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We're very excited to be holding our inaugural Symposium on 6 May 2021, to mark Humanimal Trust's 7th birthday and we very much hope that Hub members are able to join us for this event and our VIP Virtual Reception afterwards.

We're delighted that Hub members Professor Ali Mobasheri and Miss Anna Radford will be taking part in our Symposium's panel discussion on how the human and veterinary medical professions can work more closely together to take One Medicine forward. In this issue, we talk to Miss Anna Radford about her work as a Consultant in Paediatric Surgery and the collaborations she is seeking.

A Chat in the Collaboration Café

CC: Hi Anna and welcome to the Collaboration Café. Could you tell us about your work as a Consultant in Paediatric Surgery and your specialism in Paediatric Urology?

AR: I have been a consultant since August 2020, 15 years after qualifying as a doctor. I work at Hull University Hospitals NHS Trust where I do a mixture of planned activities (clinics and theatre) and on call emergency work on children.

The range of children I can be responsible for include those who are born as young as 17 weeks premature, weighing approx. 500g to teenagers weighing >100kg. In my general work I can be found, draining an infected pleural effusion in a toddler, resecting necrotic bowel in a baby or removing an appendix in a teenager. I use a mixture of "open" traditional techniques and endoscopic and minimally invasive procedures, including just starting my robotic surgical training.

My elective work tends to focus on congenital abnormalities of the kidney and urinary tract (CAKUT), particularly the upper tracts and bladder, which links into my PhD on regenerative medicine. The patients and pathology I find extremely rewarding to look after are those suffering neuropathic bladder, usually due to spinal abnormalities such as spina bifida. I do some of this work at Leeds Children's Hospital due to the shared expertise and facilities there. This has enabled a more regional and patient-centric approach to care.

HUB MEMBER PROFILE:

Miss Anna Radford



Miss Anna Radford is a Consultant in Paediatric Surgery with a specialist interest in Paediatric Urology, working both at Hull University NHS Trust and Leeds Children's Hospital. She is a Senior Clinical Lecturer at Hull York Medical School. Her research activities are in the areas of tissue engineering in the urinary tract, recurrent urinary tract infections in children, medical innovation in paediatrics and the neuropathic bladder.



Paediatric Surgeons are a bit of a rare and odd breed of surgeon because there is a significant amount of paediatric medicine involved along with the more practical, surgical element and the holistic approach to the children and their families, like a veterinary surgeon I suspect.

CC: Your research areas focus on tissue engineering in the urinary tract, recurrent UTIs in children, medical innovation in paediatrics and the neuropathic bladder – are these areas that you consider to be of benefit from a One Medicine approach and if so, how?

AR: The issues that my research covers are primarily problems that affect many species. As I will mention later cell theory states “all cells come from cells” and the recent pandemic has taught us many things about the close links between animal and human health and how much can be achieved in the world of research when people collaborate.

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Urinary tract infections (UTIs) are common entities globally in both human and veterinary medicine, as are recurrent UTIs and the emergence of antimicrobial resistance. The importance of genetics and epigenetics of the host (regardless of species) and organism are only now beginning to be slowly unpicked, let alone the complex interactions between the two. Previous issues for researchers have been the reliance of animal models for use in human medicine and laboratory derived pathogen isolates to produce data, which later are found not to “translate”.

Wherever there is a lack of native tissue then tissue engineering states that it can hold the key to success; be this allogeneic or autologous in nature. Human burns patients for years were using porcine-derived collagen scaffold grafts with mixed effect.

However, these scaffolds led to the production of a cadaveric human-derived dermal matrix, which can be used not just for burns patients but also in other fields, such a paediatric urology. Taking this work further is the next goal of our group.

Other groups have claimed to recreate whole entire bladders within a laboratory and transplant into research animals. After just over a month these animals were sacrificed and the technology translated into humans, which failed.

Recent advances in point of care testing have benefitted hugely from investment into COVID diagnosis, with surges of interest in lateral flow technologies in recent months. Many of the groups I am working with, alongside my biomedical engineering buddy, have the same ideas but for their field only; if all these groups apply for funding separately, they are competing against each other for the same pot of money and weakening their applications. I find it immensely frustrating as their aims, objectives and a lot of the science are the same.

I used a porcine model for my tissue-engineering work and a lot of the basic research in paediatric urology is solely based on animal models. When the biology does not “translate” into another species, such as the neo-bladder work, why are we surprised? If there was a wider collaboration at the start it might highlight potential pitfalls moving forward and allow us to commit to projects running together or in parallel, which will benefit the many, not just the few.

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CC: Why do you consider that there needs to be more joined –up thinking between human and veterinary medicine?

AR: I think I have touched on this significantly in the previous question. Just like the mantra that children are “not little adults”, similarly humans are different to other animals. But some processes and therapies are common to all: be it a genetic abnormality e.g., polycystic kidneys diseases, metabolic e.g., diabetes, malignant e.g., urothelial carcinoma or mental health concerns such as depression. Principles can be lifted from any field and utilised in another, we just have to look at Dyson’s ability to design and produce ventilators during the pandemic to see this in action. However, a word of caution here and that is any collaborative project needs to be timely and not excess to requirements.

