Vaccinating risk groups against H5 avian influenza in Finland

Hanna Nohynek, Erika Lindh, Merit Melin

For AiB

5 December 2024

Finnish Institute for Health and Welfare

Hanna Nohynek

Country: Finland

Affiliation: Finnish Institute for Health and Welfare

Function: Chief physician, MD PhD Professor

Main expertise: clinical trials, vaccine safety and effectiveness, decision making

CoI: member THL NITAG,
Chairman WHO SAGE

Adult Immunization Board

UNIVERSITÀ DEGLI STUDI FIRENZE DSS DIPARTIMENTO DI SCIENZE DELLA SALUTE

University of Antwerp

Outbreak of HPAI H5N1 at fur farms in Finland, June-December 2023

27 confirmed (RT-PCR) and 42 probable (seropositive) **fur farms** in Western Finland
Affected 0.5 million **fur animals**, mainly foxes and mink, all culled

556 reported H5N1 exposure events in humans
406 samples from exposed persons were tested
No H5 RT-PCR positive human cases were detected

In October 2024 in total ~280 active fur farms, also the previously affected farms can have new animals

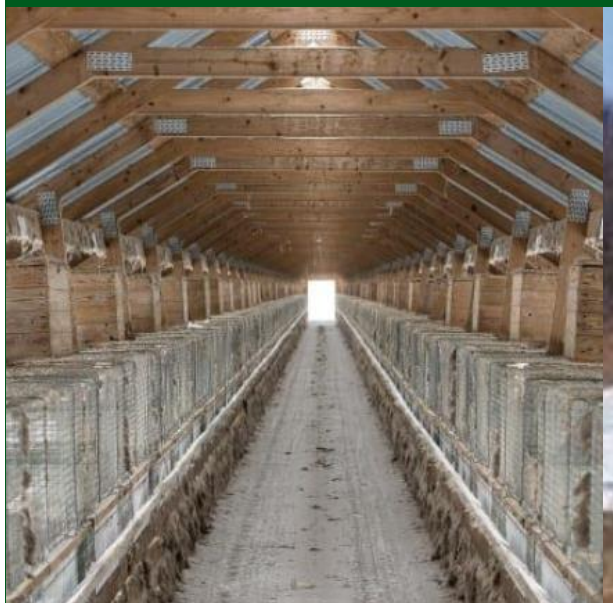


Image:Yleisradio

Public health actions during the outbreak

Overseeing identification and testing of exposed people
- detection of viral nucleic acids and neutralizing antibodies

Evaluating evidence to provide recommendations
- for the public, health care actors, stakeholders

Monitoring viral evolution
- assessing the human health impact of mutations

Vaccinations

Enhanced surveillance and new biosecurity requirements

In Finland, fur farming is considered a livelihood protected by the Constitution

New legislation April 2024:

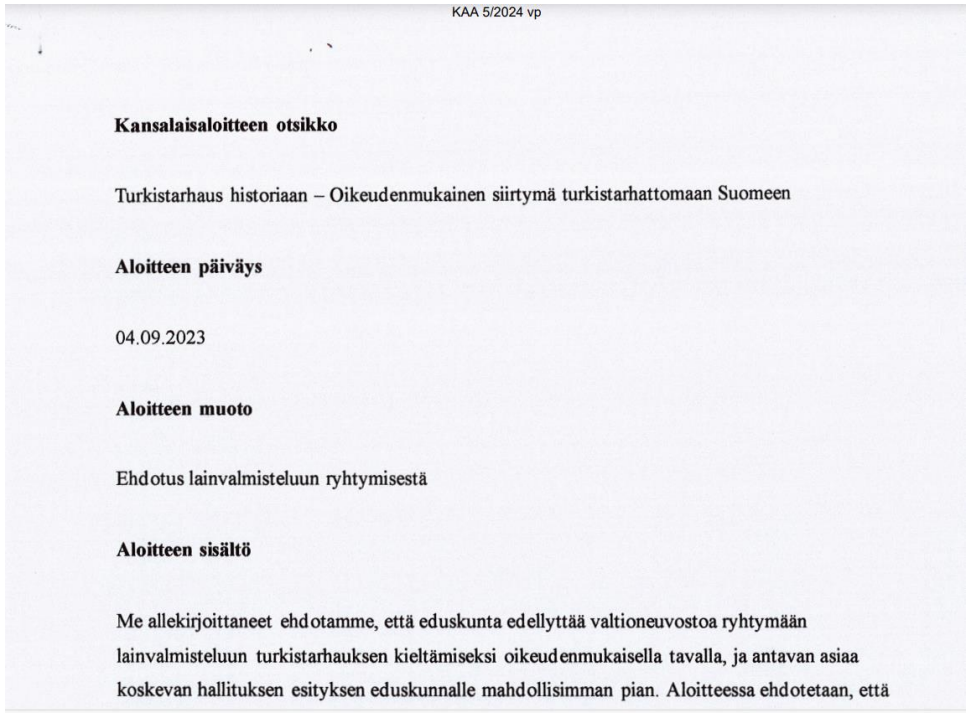
- All fur animals, their drinking water and fodder must be protected from contact to birds
- Shadow houses must have doors and netting all over, (mesh size max 25 mm)
- Extra netting in seagull season from April until October
- Pest control, cutting grass
- Clean working clothes and shoes

