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## Answers

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- . Does fluid management protocol followed with IVC collapsibility improve the outcome of critically ill patients?
  - . Can oxygen with a nasal cannula at the initial stages of pneumonia prevent ICU admission?
  - . Noninvasive ventilation is better than invasive ventilation in COPD patients with respiratory failure.
  - . Effect on mortality of adjuvant steroid therapy in patients on invasive ventilation secondary to respiratory infections
  - . effect of fluid overload in critical care unit: restrictive versus aggressive fluid therapy: which one is better
  - . Target oxygen threshold: what should we target for ARDS especially due to severe chest infections
  - . Does awake prone positioning reduce the need for invasive ventilation in Acute Hypoxaemic respiratory failure?
  - . What is the optimal oxygen thresholds in Acute Hypoxaemic respiratory failure?
  - . What is the optimal approach to weaning from invasive MV?
  - . Does awake self-proning during respiratory failure due to infection reduce the need for mechanical ventilation or reaching the threshold where mechanical ventilation would be considered if it was available
  - . How many hours out of 24h of awake self-proning is needed during respiratory failure due to infection, to reduce the need for mechanical ventilation or reaching the threshold where mechanical ventilation would be considered, if it was available
  - . Does non-invasive ventilation (HFNC vs CPAP) infer a survival advantage above that of low flow O<sub>2</sub> in patients where mechanical ventilation for respiratory failure would be considered, but where this treatment is not available
  - . What are the challenges in providing respiratory support in LMICs
  - . What is the burden of diseases requiring respiratory support in LMICs
  - . cost-effectiveness study of new intervention for improved respiratory support in LMICs
  - . Are the healthcare workers in LMICs trained to triage, identify, manage and refer SARI patients based on their Oxygen needs to respective levels of care to prevent delay
  - . Are the ventilation weaning mechanisms standardised for follow up care
  - . Are all the Oxygen delivery units standardised and accredited by institutions for Quality Control
  - . Hypothesis: High flow support using air or a reduced F<sub>O<sub>2</sub></sub> concentration is as efficacious as conventional high flow
  - . Hypothesis: Positional support (proning, turning) can reduce the risk of invasive ventilation
  - . Hypothesis: A reduced target oxygenation threshold is not inferior to a normal threshold in non-intubated patients receiving respiratory support
  - . To determine the best ventilatory support for patients with severe CAP
  - . To determine the best co-adjunct treatment for patients with severe CAP
  - . To compare HFNC to other ventilatory strategies for acute respiratory failure.
  - . Outcomes and improvement per intervention
  - . Need assessment for designing intervention
  - . Identifying high risk population subgroups who could benefit the most from simple interventions
  - . Burden of SARI in LMICs
  - . Impact of training HCW and availability non-invasive CPAP on the outcome of SARI.
  - . Utilization and Availability of low flow oxygen and continuous pulse oximetry in our EPU settings will improve favorable outcome in children with SARI.
  - . Does protocolized Spo<sub>2</sub>-targeted oxygen therapy (including standard flow, high flow, and pressure-based respiratory support as available) improve survival?
  - . Are there any available pharmacologics that could improve outcomes for hypoxemia patients of particular causes (steroids in pneumonia, etc)
  - . Do the hypo- and hyper-inflammatory subphenotypes identified in HICs correspond to those in LIC populations? Can these be identified by regularly-collected VS and labs? (This is critical to know whether the ongoing and emerging studies on interventions for one subphenotypes in HICs apply or don't in LICs)
  - . Hypothesis: Among hospitalised adults in low income settings (participants) a conservative oxygen regimen (intervention) is non-inferior to a liberal oxygen regimen (comparator) with respect to in-hospital mortality (primary outcome).
  - . Hypothesis: Among adults who required unplanned life support in the ICU (participants) implementation of an individualised oxygen therapy regimen based on a validated machine-learning model (Intervention) compared to usual care (comparator) reduces in-hospital mortality (primary outcome).
  - . Hypothesis: Among hospitalised adults in low and middle income countries (participants) a closed loop control strategy using automatic titration of high flow oxygen therapy\* to achieve a prescribed saturation target (intervention) compared to usual care (comparator) reduces in-hospital mortality.
- [NB: \* this emerging technology is coming to market and, in settings where oxygen is readily available but staffing is limited, may allow safer use of oxygen to minimise the risks of hypoxaemia or hyperoxaemia]

