumes			
c. diffusing capacity (DLCO)			
4. Mechanical ventilators			
5. Noninvasive monitors			
6. CPAP/BiPAP Devices			

III. INITIATION AND MODIFICATION OF INTERVENTIONS 50%			
A. Maintain a Patent Airway Including the Care of Artificial Airways			
1. Proper positioning of a patient			
2. Recognition of a difficult airway			
3. Establishing and managing a patient's airway			
a. nasopharyngeal airway			
b. oropharyngeal airway			
c. esophagealtracheal tubes / supraglottic airways			
d. endotracheal tube			
e. tracheostomy tube			
f. laryngectomy tube			
g. speaking valves			
h. devices that assist with intubation, for example, • endotracheal tube exchanger • video laryngoscopy			
4. Performing tracheostomy care			
5. Exchanging artificial airways			



6. Maintaining adequate humidification			
7. Performing extubation			
B. Perform Airway Clearance and Lung Expansion Techniques			
1. Postural drainage, percussion, or vibration			
2. Airway clearance, for example, <ul style="list-style-type: none"> • nasotracheal • oropharyngeal • Bronchial 			
3. Mechanical devices, for example, <ul style="list-style-type: none"> • highfrequency chest wall oscillation • vibratory PEP • intrapulmonary percussive ventilation • insufflation / exsufflation 			
4. Assisted cough, for example, <ul style="list-style-type: none"> • huff • diaphragmatic breathing 			
5. Hyperinflation therapy			
6. Inspiratory muscle training			
C. Support Ventilation and Oxygenation			
1. Initiating and adjusting oxygen therapy			
2. Minimizing hypercapnia/hypoxemia, for example: <ul style="list-style-type: none"> • patient positioning • secretion removal • manual ventilation 			
3. Initiating and adjusting mask or nasal CPAP			
4. Initiating and adjusting mechanical ventilation settings <ul style="list-style-type: none"> a. noninvasive ventilation b. invasive ventilation 			
5. Recognizing and correcting patient-ventilator dyssynchrony			
6. Utilizing ventilator graphics			
7. Performing lung recruitment maneuvers			



8. Liberating a patient from mechanical ventilation			
D. Administer Medications and Specialty Gases			
1. Aerosolized preparations			
a. bronchodilators			
b. mucolytics / proteolytics			
c. steroids			
d. antimicrobials			
e. pulmonary vasodilators			
f. upper airway vasoconstrictors			
2. Endotracheal instillation for example, surfactant/BAL			
3. Specialty gases, for example, <ul style="list-style-type: none"> • heliox • inhaled NO 			
E. Ensure Modifications are Made to the Respiratory Care Plan			
1. Treatment discontinuation, for example, <ul style="list-style-type: none"> • life-threatening adverse event • Hemodynamic instability • Respiratory deterioration 			
2. Recommendations			
a. Starting/discontinuing treatment based on patient condition/response			
b. insertion or change of artificial airway			
c. liberating from mechanical ventilation			
d. extubation			
e. treatment of pneumothorax			
f. adjustment of fluid balance			
g. adjustment of electrolyte therapy			
h. consultation from a physician specialist			
3. Recommendations for changes			



a. patient position			
b. oxygen/ventilation therapy			
c. humidification			
d. airway clearance			
e. hyperinflation			
f. mechanical ventilation			
4. Recommendations for pharmacologic interventions			
a. bronchodilators			
b. anti-inflammatory drugs			
c. mucolytics and proteolytics			
d. aerosolized antibiotics			
e. inhaled pulmonary vasodilators			
f. cardiovascular			
g. antimicrobials			
h. sedatives and hypnotics			
i. analgesics			
j. narcotic antagonists			
k. benzodiazepine antagonists			
l. neuromuscular blocking agents			
m. diuretics			
n. surfactants			
o. upper airway vasoconstriction			
p. changes to drug, dosage, administration frequency, mode, or concentration			
F. Ethical issues and Evidence Based Practice			
1. Classification of disease severity			
2. Recommendations for changes in a therapeutic plan when indicated			