During HPAI surveillance of fur animals:

- A total 2737 animals from 254 farms were investigated (PCR and antibodies)
- No positive findings June – Sept 2024

In 2024, no HPAI findings in wild birds

Citizen appeal to the Parliament in 9/2023 ”Stop fur farming in Finland by law”



KAA 5/2024 vp

Kansalaisaloitteen otsikko

Turkistarhaus historiaan – Oikeudenmukainen siirtymä turkistarhattomaan Suomeen

Aloitteen päiväys

04.09.2023

Aloitteen muoto

Ehdotus lainvalmisteluun ryhtymisestä

Aloitteen sisältö

Me allekirjoittaneet ehdotamme, että eduskunta edellyttää valtioneuvostoa ryhtymään lainvalmisteluun turkistarhauksen kieltämiseksi oikeudenmukaisella tavalla, ja antavan asiaa koskevan hallituksen esityksen eduskunnalle mahdollisimman pian. Aloitteessa ehdotetaan, että

thl

LAUSUNTO

14.11.2024

THL/6687/4.00.00/2024

1 (3)

Eduskunnan maa- ja metsätalousvaliokunta

Eduskunnan maa- ja metsätalousvaliokunnan julkinen kuuleminen 15.11.2024 kansalaisaloitteesta: Turkistarhaus historiaan – Oikeudenmukainen siirtymä turkistarhattomaan Suomeen (KAA 5/2024 vp)

Terveyden ja hyvinvoinnin laitoksen lausunto turkistarhauksen aiheuttamasta riskistä ihmisen terveydelle

Maailman väestö altistuu matkustamisen, elintapojen ja myös elinkeinojen harjoittamisen takia uusille mikrobien aiheuttamille terveysuhkille. Tapoja ja käytäntöjä, joita aiemmin on pidetty turvallisina, on tarkasteltava uudestaan paitsi yksittäisen ihmisen tai kansallisesta näkökulmasta, myös maailmanlaajuiselta vaikuttavuudeltaan.

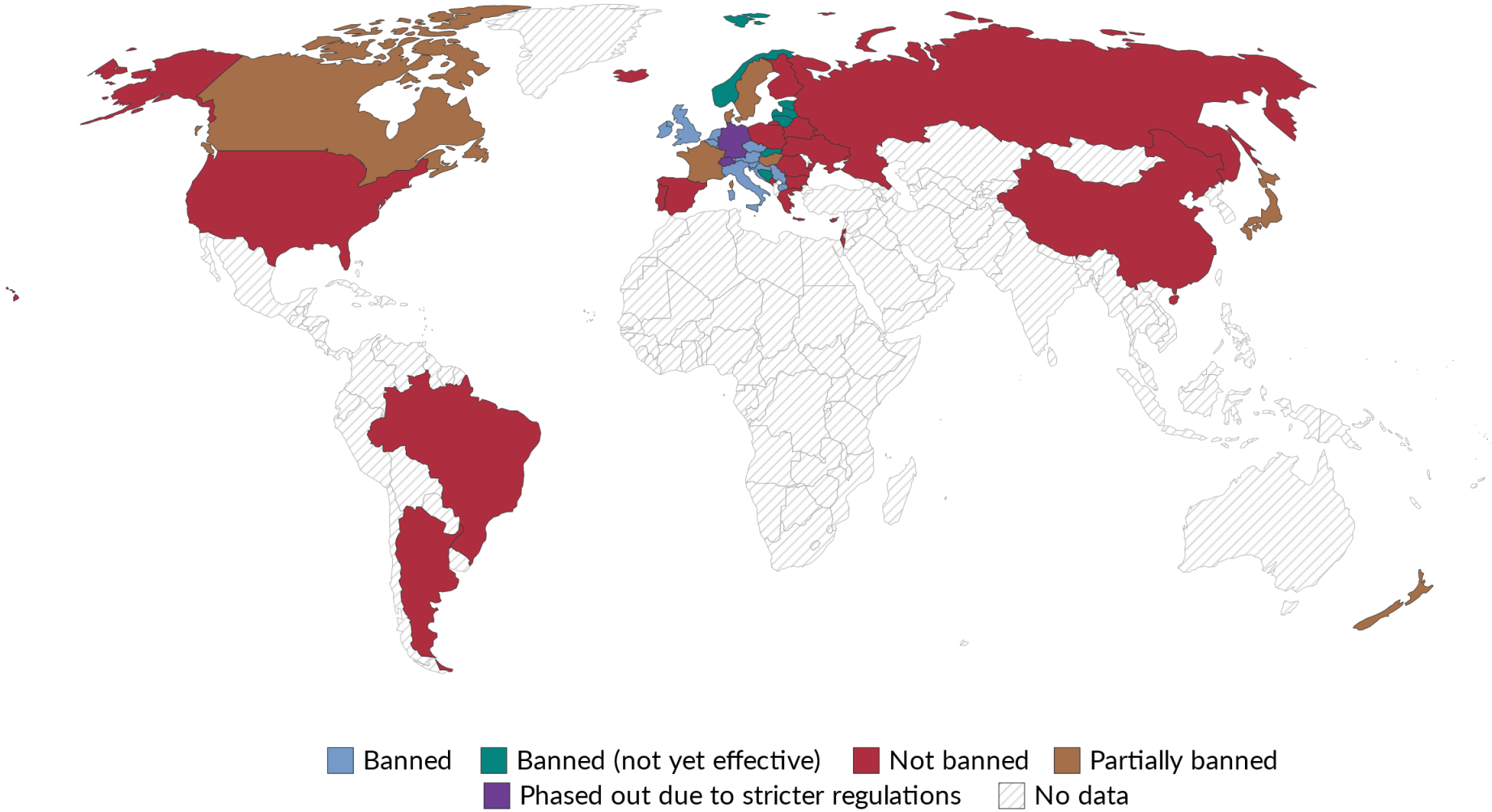
Vuosisadan aikana ihmiskuntaa on koetellut viisi pandemiaa, jotka ovat kokonaan tai osittain saaneet alkunsa eläimistä. Neljä pandemioista on