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## Answers

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- . Outcome in patients at different oxygen target thresholds.
- . Standardization of NIV protocols in patients with acute respiratory failure.
- . Outcomes in patients initiated on Oxygen therapy with nasal cannula vs face mask.
- . Is use of HFNC in LMICs cost effective?
- . Cost effective strategy for management of sedation in patients on mechanical ventilation
- . Optimal fluid management strategies
- . In what conditions, would NIV avoid utilization of IMV for AHRF patients? (given resource allocation standpoint)
- . In what conditions, would NIV be non-inferior or superior to HFNC? (given oxygen supply standpoint)
- . what would be the optimal SpO<sub>2</sub> among black patients with AHRF, and how frequent is the optimal frequency of the SpO<sub>2</sub> monitoring? (given SpO<sub>2</sub> differences across ethnicity, and access to ABG or continuous SpO<sub>2</sub> monitoring)
- . Liberal vs conservative oxygen threshold in unintubated patients
- . High vs low PEEP in invasively ventilated patients
- . Coap vs hfno
- . What are the optimal mechanical ventilation strategies for severe resp failure?
- . How to transition to and ventilate during spontaneous ventilation
- . What are the fastest and safest ways to wean respiratory supports
- . burden of illness
- . Effectiveness of low-cost non-invasive ventilation strategies (especially technologies developed and available in low and low-middle income settings)
- . Effectiveness of awake prone position for patients with hypoxic respiratory failure
- . Safety and effectiveness of pharmacological therapies (steroids, other immunomodulators etc.,)
- . What is the best IV fluids protocol in critically ill patients?
- . What is the impact of hyperlipidemia on the prognosis of critically ill patients
- . Research Question: What is the most effective and cost-efficient oxygen delivery method (e.g., nasal cannula, non-rebreather mask, or high-flow nasal cannula) for reducing mortality in patients with SARI in LMICs?  
Hypothesis: High-flow nasal cannula therapy improves survival rates and reduces hospital stays compared to standard nasal cannula in patients with SARI, while remaining cost-effective in LMIC settings
- . Research Question: Does the routine use of pulse oximetry for triage and monitoring improve early detection of hypoxemia and outcomes in patients with SARI in LMIC healthcare facilities?  
Hypothesis: Routine use of pulse oximetry reduces delayed oxygen initiation and decreases mortality rates in SARI patients compared to clinical signs-based assessment alone.
- . Research Question: Can task-shifting oxygen management to trained non-physician healthcare workers improve access to timely and appropriate oxygen therapy in LMIC primary care facilities for patients with SARI?  
Hypothesis: Training non-physician healthcare workers to manage oxygen delivery in SARI patients leads to improved access and comparable outcomes to physician-led care in LMICs.
- . Burden of illness
- . Availability of interventions
- . Support of patients
- . Effect of high flow O<sub>2</sub> therapy in COPD patients
- . Targeted fluid therapy in critically ill patients
- . Sedation vs no sedation in mechanically ventilated patients
- . How to make mechanical ventilation safe in the hands of untrained/minimally trained staff?
- . What is the best first line non-invasive respiratory support outside an intensive care setting?
- . Can Boussignac CPAP improve outcome of mild to moderate hypoxaemic respiratory failure (if access to invasive mechanical ventilatory support is limited)?
- . What is the impact of non-invasive ventilation compared to oxygen therapy in hypoxic respiratory failure?
- . What is the correct oxygen saturation target by which to titrate oxygen therapy?
- . What is the best fluid strategy in patients with hypoxic respiratory failure due to sepsis?
- . BiPAP therapy for hypercarbic COPD patients to prevent invasive ventilation.
- . Bain Circuit CPAP therapy for snakebite patients in early phase to prevent hypoxia and hypercarbia.
- . HiFlow nasal cannula for snakebite patients prevent invasive ventilation.
- . What is the effectiveness of HFNC compared to standard oxygen therapy in preventing progression to mechanical ventilation in patients with moderate hypoxemic respiratory failure in LMICs?
- . How does training and equipping frontline healthcare workers in LMICs to use non-invasive ventilation (e.g., CPAP and HFNC) impact patient outcomes in acute respiratory failure?
- . What is the prevalence and mortality rate of hypoxemia in patients presenting with acute respiratory infections in high-altitude settings?

