HUMAN AND ANIMAL DISEASE DATA COLLECTION

DIFFERENCES BETWEEN THE NORDIC COUNTRIES

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CLIMATE SENSITIVE INFECTIONS (CSI)

Definition:

Both human and animal infections, mainly zoonotic infections.

Are in some way dependent on the natural environment for their spread or persistence, e.g. transmission to a new host or species uses arthropod vectors, water or soil, or uses wildlife as a reservoir.

Caused by climate-induced stress e.g. by heat or by crowding due to shortage of food/feed or water, and thereby immunosuppression and easier acquired opportunistic infections.

Diseases/Infections	Pathogens	NO	FIN	SWE
Alphaherpesvirus infection	Alphaherpesvirus (CvHVB)	No	No	No
Anaplasmos	*Anaplasma phagocytophilum*	No	No	No
Anthrax	*Bacillus anthracis*	Yes	Yes	Yes
Babesios	*B. divergens*	No	Yes	Yes
Bluetongue disease	Bluetongue virus (BTV)	Yes	No	No
Borrelios	*Borrelia burgdorferi* sensu lato	No	No	No
Botulism	Clostridium botulinum	No	Yes	Yes
Brucellos	*Brucella abortus, B. melitensis*	No	No	Yes
Campylobacter infection	Campylobacter	No	No	No
Clostridios	Clostridium spp. unknown	No	Yes	Yes
Cryptosporidiosis	*Cryptosporidium parvum*	No	No	No
Echinococcosis	*Echinococcus multilocularis/granularis*	Yes	No	Yes
Elaphostrongylus rangiferi	Elaphostrongylus rangiferi	No	No	No
Erysopelotrix	Erysipelothrix rhusiopathiae	No	Yes	No
Fascioliosis	*Fasciola hepatica*	No	No	No
Gammaherpesvirus	Gammaherpesvirus (spp. unknown)	No	No	No
Giardiasis	Giardia spp.	No	No	No
Leptospiros	*Leptospira interrogans*	Yes	Yes	Yes
Listerios	*Listeria monocytogenes*	No	Yes	Yes
Necrobacillose	Necrobacillose spp. unknown	No	No	No
Nephropathia epidemica	Puumalavirus	No	No	No
Parapoxvirus (Orf)	Parapoxvirus (Orf)	No	Yes	No
Pasteurella	Pasteurella spp.	No	No	No
Pestivirus	Pestivirus (spp. unknown)	No	No	No
Q-fever	*Coxiella burnetii*	No	Yes	Yes
Rabies	Rhabdovirus	No	Yes	Yes
Salmonellos	*Salmonella spp.*	No	No	Yes
Schmallenberg virus (SBV)	Schmallenberg virus (SBV)	No	No	Yes
Setaria tundrae	Setaria tundrae (nematode)	No	No	No
Sindbis fever/Pogosta/Ockelbo	Sindbisvirus	No	No	No
Tick Borne Encephalitis (TBE)	Flavivirus	No	No	No
Toxoplasmosis	*Toxoplasma gondii/ spp*	No	No	No
Trichinellosis	*Trichuris trichiura*	Yes	Yes	Yes
Tularemia	*Francisella tularensis*	No	Yes	Yes
West Nile Fever	Flavivirus	No	No	No
Vtec/EHEC	Eshericia coli O A57	No	No	Yes

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FACTORS CONSIDERED WHEN POSSIBLE CSI ARE SELECTED AND CHARACTERISED

Clinical Relevance
high, moderate, low, none

Temporal Relevance
present, emerging, future

Spatial Relevance
entire area, several countries/ regions, spot-wise in a country/region, in few locations/local/regional, not present/presence not known

Drivers of Epidemiology
species movement/extinction, invasion of new species, changed habits/behaviour opportunistic infections


