

Appendix 1

Round One Questionnaire

Title: "Developing Quality Indicators for the Care of Children Presenting to the Emergency Department with Respiratory Diseases in Jordan."

Dear Dr.

I am currently conducting research for my PhD thesis. I would greatly appreciate your participation in this study and am thankful for the time you are dedicating to it. The primary objective of this questionnaire is to identify and select quality indicators for pediatric patients with respiratory diseases, including asthma, bronchiolitis, and croup in Jordanian emergency departments.

I kindly request that you review each indicator thoroughly and rate its validity and feasibility based on your professional judgment and experience, using the provided 9-point Likert scale.

Participant Information: Name:

Title/Position:

Affiliation/Institution:

Phone number:

Email:

Instructions:

Validity Rating Scale:

Validity refers to the presence of sufficient scientific evidence or professional consensus supporting the QIs as valid measures of quality. A QI deemed "valid" indicates that the measure is accurate, relevant, and appropriate for assessing the quality of care for pediatrics in the ED.

1-Not Valid

2-Somewhat Not Valid

3-Slightly Not Valid

4-Neutral

5-Slightly Valid

6-Somewhat Valid

7-Moderately Valid

8-Very Valid

9-Extremely Valid

Low Rating (1-3): means that the indicator is not a valid criterion for evaluating quality.

Mid-Range Rating (4-6): means that the indicator is an equivocal criterion for evaluating quality.

High Rating (7-9): means that the indicator is a valid criterion for evaluating quality.

Feasibility Rating Scale:

Feasibility means the information required will most likely be found in a typical ED medical record (paper or electronic) to determine eligibility for and adherence to the indicators.

1-Not Feasible

2-Somewhat Not Feasible

3-Slightly Not Feasible

4-Neutral

5-Slightly Feasible

6-Somewhat Feasible

7-Moderately Feasible

8-Very Feasible

9-Extremely Feasible

Low Rating (1-3): means that it's unlikely the necessary information can be found in a typical ED medical record.

Mid-Range Rating (4-6): indicates variability in the availability of the necessary information in the ED medical record.

High Rating (7-9): suggests that the necessary information is consistently available in the ED medical record, or its absence denotes poor quality.

Please rate the validity and feasibility of each indicator using the 9-point Likert scale provided. Feel free to add comments or recommendations. Clinical Condition: Asthma. Type of Indicator: Process.

Modality: Diagnosis Sub-Modality: History	IOM Domain	Validity (1-9)	Feasibility (1-9)	Comments/ Recommendations
History of documentation of previous intubation or (Bipap) for asthma.	Safety			
Time of onset or duration of symptoms	Timeliness			
If on Short-acting beta-agonist (SABA) quantity used in the past month	Effectiveness			
Estimate of previous unscheduled MD/ED visits or documentation that they are not known	Efficiency			
Presence or absence of episodes of respiratory insufficiency due to asthma.	Effectiveness			
Presence or absence of potentially complicating illnesses.	Effectiveness			
Flu status: During flu season (November to March), all children admitted to the ED for acute exacerbation of asthma should have their influenza vaccination status documented	Effectiveness			
History of Triggers of exacerbations, current asthma medications and hospitalizations in the past year for asthma	Safety			
Modality: Diagnosis Sub-Modality: Physical Assessment	IOM Domain	Validity (1-9)	Feasibility (1-9)	Comments/ Recommendations
Documentation of work of breathing	Safety			
Documentation aeration/air exchange	Safety			
Pulse oximetry	Effectiveness Safety			
Heart rate	Effectiveness Safety			
Respiratory rate	Effectiveness Safety			
Time of first assessment: All children presenting to the ED with an acute exacerbation of asthma should have their initial assessment with 15 minutes of ED arrival	Effectiveness Timeliness			
Level of alertness	Effectiveness			
Hydration status	Effectiveness			
Percentage of admitted patients with an objective assessment of severity on initial presentation	Effectiveness			
Patient use of accessory muscles and retractions	Effectiveness			