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## Answers

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- . Can the addition of telemedicine support for ICU in LMICS reduce the mortality rates in critically ill patients?
- . Implementing a nurse-led training protocol for respiratory therapists will improve survival rates among ICU patients in LMICS
- . Does the integration of artificial intelligence (AI)-driven predictive algorithms into routine clinical workflows in LMICs hospitals improve early detection and outcomes of acute respiratory distress syndrome (ARDS) compared to standard of clinician-based assessments?
- . Helmet NIV compared to Helmet CPAP in hypoxemic respiratory failure
- . Mask NIV compared to Helmet NIV in hypoxemic respiratory failure
- . High-flow nasal oxygen compared to NIV in acute COPD exacerbations
- . High flow nasal cannula reduces rates of mechanical ventilation in children with bronchiolitis
- . Optimization of Oxygenation Targets as a means to rationalize oxygen usage in LMIC
- . The Impact of Early referral to ECMO centers in LMIC with Severe Acute Respiratory Failure
- . Comparing different objective dynamic fluid assessment strategies that best suits LMIC
- . Is AI guided escalation strategy for respiratory support superior to usual care
- . Early versus delayed HFOT
- . repeated short duration versus one single long-duration (16h or more) sessions of prone positioning
- . What additional benefit (and at what cost) does NIV provide above HFNO in various acute diseases requiring supplemental oxygenation and respiratory support?
- . What is the optimal oxygenation target when providing supplemental oxygen (and does the target differ for invasively ventilated versus non-invasively ventilated patients)?
- . How can we safely implement non invasive respiratory support outside intensive care?
- . Effect of steroids or antibiotics on clinical outcomes in critical Bronchiolitis/Viral Pneumonia
- . what is the optimal oxygen target during acute respiratory failure at sealevel/high altitude
- . What are the major challenges limiting the oxygen access to patients?
- . What is the cost benefit for delivering oxygen patient in hospitals?
- . What are the morbidity and mortality rate attributable to the lack of oxygen source in a health facility?
- . What are the Levels of asthma control of symptoms, defined as well controlled, partially controlled, and uncontrolled asthma, and description of factors affecting asthma control in Malawi.
- . Mapping of availability of diagnostics and interventions for management of asthma and chronic obstructive pulmonary disease in secondary and tertiary hospitals in Malawi.
- . Implementation research: Designing Malawi specific guidelines and care pathways for diagnosing, management, and follow up of asthma and chronic obstructive pulmonary disease patients in Malawi
- . Does high flow with CPAP improve outcomes compared to standard low flow?
- . Does early weaning from Oxygen to reduce exposure to hyperoxia improve outcomes?
- . Health Economics of conservative use of oxygen in high flow CPAP blending - can this save resources?
- . The wide use of HFNO reduces the need for intubation (globally and in LMICs) and reduces mortality
- . The wide and proper use of NIV reduces the need for intubation (globally and in LMICs) and reduces mortality
- . Improving sedation practices globally and in LMICs improves the outcomes of invasively ventilated patients.
- . Evaluating the role of AI in accurately assessing oxygen requirements, monitoring oxygen delivery, assessing oxygen saturation, regulating oxygen delivery and identifying potential complications of oxygen therapy, especially in special population groups.
- . Developing and evaluating efficient portable solar powered oxygen delivery systems appropriate for remote resource poor facilities and communities.
- . Evaluating more cost effective and easy to use Non-Invasive oxygen delivery systems in resource-limited settings, suitable for non-critical care specialists.
- . Burden of illnesses that require respiratory support in the post-COVID-19 pandemic era.
- . Impact of Oxygen interventions in the outcome of adult medical conditions
- . Burden of illness
- . simplicity, cost, engagement of LMIC partners
- . prevention of respiratory failure
- . low flow nasal cannula vs high flow nasal cannula to treat mild hypodermic patients (SPO2 90-92%)
- . frequency, severity and outcome of severe cardiomyopathy (EF < 25%) in septic shock .
- . BMI and outcome of Septic shock secondary to respiratory illness.
- . What is the optimal weaning strategy for mechanically ventilated medical patients in South Asia?
- . What are the most important outcomes for survivors of critical care and their families?
- . What type of post-discharge rehabilitation service is feasible and improves long-term outcomes for survivors of critical illness in South Asia?
- . What is a standardized oxygen titration protocol's impact on patients with acute respiratory failure in low- and

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## Answers

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middle-income countries?