Transmission


Climate Sensitive Infections (CSI)
in animals and humans

Zoonotic Infections
transmission between animals and human

Intermediate host/ Reservoirs Animals



Arthropod Vectors



COLLECTION OF ANIMAL AND HUMAN DATA

Country	Animal	Human
Sweden	Swedish Board of Agricultural National Veterinary Institute (SVA)	The Public Health Agency of Sweden
Norway	Norwegian Veterinary Institute	Norwegian Institute of Public Health
Finland	EVIRA, the Finnish Food Safety Authority	National Institute for health and welfare (THL)
Iceland	Icelandic Food and Veterinary Authority (MAST)	Centre for Health Security and Communicable Disease Control
Greenland	Naalakkersuisut, Government of Greenland	Statens Serum Institut (in Denmark)
Russia	Federal Research Center for Virology and Microbiology (CVM)	Institut Pasteur in Saint Petersburg

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SELECTED HUMAN CSI

- Anthrax
- Borrelios (Lyme disease)
- Brucellosis
- Cryptosporidiosis
- Leptospirosis
- Puumala (Nephropathia epidemica)
- Q-fever
- Tick born encephalitis (TBE)
- Tularaemia

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DIFFERENCES BETWEEN THE NORDIC COUNTRIES HUMAN DATA

		Disease						
		is	Brucellosis	Cryptosporidiosis	Leptospirosis	Nephropathia epidemica	Q-fever	Tick-borne encephalitis	Tularaemia
Data obtained from year	Sweden		2010	2004	2008	1997	2007	2004	1997
	Finland		1995	1995	1995	1995	1995	1995	1995
	Norway		2004	2012	n/a[a]	1991	n/a[d]	1998	1985
	Iceland		2005	2013	2014	1997	2005	n/a[a]	2005
	Greenland		n/a[a]	n/a[a]	n/a[a]	n/a[a]	n/a[a]	n/a[a]	n/a[a]
Disease notifiable from year	Sweden		2004	2004	2004	1985	2004	2004	1969
	Finland		1995	1995	1995	1995	1995	1995	1995
	Norway		1977	2012	n/a[a]	1991	2012	1975	1977
	Iceland		2005	2013	2014	1997	2005	n/a[a]	2005
	Greenland		n/a[a]	n/a[a]	n/a[a]	n/a[a]	n/a[a]	n/a[a]	n/a[a]
Information regarding sex and age/age group from year	Sweden		n/a[c]	2004	n/a[c]	1997	n/a[c]	2004	1997
	Finland		1995	1995	1995	1995	1995	1995	1995
	Norway		2004	2012	n/a[a]	1991	n/a[d]	1998	1985
	Iceland		n/a[b]	n/a[c]	n/a[b]	n/a[b]	n/a[b]	n/a[a]	n/a[b]
	Greenland		n/a[a]	n/a[a]	n/a[a]	n/a[a]	n/a[a]	n/a[a]	n/a[a]

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DIFFERENCES BETWEEN THE NORDIC COUNTRIES HUMAN DATA

No data if not notifiable!

When you start to look for the disease it may be there…

		Borreliosis	Tick-borne encephalitis	Cryptosporidiosis
Data obtained from year	Sweden	n/a[a]	2004	2004
	Finland	1995	1995	1995
	Norway	1990[e]	1998	2012
	Iceland	n/a[a]	n/a[a]	2013
	Greenland	n/a[f]	n/a[a]	n/a[a]
Disease notifiable from year	Sweden	n/a[a]	2004	2004
	Finland	1995	1995	1995
	Norway	1991	1975	2012
	Iceland	n/a[a]	n/a[a]	2013
	Greenland	n/a[f]	n/a[a]	n/a[a]

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Journal
International Journal of Circumpolar Health ›
Volume 78, 2019 - Issue 1

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Short Communication

Discrepancies in data reporting of zoonotic infectious diseases across the Nordic countries – a call for action in the era of climate change

Anna Omazic, Camilla Berggren, Tomas Thierfelder, Anders Koch & Birgitta Evengard

Article: 1601991 | Received 18 Jan 2019, Accepted 27 Mar 2019, Published online: 14 Apr 2019

Download citation https://doi.org/10.1080/22423982.2019.1601991 Check for updates

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SELECTED ANIMAL CSI

- Data has been received from **Swedish Board of Agricultural, Norwegian Veterinary Institute** and **EVIRA, the Finnish Food Safety Authority**.