Presence or absence of wheezing	Effectiveness			
Percent of patients with asthma who received respiratory assessment score	Effectiveness			
Noted the acuity of the patient in documentation	Effectiveness			
Documentation Worsening respiratory symptoms as a reason to return	Effectiveness Safety			
PCO2: All children presenting to the ED with an acute exacerbation of asthma deemed to be severe should have their PCO measured within 30 minutes of making this assessment.	Safety			
Modality: Diagnosis Sub-Modality: Diagnosis procedures	IOM Domain	Validity (1-9)	Feasibility (1-9)	Comments/ Recommendations
Percentage of patients with asthma who had an objective Measurement of lung function during primary ED assessment (spirometry)	Effectiveness			
Percentage of patients with asthma who had an objective Measurement of lung function during primary ED assessment (peak flow)	Effectiveness			
Percentage of patients who receive a chest radiograph during the ED visit	Effectiveness Efficiency			
Modality: Treatment Sub-Modality: Medication	IOM Domain	Validity (1-9)	Feasibility (1-9)	Comments/ Recommendations
Percentage of patients treated with antibiotics in the ED	Effectiveness Efficiency			
Percentage of patients treated with steroids	Effectiveness			
Percentage who received ipratropium bromide in ED.	Effectiveness			
Percentage of patients admitted to hospital who did not receive steroids in ED.	Effectiveness			
Percentage of EDs treated with b2-agonist	Effectiveness			
Correct medication dose ordered dexamethasone	Effectiveness Safety			
Correct medication dose ordered for ipratropium	Effectiveness Safety			
Correct medication dose ordered for albuterol	Effectiveness Safety			
Time from resident assigning his-/herself to patient to steroid order	Efficiency Timeliness			

Percentage of patients admitted to hospital with steroid administration in the ED (IV or oral)	Effectiveness			
Percentage of patients discharged from the hospital with acontrolled Medication	Effectiveness			
Used standardized dosing for discharge medications (albuterol,dexamethasone)	Effectiveness			
Oxygen: All children experiencing an acute exacerbation asthma the ED and an SaO2 should receive oxygen	Effectiveness			
Flu vaccination: During flu season (November to March), all children admitted to the ED for acute exacerbation of asthma that have not yet received an influenza vaccination status and have no documented contraindications should be vaccinated prior to discharge or refusal by patient/parent documented	Effectiveness Patient-centeredness			
Sedatives: Children admitted to the ED with an acute exacerbation of asthma should not receive sedatives unless part of a rapid sequence intubation	Effectiveness Safety			
Appropriate medication dosing	Effectiveness Safety			
Time from arrival to systemic steroid administered	Effectiveness Timeliness			
Steroid ordered at same time or before albuterol/ipratropium ordered	Effectiveness Timeliness			
Severe symptoms post-SABA assessment: All children presenting to the ED with an acute exacerbation of asthma who are experiencing severe symptoms should have vital signs (RR, HR pulse oximetry) and lung sounds reassessed and recorded within 15 minutes of each SABA treatment	Effectiveness Timeliness			
Mild symptoms: Children evaluated in the ED for acute exacerbation of asthma with no more than mild symptoms at least 60 minutes after SABA treatment should be discharged to home	Effectiveness Timeliness			
Mild/moderate symptoms post-SABA assessment: All children presenting to the ED with an acute exacerbation of asthma who are experiencing mild or moderate symptoms should have vital signs (RR, HR pulse oximetry) and lung sounds reassessed and recorded within 15 minutes of receiving 3 back-to-back SABA treatments.	Effectiveness Timeliness			
Moderate symptoms on reassessment and SABA: Children in the ED with moderate asthma exacerbation symptoms during theirfirst reassessment after 3 back-to-back SABA treatments in the ED should be given additional inhaled SABA every 60 minutesfor the next 2 hours	Effectiveness Timeliness			
Severe symptoms on reassessment and SABA: Children in the ED with severe asthma exacerbation symptoms during their first reassessment after 3 back-to-back SABA treatments in the ED should be given hourly or continuous nebulized SABA x3 and then every hour until improvement of symptoms	Effectiveness Timeliness			

Time from arrival to expert consult for patients not improving after conventional treatment	Effectiveness Timeliness			
Percentage of patients not improving who receive at least 1 second-line therapy	Effectiveness Timeliness			
Need for hospitalization - the first hour of treatment: All children admitted to the ED for acute exacerbation of asthma and who have continuing severe symptoms or an arterial PCO2 ≥42 mmHg in patients with moderate symptoms should be hospitalized	Effectiveness Timeliness			
Moderate/severe symptoms and corticosteroids: Children in the ED experiencing moderate to severe asthma exacerbation should receive systemic steroids within 1 hour	Effectiveness Timeliness			
Time from arrival to first inhaled b2-agonist treatment	Effectiveness Timeliness			
Resident-assigned PRAM score matches resident-placed initial medication order	Effectiveness Safety			
Percentage of patients discharged home from the ED with a prescription/supply for steroids	Effectiveness Safety			
Discharge Short-Acting Beta-Agonists (SABAs) prescription	Effectiveness Safety			
Documentation home dexamethasone instructions in written discharge instructions	Effectiveness Safety			
Modality: Treatment Sub-Modality: Instruction and planning	IOM Domain	Validity (1-9)	Feasibility (1-9)	Comments/ Recommendations
Percentage of patients discharged with follow-up instructions	Patient-centeredness Safety			
Documented response to intervention	Effectiveness Safety			
Documentation of disposition decision	Effectiveness Safety			
Percent of discharged patients referred to an asthma education program.	Effectiveness Patient-centeredness			
Stated who to follow up with and included contact information in discharge papers	Patient-centeredness Safety			
All children admitted to the ED for acute exacerbation of asthma and discharged home should have parental instruction to contact the child's PCP or an asthma specialist within 72 hours of discharge or given a referral if they lack a PCP or asthma specialist	Patient-centeredness Safety			
Documentation of needing albuterol more often than every 4 hours as a reason to return in written discharge instructions	Effectiveness Timeliness Patient-centeredness			