- . How does the availability of high-flow oxygen devices affect mortality and morbidity in pediatric patients with severe pneumonia in rural hospitals?
- . Does implementing a remote oxygen saturation monitoring system in patients with moderate-severe COVID-19 reduce unnecessary hospitalizations and improve patient satisfaction?
- . Oxygenation targets for patients not requiring invasive ventilatory support by disease / patient characteristics
- . Is a machine learning based individualized therapeutic strategy superior to clinician choice?
- . Early HFNC in awake ARDS vs mechanical ventilation
- . What is sedation strategy in patient using HFNC
- . How to maintain HFNC in palliative care patient
- . Impact of high flow nasal cannula oxygen therapy versus low flow oxygen on outcome and oxygen consumption in adult patients with community-acquired pneumonia
- . Impact of CPAP versus usual oxygen therapy on patients' outcomes and need for invasive mechanical ventilation: case of cardiogenic pulmonary edema in low-income settings
- . Impact of preventive NIV with face mask on outcomes and need for ICU admission for patients who underwent upper abdominal surgery in low-resources settings
- . The effect of using non-mechanical ventilation methods such as CPAP, HFN in reducing the incidence of HAP, VAP
- . Comparison of early tracheostomy with standard method in reducing VAP and mortality rate in patients under mechanical ventilation.
- . Review, recording and rationale of ventilation observations and recording changes to ventilation.
- . Medication / Drugs that can be given via a Endotracheal tube. Is it possible. Is it practical?
- . Stakeholders perspectives on non-invasive oxygen supply
- . High flow nasal cannula use and outcomes in LMICs
- . Cost of different oxygen supply resources according to disease types
- . what is the minimum acceptable Oxygen saturation in patients with a respiratory infection?
- . What is the minimum amount of fluid necessary for patients with sepsis from a respiratory source?
- . Is there a role for awake proning in non-intubated patients with respiratory failure from an infection?
- . Will availability of oxygen and respiratory support therapies in primary care hospital improve survival of patients with respiratory problems?
- . Will use of HFNC + adjuvant pharmacologic therapies in first-level health (first consult ED) care facility decrease need for invasive ventilation for moderate-severe respiratory distress?
- . Will a training program for primary care providers on ambulance on proper use of respiratory strategies improve survival for patients with CAP?
- . What is the burden of hypoxemia in primary and secondary healthcare facilities, and how does it correlate with patient outcomes?
- . Can a simplified algorithm for identifying and managing respiratory distress improve patient outcomes in resource-limited settings?
- . What are the priorities and challenges identified by LMIC healthcare providers in delivering effective respiratory support?
- . How has the burden of illness in the LMICs being evaluated in the context of equity?
- . What are the implications of the impact of change considering availability of interventions in low - resource settings?
- . M
- . Knowledge of the use of oxygen devices and the escalation of oxygen depending on demand of patient in LMIC
- . Cost of oxygen in LMIC and making oxygen available to all patient that need oxygen
- . Impact of low flow oxygen delivery devices on young children in LMIC
- . What is the effect of HFNO vs NIV-face mask vs NIV-helmet on clinical outcomes for patients with AHRF?
- . What is the effect of corticosteroids vs no corticosteroids on clinical outcomes for patients with AHRF?
- . In a platform trial to determine comparative effectiveness in patients requiring IMV for AHRF is duration of mechanical ventilation shorter if ventilated with a specific ventilatory strategy (including driving pressure limited APRV) compared to usual care.
- . In a platform trial to determine comparative effectiveness in patients requiring non-invasive respiratory support for AHRF is duration of mechanical ventilation shorter if ventilated with a specific strategy (including CPAP, HFNO, NIV) compared to usual care.
- . In a precision medicine platform trial in patients requiring respiratory support for AHRF is duration of mechanical ventilation shorter if treated with a specific drug therapy compared to usual care.
- . Safety and Effectiveness of high flow nasal cannula in acute respiratory failure from only Lower respiratory tract

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## Answers

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infections.

