

Lesson on who Humanimal Trust is - link with Key Stage 5

Lesson objectives: To teach students what One Medicine is, about Humanimal Trust, our aims and how we will achieve this.

Curriculum links:

Working scientifically - informing students of the role of science in understanding the causes of and solutions to some of the challenges facing society.

Development of scientific thinking: appreciating the power and limitations of science and considering ethical issues which may arise

Resources Needed:

- Powerpoint 1
- Teacher's notes
- Science booklet – printed or digital

Humanimal Trust

Teachers notes for lesson 1 – Introduction to Humanimal Trust

Powerpoint:

The powerpoint gives a definition of One Medicine, the Values and Mission statement of Humanimal Trust and One Medicine as well as a brief history of One Medicine.

Below are notes on the slides for you to elaborate on and give you further background information

Slide 1: Introduction page

Slide 2: a definition of One Health and One Medicine. These two terms are often used interchangeably with each other, however there is a noticeable difference between the two.

One Medicine looks for collaboration between vets, doctors, researchers and other professionals for the benefit of humans and animals health as well as an aim for the use of animals in laboratory testing to become obsolete.

Slide 3: Humanimal Trust origins

Slide 4: Quote from Professor Noel Fitzpatrick

Slide 5: One Medicine definition

Slide 6: At the moment the information travels in one direction, for the benefit of humans, with the benefits not being reciprocated for animals.

The number of animals used in animal testing in the UK, from www.gov.org.uk

In 2020, 2.88 million procedures were carried out in Great Britain involving living animals. The majority (92%) of procedures (both for experimental and breeding purposes) used mice, fish, or rats.

Over half (53%) of experimental procedures were for the purpose of basic research Most commonly focusing on in the immune system, the nervous system and cancer.

Slide 7 and 8: self explanatory

Slide 9: a few examples of peer reviewed and published studies and articles on One Medicine

Slide 10: One Medicine faces a number of challenges and obstacles that it needs to overcome. One such question is whether the two medical professions can ever be equitable given that human medicine is far bigger than veterinary medicine. Also, in the UK, human healthcare is predominantly state funded whereas animal healthcare is privately funded.

If we consider the ratio of practicing doctors to veterinary surgeons for 2018, the ratio works out at approx. 10 doctors for every vet and 40 human medical nurses for each veterinary nurse!

Slide 11: Although human medicine is much larger than veterinary medicine, if we compare the human and animal (companion and livestock) populations as reported for 2018, the UK human population was approx. 66 million whilst the combined pet and livestock population for 2018 was 88 million. Therefore in terms of the population size that doctors and vets treat, they are comparable.

Slide 12: Zoonosis is an infectious disease that can be passed from a non-human animal to humans. **Reverse zoonosis**, in which a disease transmits from humans to animals, poses threats to animal health as well as public health

Slide 13: The bacteria group, in red, can be passed from animal to human and vice versa, so be careful if you have a stomach upset or food poisoning, because you can pass it onto your dogs and cats!

Giardia is a parasite that passes from human to animal, animal to human and via consumption of contaminated water and food., depending on the strain.

Slide 14: Statements with % of infections from UN Report

Slide 15: The acronym of our aims within Humanimal Trust I-CARE

Influence -

Collaboration – Awareness – get our message out there to many audiences, like you, vets, doctors, other professionals, stalls at a variety of events, Creative Awards.

Research –

Education – Engage in education of all ages, from Nursery to CPD to adults. Develop a One Medicine Curriculum, specific pilot schemes for certain ages and groups of students – like yourselves

Slide 16: Influence – As evidence for One Medicine grows, , we will share this to influence the policy makers, academic and research communities – to change future legislation and best practice. Publish One Medicine articles, let everyone know what our aims are. We all have our part to play in making that happen.

Slide 17: Collaboration - Create seminar and conference opportunities for collaboration and demonstrate this collaboration through our activity and partnerships. Promote The Hub which is a safe place for vets and doctors to come together and discuss One Medicine, research and their thoughts.

The Humanimal Hub was launched in 2020, and is an online forum - a vital, interactive space that is free to join and use, where leading minds in human and animal medicine can meet, collaborate, initiate and share knowledge and research, driving forward closer cooperation for the benefit of humans and animals.

Collaboration Café is the Hub's e-zine. our Collaboration Cafe is an e-zine that features discussions with some of our Hub members and One Medicine focused projects they have been, or are currently, involved with.

It's a great way for Hub members to get to know each other, and to discover opportunities and shared interests for potential future collaborations. There are a selection of these on the Humanimal Trust website.

Our first One Medicine Symposium was held virtually on One Medicine day, 6th May 2021. This marked our 7th Anniversary and was attended by over 100 human, veterinary and bioscience professionals from all over the world for some fascinating talks and discussion. One Medicine Day will continue to be celebrated each year as a focal point of our work to drive fairer and more ethical approaches to healthcare research and practice for all humans and animals. 2023's event is going to be a little different – watch this space!

