

الهيئة السعودية للتخصصات الصحية
Saudi Commission for Health Specialties



Saudi Respiratory Care Licensure Examination (SRCLE)

EXAMINATION CONTENT GUIDELINE



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. It assesses the ability to apply knowledge, concepts, and principles that constitute the basis of safe and effective healthcare.

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 MCQs which may include up to 10% pilot questions. It is divided into two parts of 100 questions each with time allocation of 120 minutes for each part. There is 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 examination shall contain recall questions that test knowledge and questions with scenarios 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 your specialty licensure examination. The blueprint is the plan used for “building” the exam. The purpose of the blueprint is to ensure including questions related to what you are expected to know.

Saudi Respiratory Care Licensure Examination Blueprint

Section	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 AND 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



Detailed Content Outline:

Multiple-Choice Examination Detailed Content Outline	Cognitive Level			Totals
	Recall	Application	Analysis	
I. PATIENT DATA				30%
A. Evaluate Data in the Patient Record				
<ol style="list-style-type: none"> 1. Patient history, for example, <ul style="list-style-type: none"> • history of present illness (HPI) • orders • medication reconciliation • progress notes • DNR status / advance directives • social, family, and medical history 				
<ol style="list-style-type: none"> 2. Physical examination relative to the cardiopulmonary system 				
<ol style="list-style-type: none"> 3. Lines, drains, and airways, for example, <ul style="list-style-type: none"> • chest tube • vascular lines • artificial airway 				
<ol style="list-style-type: none"> 4. Laboratory results, for example, <ul style="list-style-type: none"> • CBC • electrolytes • coagulation studies • sputum culture and sensitivities • cardiac biomarkers 				
<ol style="list-style-type: none"> 5. Blood gas analysis and / or hemoximetry (CO-oximetry) results 				
<ol style="list-style-type: none"> 6. Pulmonary function testing results, for example <ul style="list-style-type: none"> • spirometry • lung volumes • DLCO 				
<ol style="list-style-type: none"> 7. 6minute walk test results 				
<ol style="list-style-type: none"> 8. Imaging study results, for example, <ul style="list-style-type: none"> • 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)O₂ • V_D / V_T • 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"> • $P(Aa)O_2$ • 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 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 <ul style="list-style-type: none"> 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, <ul style="list-style-type: none"> • 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				
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				



<p>3. Application of guidelines, for example,</p> <ul style="list-style-type: none"> • ARDSNet • NAEP/SINAGOLD • ATS/ERS • AARC 				
<p>4. Ethical issues</p> <p>Common Ethical principles, for example,</p> <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				
<p>3. Specialized bronchoscopy, for example,</p> <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				100%

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		



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

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.



Note: This list is intended for use as a study aid only. SCFHS does not intend the list to imply endorsement of these specific references, nor are the exam questions necessarily taken from these sources.

Efficiently healthy society

