Fun with letters: the pathophysiology of SIRS, sepsis and MODS
We will review pathophysiology of sepsis according to the CHAOS scheme. This covers **C**ardiovascular shock, including nitric oxide production and endothelial glycocalyx impairment, Also **H**omeostasis impairment, with the clinical example of disseminated intravascular coagulation. **A**poptosis and its pathways for programmed cell death will be reviewed. **O**rgan dysfunction, such as pulmonary and renal will be briefly discussed. Finally, **S**uppression of the immune system and anergia will be covered.

Intravascular fluid replacement and shock resuscitation
This Shock resuscitation, or intravascular fluid resuscitation, lecture, will first cover the various types of shock, and will focus on the types of shock that can be treated with intravascular fluid replacement. Then we will cover the different types of fluids and introduce the concept of volume expansion power (VEP). Lastly, we will discuss shock doses and practical fluid resuscitation strategies.

Clinical management of the dysnatremic patient
Goals of the lecture will be able to appropriately treat hyponatremia and hypernatremia, with both acute and chronic changes. We will review the sodium and water balance physiology, discussing triggers and effectors for the anti-diuretic hormone (ADH). We will discuss practical dysnatremia management and discuss consequences and side effects of those treatments by focusing of the clinical management of 4 cases: acute hyponatremia, chronic hyponatremia, acute hypernatremia and chronic hyponatremia.

Use of human albumin products in critically ill patients
This lecture will discuss various aspects of the use of human albumin in veterinary medicine. We will discuss indications for use of albumin, including in septic shock, the dose and regimen to use, as well as side effects of the use of human albumin. We will review the various literature available from both the human side, as well as the published evidence of the use of human albumin in veterinary medicine. Finally, we will briefly be discussed alternatives to human albumin such as concentrated canine albumin and the use of fresh frozen plasma