Introduction:
Objective: The aim of this review is to evaluate and analyse the clinical consequences of drug incompatibilities in critically-ill patients, especially the incidence of organ dysfunctions and mortality.

Methods:
A review of literature was conducted according to the PRISMA statement in June 2017, using Medline, ISI Web of Science and Clinicaltrials.gov. Data extraction: Eligible studies were case reports and randomised controlled trials (RCTs) that evaluated the effects of drug incompatibilities in critically-ill patients on morbidity or mortality as primary or secondary outcomes, or adverse events. Two investigators independently reviewed the eligibility of the study from abstracts or manuscript data. Data synthesis: Twelve articles met the selection criteria. The six articles reporting RCTs concern only four RCTs. RCTs were single-centre studies comparing infusion with or without filter. Two of them included adult patients. The others included pediatric and neonatal intensive care unit patients. Primary endpoints were Systemic Inflammatory Response Syndrome (SIRS), organ failure, overall complication rate, bacteremia, sepsis, phlebitis and length of stay.

Results:
The results are mixed with one RCT(2) reporting a reduction in SIRS, organ failure and overall complication rate, two studies in disagreement over the occurrence of sepsis and one study reporting no impact on length of stay. The six articles on case reports show different drug incompatibility situations. They report pulmonary toxicity.(1)

Conclusion:
Little data is available on this topic. Infused particles may induce organ failure, in particular pulmonary toxicity and SIRS. Further studies are needed to establish a link between the level of exposure to drug incompatibilities and clinical implications.

References:

Image 1:

In Line Filtration

Image 2:
Flow chart

Records identified through database searching:
TOTAL: N = 199
Medline: N = 33
ISI Web of Science: N = 148
Clinicaltrials.gov: N = 18

Additional records identified through other sources:
N = 4

Records after duplicates removed:
N = 187

Records screened:
N = 13

Records excluded:
Not relevant: N = 169
Unable to obtain full-text: N = 5

Full-text articles assessed for eligibility:
N = 12

Full-text articles excluded:
N = 0