- . Effectiveness of High flow nasal cannula in acute respiratory failure from traumatic chest injuries (Hemo/pneumo-thorax).
- . Non-inferiority of Point of care Lung ultrasound in the diagnosis of severe pneumonia versus use of chest X-ray in resource limited settings.
- . What are the most effective interventions to decrease mortality and morbidity of hospital acquired infections in resources- limited regions?
- . Can the use of point-of-care diagnostics reduce delays in the treatment of infectious diseases in resources-limited regions?
- . What is the impact of nutritional support on critically ill patients with malnutrition ?
- . Knowledge and Factors limiting optimal utilization of oxygen in LMIC
- . Develop and validate algorithms for automated oxygen titration systems
- . • Evaluate the economic and societal impact of various oxygen therapy interventions
- . Comparison of using strict protocolised sedation strategies vs clinician driven strategies for early weaning from invasive ventilation?
- . Can implementation of an early warning score in hospital settings accurately detect deteriorating patients and improve survival?
- . Which are the appropriate tidal volume targets for invasively ventilated patients in sub-Saharan Africa?
- . What are the most appropriate targets (SpO<sub>2</sub> / FiO<sub>2</sub>) to trigger escalation of respiratory support (standard flow oxygen -> NIV/HFNO -> intubation -> +/- intubation + pronation) in sub-Saharan Africa?
- . How can health systems support effective delivery of oxygen at the hospital population level to increase patient survival and increase health related QoL
- . How can patients with severe chronic respiratory disease be engaged with their care planning to develop proportionate strategies to improve QoL
- . What are the optimal strategies to stabilise patients with chronic respiratory disease in the community and prevent the need for hospital admission and re-admission
- . My hypothesis is that HFNC is better than NIV.
- . Early invasive ventilation is better than Noninvasive
- . Sedation during NIV is better than nonsedative
- . Study looking into best minimum targets of oxygenation that would not compromise clinical outcome
- . Strategies that would minimise risk of nosocomial pneumonia in patients on nasogastric tube feeding or ventilator in LMIC setting
- . Study looking at patients and family preferences on end of life issues/discussions for patients with chronic diseases that are admitted with acute decompensation requiring respiratory support
- . For critically ill patients requiring supplemental oxygen, how do we predict which patients will require longer durations of critical care, and adjuncts such as rehabilitation to optimize their recovery?
- . What is the role of steroids in improving clinical outcomes in patients with ARDS due to viral illnesses compared to bacterial illnesses?
- . What are the outcomes of invasive mechanical ventilation in immunocompromised patients with invasive pulmonary fungal infections?
- . Comparison of effectiveness of non invasive versus invasive mechanical ventilation in the treatment of pneumocystis carinii pneumonia with Type 1 respiratory failure
- . Role of AI in etiology, severity and treatment options for LMIC with minimal diagnostic test and clinical examination
- . Role of Invasive ventilation and proning, ease of proning need further research with focus on expanding the role of proning.
- . For adjuvant therapies, right patient, right dose and right duration needs further research for clarity on indications
- . Early non invasive treatments with proper indications and care reduces invasive ventilation
- . Fluid management can be decreased if nutritional status improves
- . Adjuvant treatment may decrease further complications
- . What is the minimally acceptable PaO<sub>2</sub> target value in a patient?
- . Is early use of ECMO beneficial to survival?
- . Is V-PA ECMO better than VV ECMO for ARDS?
- . Is therapy with IV lidocaine infusion helpful in ARDS?
- . Use of APRV as a primary MV mode may have the ability to reduce LOS in ICU and time on MV. It may also reduce the sedation/analgesic dosing required since patients are allowed to breath spontaneously sitting up communicating their needs. This "APRV bundle" may also reduce VAP, delirium, and PTSD while allowing more

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## Answers

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patients to be discharged directly home since they are not weak and debilitated.