- Only few data from Greenland, **Naalakkersuisut, Government of Greenland** – Rabies (mainly fox and dog) and Trichinellosis (mainly polar bear).

- No data from Iceland, **Icelandic Food and Veterinary Authority (MAST)** – the diseases does not exist or are not registered.

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ANIMAL DATA - SWEDEN

Climate Sensitive Infections	Nb. of incidence	Retrived from year	Wild vs Domesticated %	
			Wild	Domestic
Anthrax	11	2008-2016	18	82
Babesiosis	24	2005-2016	0	100
Botulism	51	2000-2016	4	96
Brucellosis	4	2008-2014	0	100
Echinococcosis	11	2000-2016	64	36
Leptospirosis	202	2000-2016	2	98
Listeriosis	551	2000-2016	2	98
Q-fever	37	2009-2011	0	100
Rabies	3	2010	100	0
Salmonellosis	530	2008-2012	9	91
Schmallenberg virus	3	2012	0	100
Trichinellosis	36	2002-2012	100	0
Tularemia	99	2004-2016	95	5
Vtec/EHEC	21	2000-2012	14	86

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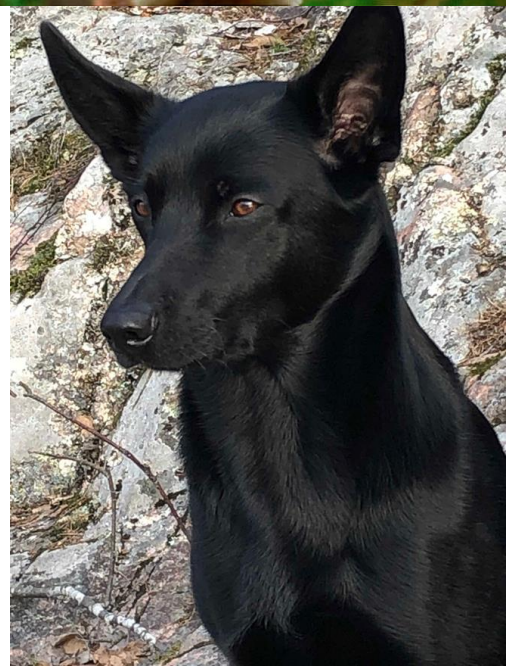
ANIMAL DATA COLLECTION SUMMARY

Across countries and over the time we have noticed varied

- availability and quality of data
- reporting routines for a specific disease, especially for wildlife
- registration routines and data bases changes over time
- for certain diseases if they are notifiable and if control and eradication programs exists



- We have had some difficulties to receive animal data and it has been very time consuming.
- An international standardization in reporting of animal infectious diseases is needed to better monitor and understand the epidemiological changes influenced by climate change.
- An extended collaboration and harmonization including the rest of the Arctic nations would also be desirable.

