

Appendix 1

PICO Formatted Questions

- 1) **Does measuring IAP in critically ill or injured patients improve outcomes compared to strategies that do not consider or measure IAP in critically ill adults in critical care units.**

Patients:	Critically ill adults in critical care units
Intervention:	Measurement of IAP.
Comparator	Inattention to or omission of IAP measurement in critical illness
Outcomes	Mortality Abdominal Closure Rate Costs ICU utilization IAP

- 2) **Do management strategies that use the abdominal perfusion pressure (APP) to guide management improve patient outcomes compared to strategies that do not consider the APP in critically ill adults in critical care units with IAH (IAP > 12 mmHg)**

Patients:	Critically ill adults in critical care units
Intervention:	Use of APP as an end-point of resuscitation or target for managing IAP.
Comparator	Use of any other end-point of resuscitation or target for managing IAP
Outcomes	Mortality Abdominal Closure Rate Costs ICU utilization IAP

3) Do overall management strategies attempting to keep standard-state IAP less than 20 mmHg result in improved patients outcomes compared to management strategies (or the lack thereof) that either accept higher IAPs (or ignore IAP altogether) in critically ill adults in critical care units?

Patients: Critically ill adults in critical care units

Intervention: ACS versus none

Comparator: ACS

Outcomes: Mortality
Abdominal Closure Rate
Costs
ICU utilization

4) Do management strategies that use percutaneous drainage of intra-peritoneal fluid to reduce the IAP in cases of intra-abdominal hypertension improve patient outcomes compared to strategies that do not use percutaneous drainage in critically ill adults in critical care units?

Patients: Critically ill adults in critical care units

Intervention: percutaneous drainage of intra-peritoneal fluid to reduce IAP

Comparator No consideration of percutaneous drainage of intra-peritoneal fluid to reduce IAP

Outcomes Mortality
Abdominal Closure Rate
Costs
ICU utilization
IAP

5) Do management strategies that use open laparotomy in cases of overt abdominal compartment syndrome (ACS) improve patient outcomes compared to strategies that do not in critically ill adults in critical care units with the ACS?

Patients: Critically ill adults in critical care units with established ACS

Intervention: Use of open laparotomies for cases of overt ACS

Comparator: No use of open laparotomies for cases of overt ACS

Outcomes: Mortality
Abdominal Closure Rate
Costs
ICU utilization

6) Does the use of a prophylactic management strategy utilizing a routine open abdomen improve patient outcomes compared to strategies that utilize the OA only after diagnosis of the ACS

a) In a severe trauma population?

b) In those with intra-abdominal sepsis and/or intra-peritoneal spillage requiring laparotomy?

Patients: a) Critically injured adult trauma patients in critical care units
b) Adults with intra-abdominal sepsis and/or intra-peritoneal spillage in critical care units

Intervention: routine prophylactic or protocolized use of an open abdomen

Comparator No protocol or non-use of the open abdomen

Outcomes Mortality
Abdominal Closure Rate

Costs
ICU utilization
IAP

7) Does the use of an management strategy involving efforts at closing the fascia of an open abdomen (OA) improve patient outcomes compared to strategies that do not use strategies to close the fascia and which thus accept skin graft closures and delayed reconstruction in those critically ill adults in critical care units with OAs?

Patients: Critically ill adults with open abdomens in critical care units

Intervention: Any strategy or protocol dedicated to the earliest possible closure of the open abdomen

Comparator reports of no organized protocol or strategy to close the open abdomen or purposeful acceptance of non-closure such as skin graft only closures

Outcomes Mortality
Abdominal Closure Rate
Costs
ICU utilization
Entero-atmospheric fistula
Intra-abdominal abscesses

8) Does the use of a management strategy involving abdominal / peritoneal vacuum / suction type dressings improve patient outcomes compared to strategies that do not use peritoneal vacuum drainage in critically ill adults in critical care units with OAs?

Patients: Critically ill adults with open abdomens in critical care units

Intervention: suction
type dressings to manage the open abdomen

Comparator suction type dressings to manage the open abdomen

Outcomes
Mortality
Abdominal Closure Rate
Costs
ICU utilization
Entero-atmospheric fistula
Intra-abdominal abscesses

9) Does the use of a management strategy involving the early closure with bioprosthetic meshes improve patient outcomes compared to strategies that do not use bioprosthetic meshes and which thus accept skin graft closures and delayed reconstruction critically ill adults in critical care units with OAs?

Patients: Critically ill adults with open abdomens in critical care units

Intervention: Any strategy or protocol using bioprosthetic mesh type dressings to manage the open abdomen

Comparator No use of bioprosthetic mesh type dressings to manage the open abdomen

Outcomes
Mortality
Abdominal Closure Rate
Costs
ICU utilization
Entero-atmospheric fistula
Intra-abdominal abscesses

10) Does the use of a management strategy involving the component separation technique improve patient outcomes compared to strategies that do not use component separation in critically ill adults in critical care units with OAs?

Patients: Critically ill adults with open abdomens in critical care units

Intervention: Any strategy or protocol using an early (first hospitalization) component parts separation procedure to close the open abdomen

Comparator Any strategy or protocol not using an early (first hospitalization) component parts separation procedure to close the open abdomen

Outcomes Mortality
Abdominal Closure Rate
Costs
ICU utilization
Entero-atmospheric fistula
Intra-abdominal abscesses

11) Does a management strategy attempting to obtain fluid balance in equilibrium or even negative (conservative fluid strategy) after day 3 result in a lower IAP and improved patients outcomes compared to management strategies that either accept a liberal fluid management and will the latter result in higher IAPs in critically ill adults in critical care units?

Patients: Critically ill/injured adults in critical care units

Intervention: Any strategy or protocol attempting to obtain negative fluid balance or equilibrium after the third day of intensive care.

Comparator A comparable strategy or protocol not attempting to obtain negative fluid balance or equilibrium after the third day of intensive care.

Outcomes Mortality
Abdominal Closure Rate
Costs
ICU utilization
IAP

12) Does a massive transfusion strategy involving an enhanced ratio of plasma and/or minimizing crystalloid fluids result in a reduced incidence of IAH/ACS and related complications compared to strategies that do not?

Patients:	Critically injured patients receiving massive transfusions
Intervention:	Any strategy or protocol using an enhanced ratio of plasma to red cells, or emphasizing reduced volumes of crystalloid fluids
Comparator	A comparable strategy or protocol not using an enhanced ratio of plasma to red cells, or emphasizing reduced volumes of crystalloid fluids
Outcomes	Mortality Abdominal Closure Rate Costs ICU utilization