Innovations in research and cross-fertilisation is the only way to progress all fields without wasting or duplicating efforts needlessly.

CC: You’re currently undertaking a survey in your paediatric surgical clinic and are looking for collaboration with Hub members who would be interested in running a parallel study in the areas of “People know more about their companion pet’s toileting habits than about their children”? Can you tell us more about this and how Hub members could get involved?

AR: Haha! This was initially a forum post out of frustration – but I later realised that in fact there are several elements to this work that are worth teasing out. I, like my veterinary colleagues, spend most of my time taking a history from the primary caregiver and trying to examine a, usually but not exclusively uncooperative patient. My big problem, and that of my colleagues, is when the primary caregiver, looks at me stating that “my child has been fully independent since around 2”. Then they will look at their child, for example aged 3 and asked what their urinary stream is like – met by the face of a quizzical child and a bemused and still clueless me.

I have started to hand out surveys in my clinic to find out when parents seem to determine that their child is completely independent for personal care, such a teeth cleaning etc

and I throw in my urology questions amongst these generic questions. The results are fascinating, if a little worrying.

I have an 11-year-old Sprocker spaniel, who I love to bits and I am sure I know more about his “habits” (despite not being home most of the day) than the parents in my clinic. However, I need evidence – so anyone is welcome to get in touch and help me design an “adjusted” survey for veterinary practice, even if it makes a Christmas journal edition it would certainly get attention.

CC: You sit on the Young Academic Working Group in Paediatric Urology in the EAU – what has been your experiences of fellow medics’ opinions about “ One Medicine”.

AR: I have to say that when I talk about the “One Medicine” concept to my colleagues in the UK and further afield, many have not heard of the idea. Everyone remembers Dr Romain Pizzi, who worked for the Royal Zoological Society at Edinburgh Zoo, regaling us at a national conference about his ability to laparoscope anything that moved, but that is it. When I dig deeper most feel that it would be a good idea to get collaborations moving but are not sure how to or lose interest once the novelty of the idea has worn off. I find many get confused between experimental animal models for human disease and true “one medicine” in practice.



However, just recently I have set up a small group of paediatric urologists and veterinary surgeons interested in producing a piece of work together and the virtual meetings leave me and those involved with a feeling of reciprocal fascination and surprise at some of the common issues and solutions.

CC: You mentor young people from disadvantaged backgrounds who aspire to a career in medicine. Can you tell us more about your mentoring work and do you think there is an opportunity for more integrated mentoring programmes with doctors and vets joining together to inspire those who wish to pursue a career in human or veterinary medicine?

AR: I mentor teenagers thinking about a career in medicine or health-care allied professions through The Sutton Trust, Brightside and MyBigCareer charities, all of which are geared towards social mobility. Alongside this I mentor medical students and surgical trainees in both Leeds and Hull. The ability for us to live in a society where young people can aspire to be whatever they wish is a personal one.



I am proud to be a milkman's and cleaner's daughter. However, over the years, and from a very young age I was told I could not be a doctor because: my parents were not doctors, I didn't know the right people, no one in my family had been to university, I wouldn't get the work experience etc. etc. The lessons I learnt by not having everything placed in front of me have made me the determined or "stubborn" individual I am today. However, I was lucky enough to have not had to pay tuition fees because of my background at that time. I blindly went to medical school in London, worked many jobs and met some fantastic people who inspired me on that journey. The reality was that I still came out saddled with debt, which I have just paid off.

Careers in medicine or veterinary medicine are not cheap if you want to be able to show the same "dedication to career" as some of your better-off colleagues, it is hard. People need support and insight before, during and after going to university regardless of what caring field they enter be it veterinary or human medicine, nursing etc.

A lot of the young adults I meet are extremely bright and articulate, many are unsure what career path they want to take. I have met a lot of people who picked medicine because they wanted to achieve, which they did but many left the profession, which seems a waste. I try to encourage all the fantastic young people I get to meet to be brave, determined but informed about their career goals, but above all be happy. As we all know work is not really work if you enjoy it.

Joint mentorship schemes I personally think would be a great success, as I have mentioned before there are many similarities and I think probably similar personality traits between the two professions. The opportunity to meet both areas of specialty would also ensure that the next generation do not see the two fields as separate.

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CC: How do you think we can inspire the doctors and the vets of the future to collaborate more routinely and adopt a One Medicine Approach?

AR: I truly believe the next generation of vets and doctors hold the key. I cannot comment about veterinary medicine but in my world there are some key figures who get up and talk about their results and berate others methods and ideas. There are whole "family trees" of paediatric surgeons trained by these individuals who copy "this way", "that way" for their whole careers. Many of these original individuals were ground breakers in terms of surgical practice or academia and yet many have no living legacy in terms of development. No future group of innovators improving on what has gone before, maybe these things could never be improved but such things are rare.