3. Application of guidelines, for example, <ul style="list-style-type: none"> • ARDSNet • NAEPP/SINAGOLD • ATS/ERS • AARC 			
4. Ethical issues Common Ethical principles, for example, <ul style="list-style-type: none"> • Patients Autonomy • Patient Confidentiality • Role duty 			
G. Provide Respiratory Care in High-Risk Situations			
1. Emergency			
a. cardiopulmonary emergencies, excluding CPR			
b. disaster management			
c. medical emergency team (MET) / rapid response team			
2. Interprofessional communication			
3. Patient transport			
a. land / air between hospitals			
b. within a hospital			
H. Assist a Physician / Provider in Performing Procedures			
1. Intubation			
2. Bronchoscopy			
3. Specialized bronchoscopy, for example, <ul style="list-style-type: none"> • endobronchial ultrasound (EBUS) • navigational bronchoscopy (ENB) 			
4. Thoracentesis			
5. Tracheotomy			
6. Chest tube insertion			
7. Insertion of arterial or venous catheters			
8. Moderate (conscious) sedation			
9. Cardioversion			
10. ECMO			
11. Withdrawal of life support			



I. Conduct Patient and Family Education			
1. Safety and infection control			
2. Home care and related equipment			
3. Lifestyle changes, for example, <ul style="list-style-type: none"> • smoking cessation • exercise 			
4. Pulmonary rehabilitation			
5. Disease / condition management, for example, <ul style="list-style-type: none"> • asthma • COPD • CF • tracheostomy care • ventilator dependent 			
Total			

Additional Specification			
Patient Type	Target	Minimum	Maximum
Pediatric – 1 month to 13 years of age	4	3	8
Neonatal – birth to 1 month of age	3	2	5
Adult or General	balance		
Total	200		



Patient Conditions:

General

COPD

Asthma

Heart failure

Post-surgical

Geriatric

Cardiovascular

Infectious disease

Pulmonary vascular disease

Trauma

Immunocompromised host

Neurologic

RDS

Pediatric

Disorders of prematurity

Pulmonary embolism

Shock

Bariatric

Neonatal

Bronchiolitis

Neuromuscular

Psychiatric

Congenital defects

Cystic fibrosis

Burn/inhalation injury

Lung transplantation

APNEA

Interstitial lung disease

Drug overdose

Traumatic brain injury (TBI)

SEPSIS

Lung cancer



Appendix C: References

- Mosby's Respiratory Care Equipment, 10th Edition, by J. M. Cairo.
- Equipment for Respiratory Care, 2016, by Teresa A. Volsko, Robert L. Chatburn, Mohamad F. El-Khatib.
- Equipment Theory for Respiratory Care, 5th Edition by Gary White
- Egan's Fundamentals of Respiratory Care 11th Edition.
- Wilkins' Clinical Assessment in Respiratory Care 8th Edition.
- Cairo J. M.: Mosby's Respiratory Care Equipment. latest edition. By Mosby.
- Clinical manifestations and assessment of respiratory disease (latest edition) Jardins, T., & Burton, G. Maryland Heights, Mo.: Mosby/Elsevier.
- G. Ruppel, Manual of Pulmonary Function Testing, Latest Edition, Mosby.
- Cairo J. M.: Mosby's Respiratory Care Equipment. Latest edition. By Mosby.
- White, G. Basic Clinical Lab Competencies for Respiratory Care: An Integrated Approach (latest edition). Delmar
- Brian Walsh. Neonatal and Pediatric Respiratory Care. latest Edition; Saunders
- Fundamentals of Sleep Technology, latest edition, Teofilo L Lee, Cynthia Mattice & Rita Brooks
- Egan's Fundamentals of Respiratory Care, 12th Edition, by Robert M, Kacmarek, James K, Stoller, & Al Heuer (This edition will be released on 01-03-2020)
- Pilbeam's Mechanical Ventilation: Physiological and Clinical Applications, 7th Edition, by J. Cairo
- Rau's Respiratory Care Pharmacology, 10th Edition, by Douglas S. Gardenhire
- Clinical Application of Mechanical Ventilation 4th Edition, David W. Chang
- Integrated Cardiopulmonary Pharmacology, 5th Edition by Bruce Colbert, Luis Gonzalez
- Respiratory Care Calculations 4th Edition by Chang, David W.



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