- . Impact of provider burnout and exodus
  - . End of life education- burden of futile care
  - . Fluid overuse in certain pt populations
  - . What is the appropriate dose and timing of corticosteroids, how does this vary by pathogen and severity of illness?
  - . Is a fluid restrictive management strategy superior, and how does this vary by severity of illness, availability of other supportive care and timing?
  - . How can we best assess and continuously manage optimal fluid status as patient status evolves?
  - . What genomic and bioinformatics can be used to guide best therapeutic (medical and device) management?
  - . Is heated high flow and prone positioning as effective as invasive mechanical ventilation for moderate to severe ARDS?
  - . Is noninvasive ventilation safe and effective compared with invasive medical ventilation in moderate to severe ARDS?
  - . Study comparing the type, dosage, and duration of steroids for ARDS and comparing with placebo
  - . Does the use of HFNC improve outcomes in non-pneumonia causes of respiratory failure?
  - . Does rural access to oxygen improve sepsis outcomes in LMIC?
  - . Can current new pulse oximetry standards and devices apply in all settings?
  - . Success at early extubation using daily use of standardized ventilator weaning protocols that incorporate spontaneous breathing trials linked to sedation interruption.
  - . use of non-invasive ventilation as a successful strategy for preventing the need for mechanical ventilation
  - . Best invasive mechanical ventilation (IMV) strategies.
  - . Best indications for use and strategies for non-invasive positive pressure ventilation (NIPPV) to include high flow nasal cannula, CPAP and Bi-PAP.
  - . Best indications for and use of HFOV, anticoagulation and analgesedation during NIPPV and IMV. .
  - . Engagement with patients and families to determined quality of life goals and outcomes of critically ill patients
  - . use of non-invasive vasopressor support in LMIC such as midodrine in patient with early septic shock
- <https://pubmed.ncbi.nlm.nih.gov/39656499/> <https://pubmed.ncbi.nlm.nih.gov/33977276/>  
<https://pubmed.ncbi.nlm.nih.gov/39631091/>
- . How can we improve the delivery of evidence-supported ventilation strategies and management in low and middle-income countries?
  - . How can we increase research productivity in low and middle-income countries? Possibilities of pairing high-income countries and research centers with high research output with centers in low-resource settings
  - . What is the optimal target oxygen saturation?
  - . Optimal positioning of the patient?
  - . Ideal Hemoglobin
  - . Engagement of LMIC
  - . Availability of interventions
  - . Simplicity and cost
  - . Thresholds for use of oxygen for COVID 19 infection and mortality outcomes
  - . When should steroids be used in acute respiratory failure?
  - . Differences between adult and pediatric practices
  - . How to optimize family members in caring for patients, particularly in pediatrics
  - . What are the most effective and feasible respiratory support modalities for patients with hypoxemic respiratory failure in resource-limited settings? While advanced respiratory support (e.g., high-flow nasal cannula [HFNC], non-invasive ventilation [NIV], and invasive mechanical ventilation) is widely available in high-income countries, many low- and middle-income countries (LMICs) face significant resource constraints. Identifying effective, feasible, and scalable respiratory support strategies for LMICs is critical for reducing global mortality from respiratory failure.
  - . In patients with severe acute respiratory infections and hypoxemic respiratory failure, does early escalation to invasive mechanical ventilation improve outcomes compared to a delayed or stepwise approach? The timing of escalation from non-invasive to invasive mechanical ventilation remains a clinical dilemma. Delayed intubation may increase the risk of complications, while early intubation may expose patients to unnecessary mechanical ventilation and associated risks.
  - . In patients with severe acute respiratory infections, does the use of HFNC compared to conventional oxygen therapy or NIV reduce the need for intubation and improve survival outcomes across varying healthcare settings? High-flow nasal cannula (HFNC) has been increasingly used as a non-invasive respiratory support strategy for patients with severe acute respiratory infections and hypoxemic respiratory failure. However, its efficacy in

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## Answers

preventing intubation and improving survival in different clinical contexts and resource settings remains uncertain. Understanding the role of HFNC compared to standard oxygen therapy and non-invasive ventilation (NIV) is crucial to developing standardized respiratory support protocols.

