

# Inhalation Injury Research Priorities and Needs for the Future

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# Overview

- Present priorities for inhalation injury research for the next 10 years
- Describe the types of studies needed to accomplish these goals
- List the resources needed to accomplish those goals

# Priority 1: Just the Basics

- Develop and validate a clinical:
  1. definition for inhalation injury
  2. diagnostic criteria and severity grading system for inhalation injury
- Rationale: a uniform definition for inhalation injury is lacking; studies have different definitions and endpoints

# Priority 1: What Do We Need to Do?

- Meeting of inhalation injury researchers with publication of consensus definition
- Initial validation of the definition/grading system by pilot study
- Multicenter clinical trial to confirm accuracy and applicability of system in clinical setting

# Priority 1: Resources Needed to Accomplish the Goal

- Consensus conference: funding, researchers willing to define and publish group findings
- Pilot study: funding to test preliminary definition, researchers willing to do the work
- Multicenter clinical study to validate accuracy of the definition: funding, infrastructure (database, statistician, etc)

# Priority 2: Inhalation Injury

## Treatment: The Lung

- Determine the optimal treatment of the respiratory system in inhalation injury
  1. Define the optimal ventilator strategy for inhalation injury (VDR, PRV, oscillatory ventilation, protective lung strategy, PCV)
  2. Define the optimal inhalational agents in the treatment of inhalation injury
  3. Define the role of systemic agents in inhalation injury

# Priority 2: What Do We Need to Do?

- Comparative analysis of existing data in people and animals to determine modes that should be tested
- Pilot studies to confirm feasibility of agent/mode to be tested
- Multicenter randomized clinical trial to validate findings/suggest new directions

## Priority 2: Resources Needed to Accomplish the Goal

- Review of the existing data: researcher to do literature search with resources to do meta-analysis
- Pilot study: funding for translational research (test lab findings in people), researchers willing to do the work
- Multicenter clinical study to validate accuracy of the definition: funding, infrastructure (database, statistician, etc)

# Priority 3: Inhalation Injury

## Treatment: The Acute Phase

- Determine the optimal treatment for other organ systems in inhalation injury
  1. Define standard of care for resuscitation in the patient with inhalation injury, inhalation+burn
  2. Determine the optimal nutritional regimen for the patient with inhalation injury, inhalation+burn
  3. Define the role of tracheostomy in inhalation injury

# Priority 3: What Do We Need to Do?

- Meeting of inhalation injury researchers with publication of consensus definition
- Pilot study: funding to test preliminary definition, researchers willing to do the work
- Multicenter clinical study to validate accuracy of the definition: funding, infrastructure (database, statistician, etc)

# Priority 3: Resources Needed to Accomplish the Goal

- Consensus conference, resuscitation/nutrition goals for inhalation injury/burn: researchers willing to review existing data and publish group findings
- Pilot study: funding for translational research (test lab findings in people), researchers willing to do the work
- Multicenter clinical study to validate accuracy of the definition: funding, infrastructure (database, statistician, etc)

# Priority 4: Outcomes After Inhalation Injury

- Determine the long-term impact of inhalation injury
  1. Define inhalation injury, inhalation injury/burn effects on pulmonary function
  2. Define the impact of inhalation injury, inhalation injury/burn on health related quality of life
  3. Define the psychosocial effects of inhalation injury

# Priority 4: What Do We Need to Do?

- Develop mechanism for long-term followup of patients with inhalation injury
- Standardize methodology for measuring pulmonary function and exercise capacity for all age groups after inhalation injury
- Develop, validate, and administer health related quality of life and psychosocial tools for patients with inhalation injury

# Priority 4: Resources Needed to Accomplish the Goal

- Development of database capable of recording and tracking patients with inhalation injury: funding, personnel, and hardware
- Development/validation of quality of life/functional outcomes tools: funding, personnel, and database development
- Multicenter studies will be required to accrue enough patients for data analysis, validation

# What We Need to Do

- Agree to participate
  - Drop our biases
  - Develop tight protocols for clinical studies
  - Monitor our adherence to the protocols
  - Work together
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- WE NEED TO DO EVERYTHING THE SAME

# Conclusions: Inhalation Injury

- Much progress has been made: advances in pathophysiology, treatment
- Future research with common themes:
  1. Need to agree on definitions
  2. Translational research
  3. Multicenter randomized controlled trials to definitively answer questions

# Conclusions: Inhalation Injury-What We Need

- Basic scientists for development and preliminary testing of new innovative modalities and molecular mechanisms
- Clinician scientists to take findings from “bench to bedside”
- Multicenter studies to test validity: need funding, infrastructure to perform appropriate studies

The Next Step is Up to Us...