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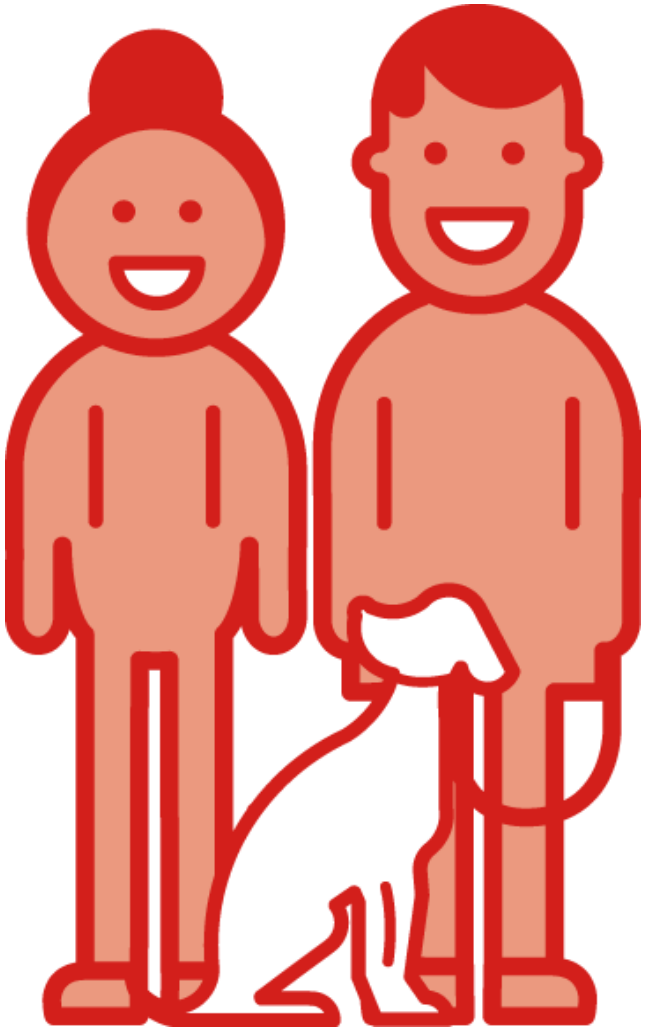


Friska djur
- trygga människor

Statens veterinärmedicinska anstalt, SVA, är en expertmyndighet med beredskapsuppdrag. SVA främjar djurs och människors hälsa, svensk djurhållning och vår miljö genom diagnostik, forskning, beredskap och rådgivning.

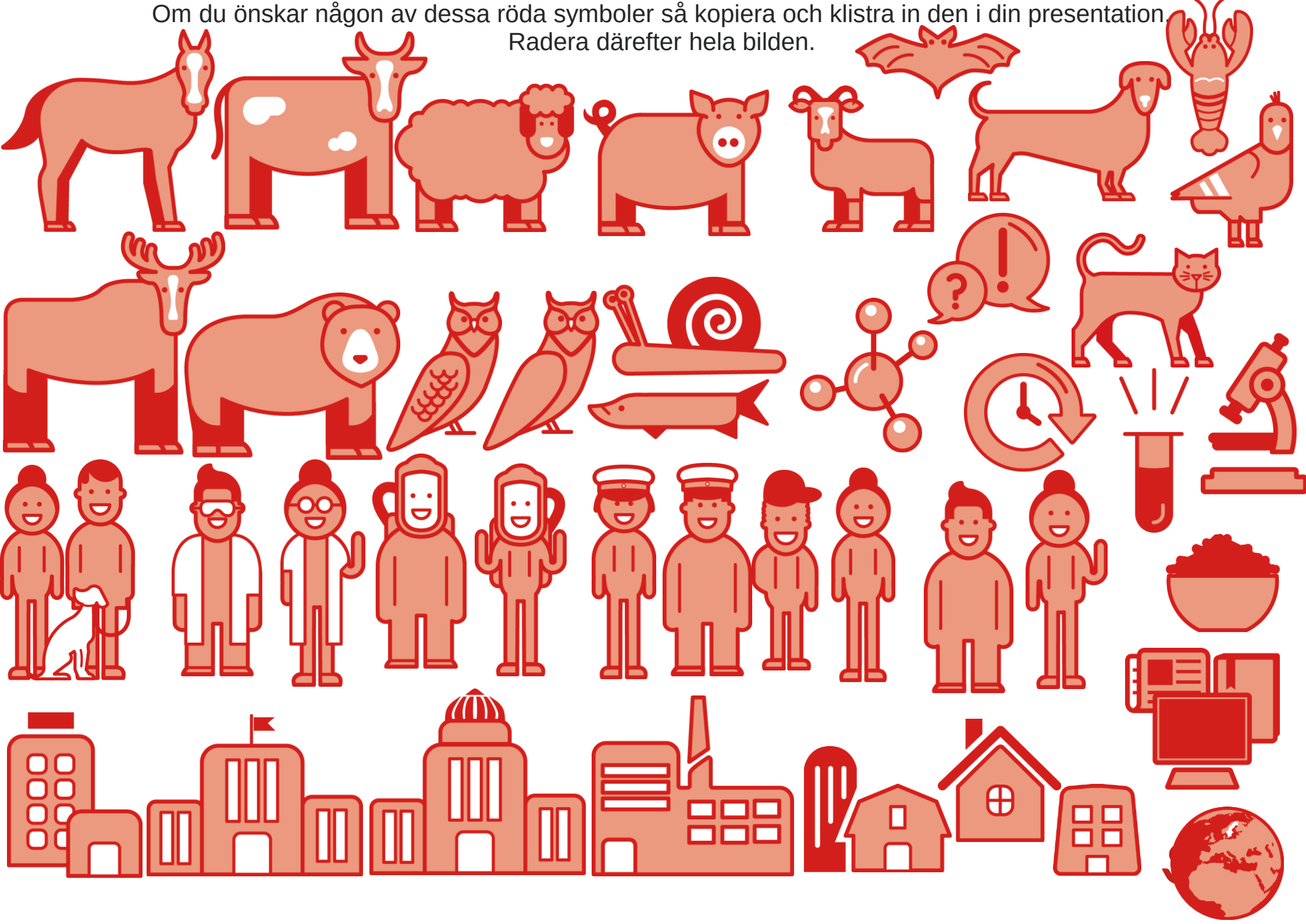
Vi är Sveriges ledande veterinärmedicinska laboratorium.