- . Optimal weaning strategies (PEEP/FiO<sub>2</sub> de-escalation ladder)
- . Titration strategies both increasing and decreasing flow/FiO<sub>2</sub> for Heated High Flow NC
- . Noninvasive ventilation optimization in hypoxic and hypercarbic respiratory failure
- . Judicious use of nasal cannula with appropriate resource allocation
- . Higg RASS goal (less sedation) in ARDS and impact on mortality and morbidity
- . NIV vs HFNC for hypoxemic respiratory failure
- . Ultra long protective versus normal lung protective mechanical ventilation in patients on ECMO
- . I would like to see more work regarding camp paralysis. Perhaps local anesthetic or axial to promote ventilator synchrony. Or the use of novel sedative agents.
- . Ventilatory support when ECMO not available-mechanical ventilation strategies that increased survival outside of major academic hospitals.
- . At what point should proning be initiated? Can non-invasive vent support modes be interchanged in the course of the day/being flexibly applied according to pt's oxygen needs
- . Which Sedation meds/ schedules have been used to preserve a sense of circadian rhythm in ICU patients? Is there a proven best practice?
- . Is the lower oxygenation threshold (SaO<sub>2</sub>/SpO<sub>2</sub> 92%) feasible and safe in all patients?
- . Does PEEP need to be titrated before extubation based on BMI to avoid higher FiO<sub>2</sub> before extubation?
- . Optimal pulmonary hygiene regimens to prevent initial respiratory decompensation
- . Optimal pulmonary hygiene regimens to prevent additional respiratory decompensation after recovery from initial event
- . Optimal pulmonary hygiene regimens for a variety of etiologies
- . grant in submission - noninvasive ventilation
- . grant in submission - re eCPR/ECMO
- . new immunomodulator therapies to reduce ARDS
- . Noninvasive ventilation reduces the need for invasive mechanical ventilation in Low income (resource) countries
- . Training in the use of mechanical ventilators reduces mortality in critical ill patients in Low income (resource) settings
- . Conservative fluid strategy decreases morbidity in acute respiratory failure in low resource (income) settings
- . Descriptive study on oxygen utilization in various care settings
- . Physiologic/biochemistry studies on the oxidative effects of oxygen and non-invasive ventilation
- . Long-term neurocognitive effects of hypoxic illnesses and oxygen therapy
- . VV ECMO
- . alternative modes of ventilatin like APRV mode
- . CRRT and dialysis for de resuscitation and decreasing cytokine storm
- . Respiratory support during inter-hospital transportation
- . Availability of oxygen delivery devices for proving respiratory support in the ward.
- . Cost of invasive mechanical ventilation and ECMO support?
- . Time series data to predict progression of acute respiratory failure
- . Machine learning models to identify hemodynamic variables associated with poor outcomes
- . Machine learning models to identify the role of adjuvant therapies in acute respiratory cailure
- . Use of NIPPV to decrease IPPV
- . What are the types of illnesses and burden of illness requiring O<sub>2</sub> support by country and demographic groups within country?
- . Which interventions make the most significant improvement in outcome?
- . What support personnel and equipment/supplies are required for selected intervention(s) success
- . What non-invasive respiratory support strategies decrease the incidence of mechanical ventilation in children with respiratory failure in LMIC
- . Will early administration of oral adjuvants help expedite spontaneous awakening trials and liberation from mechanical ventilation
- . what are the appropriate sedation strategies to implement during mechanical ventilation.
- . How to optimize fluid management in patients receiving fluid support.
- . Role of adjuvant therapies during respiratory support.
- . IMPACT OF CHANGE
- . AVAILABILITY OF INTERVENTIONS
- . ENGAGEMENT OF LMIC