Type of Indicators: Outcome.				
Modality: Outcome	IOM Domain	Validity (1-9)	Feasibility (1-9)	Comments/ Recommendations
Unplanned return visit within 24- 72 h for same/related asthma exacerbation.	Effectiveness Safety			
Unplanned return, < 24h related asthma exacerbation	Effectiveness Safety			
Type of Indicators: Structure.				
Modality: Structure	IOM Domain	Validity (1-9)	Feasibility (1-9)	Comments/ Recommendations
Percentage of EDs with clinical guidelines for the treatment of asthma in children.	Effectiveness Safety			

Sao2: arterial oxygen saturation ED: Emergency department. PCP: Primary care physician. PRAM: Pediatric Respiratory Assessment Measure. PCO2: Arterial partial pressure of carbon dioxide. MD: Medical doctor.

Recommendation of additional indicators and further comments

Recommendation of additional indicators.	Description of the indicator	Reasons
Further comments.		

Please rate the validity and feasibility of each indicator using the 9-point Likert scale provided. Feel free to add comments or recommendations. Clinical Condition: Bronchiolitis. Type of Indicator: Process.

Modality: Diagnosis Sub-Modality: History	IOM Domain	Validity (1-9)	Feasibility (1-9)	Comments/ Recommendations
Low birth weight and underlying cardiopulmonary disease	Effectiveness Safety			
Documentation birth history (prematurity or full term)	Effectiveness Safety			
Documentation day of illness clearly	Timeliness Safety			
Documentation previous wheezing	Effectiveness Safety			
Modality: Diagnosis Sub-Modality: Physical assessment	IOM Domain	Validity (1-9)	Feasibility (1-9)	Comments/ Recommendations
Documentation severity of respiratory distress	Effectiveness			
Respiratory rate	Effectiveness			
Oxygen saturation	Effectiveness			
Color change	Effectiveness			
Noted to be feeding well and have no more than mild respiratory symptoms and signs should be discharged home.	Effectiveness Safety			
Documented effort of breathing	Effectiveness			
Documented quality of air entry (normal, decreased, etc.)	Effectiveness			
Documented presence or absence of subcostal retractions.	Effectiveness			
Documented presence or absence of suprasternal retractions	Effectiveness			
Documented presence or absence of intercostal retractions	Effectiveness			
Documentation of wheezing	Effectiveness			
Documentation of crackles	Effectiveness			

Documentation oral feeding tolerance	Effectiveness			
Documentation hydration status	Effectiveness			
Documentation assessment severity	Effectiveness			
Modality: Diagnosis Sub-Modality: Diagnosis procedures	IOM Domain	Validity (1-9)	Feasibility (1-9)	Comments/ Recommendations
(3mo to 2 y) Percentage of patients who receive a chest radiograph during the ED visit	Effectiveness Efficiency			
Chest radiograph: All otherwise healthy children diagnosed with bronchiolitis should not have a chest radiograph performed	Effectiveness Efficiency			
CBC: All otherwise healthy children >8 weeks of age diagnosed with bronchiolitis should not have a complete blood count performed	Effectiveness Efficiency			
Blood cultures: All otherwise healthy children >8 weeks of age diagnosed with bronchiolitis should not have bacterial blood cultures performed	Effectiveness Efficiency			
RSV: All otherwise healthy children >8 weeks of age diagnosed with bronchiolitis should not have a test for RSV performed	Effectiveness Efficiency			
Modality: Treatment Sub-Modality: Medication	IOM Domain	Validity (1-9)	Feasibility (1-9)	Comments/ Recommendations
(3 mo to 2 y) Percentage of patients treated with antibiotics in the ED	Effectiveness Efficiency			
Modality: Treatment Sub-Modality: Instruction and planning	IOM Domain	Validity (1-9)	Feasibility (1-9)	Comments/ Recommendations
Response to specific therapeutics	Effectiveness Safety			
Reassessment documented after treatment/intervention	Effectiveness Safety			
Documentation Appropriate discharge instructions	Effectiveness			
State who to follow up with and provide their contact information in discharge papers	Effectiveness			
Justification for appropriate disposition (sent home vs admitted)	Effectiveness safety			
Nasal bulb suction teaching for home ordered	Effectiveness			
Documentation of worsening respiratory symptoms asa reason to return in written discharge instructions	Effectiveness			

