INTRODUCTION
The use of minimally invasive monitoring in the care of ICU patients is useful in directing the appropriate course of therapy, as well as the extent of that therapy. Traditional monitoring parameters can be affected by compensatory mechanisms and therefore flow-based parameters (cardiac output, central or mixed venous oxygen saturation, lactate) are better indicators of adequate oxygen delivery. Stroke volume variation (SVV), a parameter available with minimally invasive cardiac output monitoring, has been demonstrated to be a sensitive parameter in determining a patients preload responsiveness.

Clinical Events
A 78-year-old male (85 kg) was admitted with severe sepsis secondary to left lower lobe pneumonia. He had a previous history of pulmonary TB 30 years ago. On admission his respiratory rate was 42 and he was using his accessory muscles. Other observations included: Temp 39.1; MAP 58; HR 135. Urine output had been 10/20/5 over the last 3 hours.

On physical examination he was cool peripherally with clammy skin. His GCS was 10. His abdomen was distended and it was noted that he had not been absorbing his nasogastric feed. His arterial blood gases were: PH 7.30; P02 78 on FI02 .70; PC02 41; ABE –10.3; Lactate 4.2; Na+ 127; K+ 4.7; Cl- 88

CASE NOTES
His treatment included immediate intubation and ventilation on PSIMV, with an inspiratory pressure of 25, PEEP of 10 and respiratory rate of 15. He was sedated on 40 mg propofol 1% and 2 mg of alfentanil. He made no respiratory effort during the case study hour. Following insertion and checking the position of invasive lines (left IJ CVC and right radial arterial line) along with additional flow monitoring from the Edwards Vigileo monitor and Edwards FloTrac sensor, the patient was started on noradrenaline at 0.5 mg/kg/min and given fluid challenges to achieve a stroke volume variation (SVV) < 10%. Initially, his stroke volume variation was 18%.

Over the next 7 hours fluids (gelofusin) were given in boluses to maintain a SVV < 10%. In addition, maintenance fluid at 1.5 ml/kg/hr was given. His urine output picked up, lactate came down and his ventilation improved. Subsequent investigations included: bronchoscope & lavage (gram – ve cocci); blood cultures; CT abdomen & pelvis – which was NAD; a blood film which suggested overwhelming sepsis. Over the next 6 days he was weaned, then successfully extubated. Antibiotic therapy was continued for 10 days.
DISCUSSION

The use of SVV, as provided by the Vigileo monitor, was helpful in guiding aggressive but appropriate volume resuscitation.

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