Eventually we plan to create a physical centre for One Medicine so that specialists and practitioners can work together in a dedicated space as well as our virtual Humanimal Hub.

Slide 18: Awareness - To get our message out there to many audiences, like you, vets, doctors, other professionals, stalls at a variety of events, Creative Awards.

Our staff and volunteers give talks and presentations to many different groups – We enjoy visiting community groups to talk about our work and One Medicine,

The Humanimal Connection Podcast series can be accessed via our website. They give many examples of One Medicine in action around the world and are fascinating. Series two is currently being released.

We also attend professional and public events with a stand to talk about our work throughout the UK.

Slide 19: Research – fund, engage with and promote research to demonstrate the potential of One Medicine and demonstrate reciprocity in practice. No research uses animal testing models.

Slide 20: Five areas we focus on :-

Infection Control and antimicrobial resistance – this is a massive problem that is emerging both in humans and animals. Infections are highly virulent and can mutate – they can also stay dormant for a while and then flair up again. Antibiotics are given too often, they are sometimes used as a preventative in some farming methods. If doctors and vets study infections together, we can study antibiotic resistance together, saving time, money and lives.

Cancer – It is impossible to see from a sample whether a tumour came from an animal or a human. Osteosarcoma, which is cancer of the bone is highly prevalent in dogs. They have 10 times the incidence as humans. Consider this, they live in our environments, they share our space, we travel to the same places. If we study osteosarcoma in dogs (naturally occurring) think how much this would teach us about osteosarcoma in humans.

Brain and spine disease – Dogs and humans are affected by a similar range of spinal diseases. Like us, dogs suffer from degenerative diseases of the spine. The treatments currently available include disc replacements and decompression surgery are directly comparable between the species. These similarities create a great opportunity for collaboration.

Bone, muscle and joint disease – one example is osteoarthritis. A massive source of pain and mobility problems in humans and other species. Canine arthritis has been classified as a welfare issue within the species.

Regenerative medicine – this helps to restore tissues and organs affected by trauma or disease by stimulating the body's own repair mechanisms to heal and regenerate.

Slide 21: Data can be collated from treating animals with real, naturally occurring disease, living in the real world to help save the lives of others, and potentially other species.

In laboratory animal testing, virtually all animals are killed at the end of an experiment. Modern technology means this is often no longer necessary, and we can study the treatment of naturally occurring disease. Animals do not need to die.

Slide 22: Two research studies in collaboration with action medical research for children,

1. Preventing infections & reducing the risk of antibiotic-resistant infections in critically ill children

Around 20,000 children are admitted to intensive care units in the UK each year, and many will be given antibiotics for infections, with the additional issue of possibly creating antibiotic resistant bacteria which they would then struggle to fight. By using an alternative method of dealing with the infection then it may be possible to lower the risk.

2. Juvenile idiopathic arthritis. Around 12,000 children in the UK have juvenile idiopathic arthritis (JIA) – which is one in every 1,000 children under the age of 16. JIA is an autoimmune condition, meaning the immune system attacks the joint tissues – leading to inflammation, stiffness and pain.

The team has now developed a method to accurately measure the areas of inflammation in the sacroiliac joints via MRI screening. With this information the team can tailor the treatment to more accurately for the child's needs and reducing long term damage to the joints.

Slide 23: Lucy's research was to develop novel treatments for infections by using viruses that infect bacteria (bacteriophages) to treat bacterial infections, rather than antibiotics. In addition to this, using surveys of vets and pet guardians to see if this type of treatment is likely to be accepted into small animal medicine.

Slide 24: Education has a key role to play in facilitating One Medicine, it underpins all the work we do. We are now developing our education programme to cater for children from early years to graduation and beyond with CPD opportunities to inspire and encourage the understanding one One Medicine and its many benefits.

Slide 25: Our first Creative Awards took place in 2023 - look out for next years competition on our website

Slide 26: Podcast series 1, episode one really was One Medicine in action

Slide 27: They often treat the animals where the anesthetic takes effect, in this case it was in the late evening. They treat all wildlife, not just rhinos.

Slide 28: When a rhino has a horn removed by a poacher, they leave a massive wound on the rhino's face. This can take years to heal. They were looking for something that would be used to cover the wound and enhance healing. They found that this skin, acts as a cover that creates the correct atmosphere to prevent infection and promote healing.

Slide 29: A rhino who had been shot in the left side of her neck. She is being x-rayed with a portable human x-ray machine. Gun shot wounds are not common in veterinary medicine, so Dr Marias reached out to human medics who have much more experience with such wounds for help in treating such wounds.

Her ears are blocked with cloth and her eyes covered to limit the stimulation of the noises, and stress this may create. These are wild animals and are not used to human contact. She was lucky, the damage was not severe and she was treated and went back to the wild.

Slide 30:

Slide 31: Activity, please see teacher's notes of lesson plan

Slide 32: Recap of the main points of this lesson