Interestingly, I believe, younger people are more open in their communication, be it through a virtual platform or in real life there seems to be an increase willingness to listen, learn and join in. An example of this is being seen increasingly at our conferences where there are sessions entitled "my worse mistake and what I have learned". These are great sessions and usually the speakers are heartened by the fact that they were usually not the first to encounter these complications.

"I truly believe the next generation of vets and doctors hold the key"

I think "One Medicine" sessions at main conferences in both the human and veterinary medical world to openly discuss "One Medicine" would be enough to at least start a much-needed dialogue. Not everyone will be fans but if you can get the younger generation to think laterally before writing that grant proposal, get a colleague to help, widen the remit then it would have been a success. I am currently trying to identify a journal to send a piece of "One Medicine" work to but there is currently no obvious "go to" journal. These are the sort of areas that need targeting.

CC: Who has most inspired you and who (present or historical) would you most like to collaborate with?

AR: Anyone who has told me to just get on with it, has inspired me, equally however those who told me it cannot be done have inspired me! I have been lucky enough to meet some amazing people; some of whom have literally had to fight for their careers but then have taken the time to help me.

Rudolf Virchow however is an inspiration and who I would most like to collaborate with as I believe his goals align with mine, except the career in politics. Virchow was a Professor of pathology and proposed the concept of cellular pathology or "Omnis cellula e cellula – All cells come from cells". He was the first to describe many problems seen in paediatric urology and surgery including Spina Bifida and neuroblastoma. He is also the grandfather of "One Medicine" arguably as he repeatedly saw the links between human and animal health, famously describing the life cycle of *Trichinella spiralis*.

His work on *Trichinella* probably led to the fabrication (disappointingly) of the "duel of the sausages" fought with the military and self-proclaimed German leader Otto von Bismarck. Virchow, who was also a politician in the liberal party for 40 years, accused Bismarck of habitual lying. Consequently, the military man challenged the bespectacled Professor Virchow to a duel. Knowing he would likely die, not being a military man, Virchow chose sausages laced with *Trichinella* or saline to even the odds to 50:50. Bismarck withdrew.... allegedly.



Virchow was also an anthropologist and offered evidence against the horrendous concept of Teutonic supremacy. He was a verdant advocate for the deprived in society using all his skills he reformed German sanitation, education, and hospital systems. He was not however perfect, he was human, and was a staunch critic of Darwin calling him an “ignoramus”.

Most importantly for me, Virchow, reminds me why I went into medicine and why I believe in “One Medicine”. He, time and again, acted to stand up for those who society chose not to listen to, or those who could not speak of for themselves. He used good science as a weapon to promote social justice. For me be it for children or animals “physicians are the natural attorney of the poor”.

Find out more:

The Collaboration Café wishes to thank Miss Anna Radford for joining us in this issue’s conversation.

Connect: Anna will be one of our panel members taking part in our panel discussion during our Symposium. If you would like to connect with Anna, she can be contacted directly via the Hub.

Collaborate: If you’re interested in collaboration with Anna on a parallel study or writing a joint One Medicine paper, please do get in touch with Anna directly on the Hub, or via our admin email address.

Contribute: Would you like to be profiled in a future edition of Collaboration Café? Please do get in touch either directly on the Hub or via our admin email address and we’ll take care of the rest!

Celebrating One Medicine Day Thursday 6th May 2021

Before you go:

Humanimal Trust Inaugural One Medicine Day Symposium Thursday 6 May 2021

We would be delighted if you would join us for our inaugural symposium, being held virtually via Zoom. Our symposium’s theme is: “Stronger Together: How we can take One Medicine forward” and will bring together the human and veterinary medical professions, the nursing profession and professionals from the allied health and scientific disciplines for a day of shared learning and discussion. If you have not yet registered and would like to attend, please visit our symposium event page here: <https://www.humanimaltrust.org.uk/medical-professionals/one-medicine-symposium-2021> We’d be really grateful if you would please consider sharing details of our symposium with your professional networks.

To conclude our symposium, we are holding a virtual VIP Reception – attendance at this virtual reception is strictly by pre-registration only. We’d love to meet you, so if you’d like to meet the Humanimal Trust team, our Trustees and symposium speakers and panel members please pre-register via the Hub’s Events page.



“How kissing a frog can save your life”

We've loved hearing about Hub Member, Dr Matt Morgan's second book (titled as above), which is due to be published in 2022. If Hub Members want to find out more about Matt's book, please do connect with him directly via the Hub.



Next Edition of Collaboration Café

One Medicine special edition!

To celebrate our 7th birthday on Humanimal Trust's One Medicine Day on 6 May, our next edition will be a special edition focused on One Medicine. We'll be profiling Hub Member, Stephanie Bollard and the work being undertaken at the Comparative Oncology Group, University College Dublin. We'll also be featuring guest articles from companies taking a One Medicine approach such as Test and Treat and a round up report on our symposium.