Vi forskar och utvecklar nya metoder. Våra experter har unik spetskompetens.

Vi följer sjukdomsläget. Om något händer är vi beredda.

Vi delar med oss av vår kunskap. I Sverige och i många andra länder.

Om du önskar någon av dessa röda symboler så kopiera och klistra in den i din presentation.
Radera därefter hela bilden.



Om du önskar någon av dessa röda symboler så kopiera och klistra in den i din presentation.
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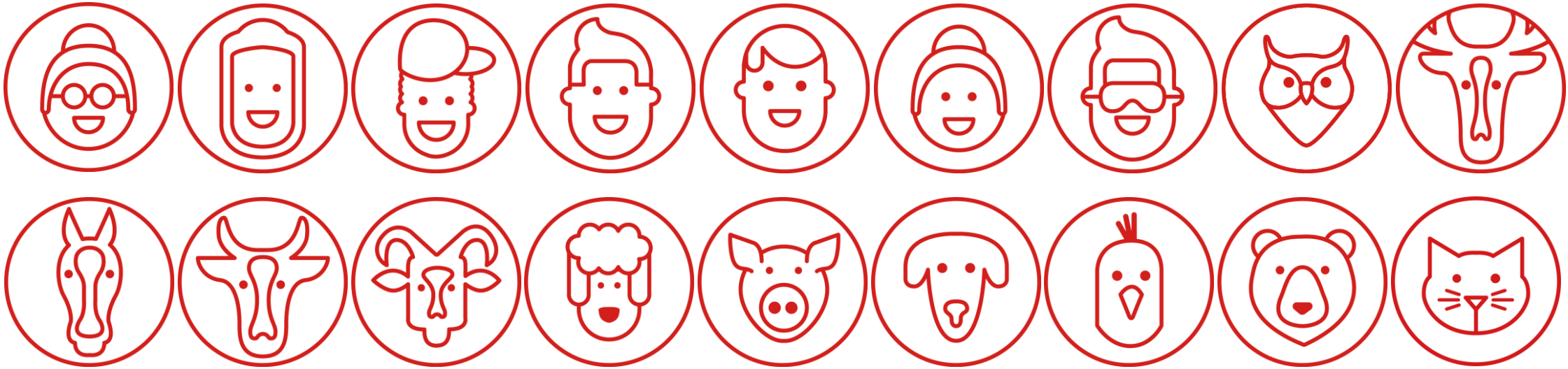

Om du önskar någon av nedanstående helt **vita** symboler så
kopiera och klistra in den i din presentation på färgat underlag.