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## Answers

- . Question: What is the effectiveness of a low-cost telemedicine program in reducing mortality and hospitalizations among patients with chronic cardiovascular diseases in low- and middle-income countries (LMICs) Rationale: Chronic cardiovascular diseases are a significant burden in LMICs. A telemedicine approach could simplify management, reduce costs, and engage clinicians and patients in scalable care delivery.
- . Hypothesis: Implementing point-of-care diagnostics for infectious diseases (e.g., tuberculosis or malaria) in LMICs significantly improves early detection rates and reduces time to treatment initiation compared to current standard practices. Rationale: Point-of-care testing is affordable and accessible, supporting clinicians in early detection while aligning with LMIC healthcare infrastructure.
- . Question: Does integrating community health workers into maternal healthcare programs improve prenatal and postnatal outcomes in resource-limited settings Rationale: This model leverages existing resources and engages community members, patients, and stakeholders. It aligns with the need for low-cost, scalable interventions that address significant health burdens like maternal and child health.
- . What is the impact of oxygen levels at 88% compared to higher than 88% in patients with acute hypoxic resp failure
- . Low flow oxygen vs high flow oxygen vs NIV, is any one superior in acute hypoxic resp failure
- . Chronic oxygen therapy for chronic hypoxic respiratory failure, how many hours per day should it be used? 24 hrs vs 12 hrs vs 8'hrs?
- . Role of high flow nasal canula in optimising patients oxygenation before emergency surgery
- . Simplicity cost
- . Burden of illness
- . Engagement of LMIC partner
- . use of different oxygen delivery interfaces has similar patient outcomes
- . appropriate patient monitoring has negative impact on patient outcomes
- . Developing a well-coordinated clinical network has no good outcomes on respiratory care outcomes
- . High oxygen levels maybe harmful
- . Oxygen may induce lungdamage by ROS
- . Oxygen administration reduces mobility in critically ill patients
- . Oxygen therapy reduces pain during post operation time
- . Fluid replacement reduces respiratory distress
- . What is the optimal target O2 saturation (by pulse oximetry) for patients with SARI?
- . Titration of oxygen therapy based on oximetry does not reduce risk of hyperoxia in critically ill patients
- . High flow nasal oxygen therapy improves oxygenation and reduces the need for mechanical ventilation
- . Fluids replacement improves oxygen saturation in patients with SARI
- . Utility of mechanical power targeted versus driving pressure targeted invasive mechanical ventilation independent of ventilator platform using noninvasive (formulary) calculations
- . Targeting of SpO2/oxygenation based upon easily observed and measured bedside parameters such as respiratory rate and effort rather than rote cut points (individualized oxygenation targets)
- . The effect of metabolic state weaning (recognized or unrecognized acidosis, fluid selection etc.)
- . Titration of oxygen based on pulse oximetry does not reduce the risk of hyperoxiain critically ill patients
- . High flow nasal oxygen therapy improves oxygenation and reduces the need for mechanical ventilation
- . Oxygen therapy and fluid replacement are crucial in critically ill patients with SARI
- . Avaibility of High flow oxygen in limited resources country
- . Support patients post icu
- . incidence of NAV
- . low tech "who-style" bubble cpap devices vs. occlusive seal nasal masks/nasal prong cpap for pediatric respiratory failure in LMIC setting
- . feasibility/risks of bipap for pediatric respiratory failure in LMIC setting
- . educational strategies that work to disseminate knowledge/skill in caring for pediatric respiratory failure in LMIC settings
- . Determine the best VTE/kg for patients on mechanical ventilation
- . Evaluate the best strategy in patients with high pulmonar dead space.
- . Evaluating the cost-effectiveness of ECMO in low-resource countries
- . What equipment for respiratory support is generally found worldwide and readily accessible?
- . What is the cost burden in terms of oxygen, staffing, training and equipment of non-invasive ventilation equipment
- . What industry sponsor(s) would be available to support or encourage its implementation?
- . Can the use of lung protective ventilation modes (as opposed to coventional strategies) in ventilator dependent acute respiratory failure (non-ARDS) to decrease the duration of ventilator dependency?



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## Answers

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- . What are the strategies that can be done in preparation (at insitutional, national, and global levels) for another novel pandemic that can potentially impact the mankind?
  - . Potential uses of artificial intelligence (AI) in choosing the best ventilation mode based on the extend of hypoxia, type of acute respiratory failure (viral, bacterial, or others), and other comorbidities of the respective patients?
  - . What are the barriers and facilitators to implementing a home-based oxygen therapy program, including portable oxygen equipment and sleep apnea machines, for patients with chronic respiratory conditions in LMICs, and how do these compare to established programs in high-income settings like Canada?
  - . How do different oxygen delivery models (e.g., nasal cannulas, non-rebreather masks, or high-flow systems) affect survival outcomes for critically ill patients in emergency wards, and what are the optimal delivery strategies tailored to specific clinical presentations in LMICs?
  - . Can the implementation of training programs for non-specialist healthcare providers in respiratory care improve the recognition and management of hypoxemia in low-resource settings?
  - . Na
  - . Na
  - . Na
  - . Does the early use of low-cost, high-flow nasal oxygen (HFNO) compared to standard oxygen therapy reduce mortality and the need for mechanical ventilation in pediatric and adult patients with hypoxemic respiratory failure?
  - . Does the use of pulse oximetry-guided oxygen delivery (intermittent vs. continuous) reduce oxygen wastage without compromising patient outcomes in LMIC settings?
  - . What is the impact of a locally adapted educational intervention on clinicians' adherence to WHO respiratory support guidelines and patient outcomes in LMICs? Does this differ by age?
  - . The impact of fluid support in the management of patients on oxygen therapy.
  - . Comparing CPAP delivered through face mask and CPAP delivered to helmet.
  - . The effectiveness of high flow nasal canula in managing acute hypoximia VS NIV
  - . Early introduction of steroid in ARDS any benefit??
  - . Can we develop the tools to predict weaning failure?
  - . Best treatment recommendations (both non-pharmacological and pharmacologic) for ARDS
  - . Sedation, pain, and agitation agents and their association with delirium
  - . Impact of having a pharmacist on the patient team, and expectations and/or what each part of the team would like the pharmacist to do and perform
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