Documentation poor feeding as a reason to return in written discharge instructions	Effectiveness			
Documentation state appropriate number of days to follow up in discharge papers	Effectiveness Timeliness			
Documentation diagnosis clearly explained to the parents	Patient-centeredness Safety			
Documentation specific return to ED instructions (eg, work of breathing)	Effectiveness Safety			
Type of indicator: Structure				
Modality: Structure	IOM Domain	Validity (1-9)	Feasibility (1-9)	Comments/ Recommendations
Followed bronchiolitis pathway appropriately	Effectiveness Safety			

Recommendation of additional indicators and further comments

Recommendation of additional indicators.	Description of the indicator	Reasons
Further comments.		

Please rate the validity and feasibility of each indicator using the 9-point Likert scale provided. Feel free to add comments or recommendations. Clinical Condition: Croup. Type of Indicator: Process.

Modality- Diagnosis Sub-Modality: physical examination	IOM Domain	Validity (1-9)	Feasibility (1-9)	Comments/ Recommendations
Presence/absence of chest wall retractions	Effectiveness			
Airway evaluation: Patients initially judged to have moderate croup who progress to have severe croup while in the ED should have their airways evaluated by personnel from PICU, ENT, or anesthesia service	Effectiveness			
Findings on lung auscultation	Effectiveness			
Presence/absence of stridor	Effectiveness			
Presence/absence of lethargy/agitation	Effectiveness			
Documentation level of severity	Effectiveness			
Modality- Diagnosis Sub-Modality: Diagnosis procedures	IOM Domain	Validity (1-9)	Feasibility (1-9)	Comments/ Recommendations
Percentage of patients who receive a chest or lateral neck radiograph during the ED visit	Effectiveness Efficiency			
Chest airway radiography: Patients diagnosed with mild croup should not have imaging studies performed	Effectiveness Efficiency			
Modality: Treatment Sub-Modality: Medication	IOM Domain	Validity (1-9)	Feasibility (1-9)	Comments/ Recommendations
Percentage of patients treated with steroids in the ED	Effectiveness			
Epinephrine (Epi)for severe croup: Patients with severe croup, should be given a dose of nebulized Epi within 30 minutes of arrival.	Effectiveness Timeless			
Percentage of patients admitted to hospital who did not receive steroids in ED	Effectiveness			
Modality: Treatment Sub-Modality: Instruction and planning	IOM Domain	Validity (1-9)	Feasibility (1-9)	Comments/ Recommendations
Counseling: All parents/caregivers of children diagnosed with croup should be counseled about the anticipated course of the illness, signs of respiratory distress, and when to see medical assistance	Effectiveness Patient centered			

Observation of severe croup: Patients with severe croup need to be observed for at least 2 hours after treatment with dexamethasone and epinephrine.	Effectiveness Timeless			
Observation of moderate croup: Patients experiencing moderate croup symptoms should be observed in the ED or observation unit for at least 2 hours after treatment with dexamethasone	Effectiveness Timeless			
Continued moderate symptoms: Children with moderate croup who continue to have moderate respiratory distress 4 hours after receiving an initial dose of dexamethasone should be admitted to the hospital	Effectiveness Timeless			
Moderate-severe symptoms post-treatment: If the patient with severe croup symptoms continues to have moderate to severe symptoms 30 minutes after receiving an initial dose of epinephrine, then a repeat dose should be given, and the child should be admitted to the hospital	Effectiveness Timeless			
Moderate croup discharge: Patients with moderate croup should be discharged home when improvement in respiratory status is observed	Effectiveness			
Mild croup discharge: Patients experiencing mild croup symptoms should be discharged home after a single dose of dexamethasone	Effectiveness			
Type of indicator: Outcome.				
Modality: Outcome	IOM Domain	Validity (1-9)	Feasibility (1-9)	Comments/ Recommendations
Unplanned return visit to any ED within 24 h of index visit for same/related conditions	Effectiveness safety			

PICU: Pediatric Intensive Care Unit. ENT: Ear, Nose, and Throat.

Recommendation of additional indicators and further comments

Recommendation of additional indicators.	Description of the indicator	Reasons

Further comments.		