thl

Which countries have banned fur farming? 2024

Countries that have banned fur farming at a national level.

Our World in Data



thl

Data source: Fur Free Alliance (2024)

OurWorldinData.org/animal-welfare | CC BY

Note: Partially banned means that there are only sub-national bans or that only certain species are banned. Some countries do not have bans but introduced stricter regulations that led to the phase-out of farms, as they were no longer profitable.

Target groups of the avian influenza vaccinations to protect those at risk and to prevent virus reassortment leading to potential pandemic, N= ~10 000

- Workers at fur farms
- Poultry workers
- Veterinarians in the public sector
- Bird ringers
- Laboratory personnel handling the avian influenza virus or samples that may contain the virus

- All groups offered also seasonal influenza vaccination since fall 2023

Avian influenza vaccinations in Finland : Rationale for the recommendation and the target groups of the vaccinations

Virkku A, Lindh E, Kalin-Mänttäri L, Melin M, Nohynek H, Ikonen N.

THL working paper 43/2024

https://urn.fi/URN:ISBN:978-952-408-340-9

EDITORIAL

One health, many interpretations: vaccinating risk groups against H5 avian influenza in Finland

Hanna Nohynek[1], Otto Matias Helve[1]
1. Department of Health Security, Finnish Institute for Health and Welfare (THL), Helsinki, Finland

https://doi.org/10.2807/1560-7917.ES.2024.29.25.2400383

Zoonotic influenza vaccine Seqirus

EMA/122191/2024
EMEA/H/C/006375

Zoonotic influenza vaccine Seqirus (*zoonotic influenza vaccine [H5N8] [surface antigen, inactivated, adjuvanted]*)

contains a flu strain A/Astrakhan/3212/2020 (H5N8)-like strain (CBER-RG8A) (clade 2.3.4.4b) and MF59C.1 adjuvant

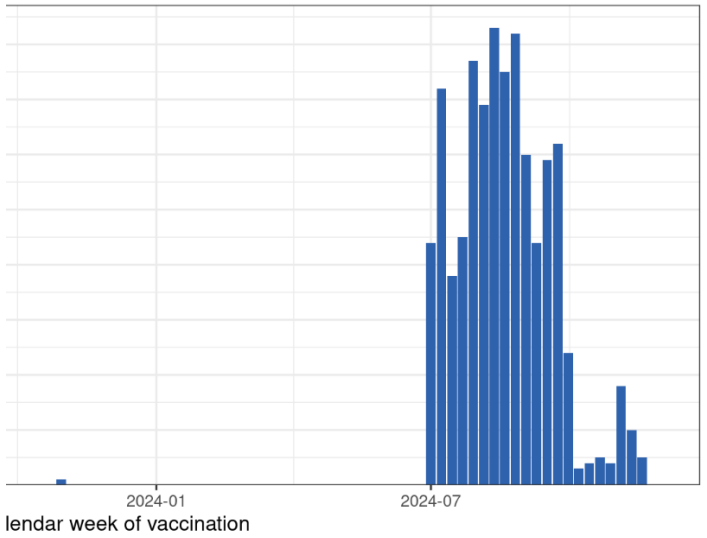
On 11 June 2024, HERA signed a joint procurement framework contract to supply up to 665,000 doses of the zoonotic influenza (avian flu) vaccine from Seqirus, with an option for an additional 40 million doses.

This contract, aimed at preventing avian flu, ensures that participating Member States have access to medical countermeasures if needed.

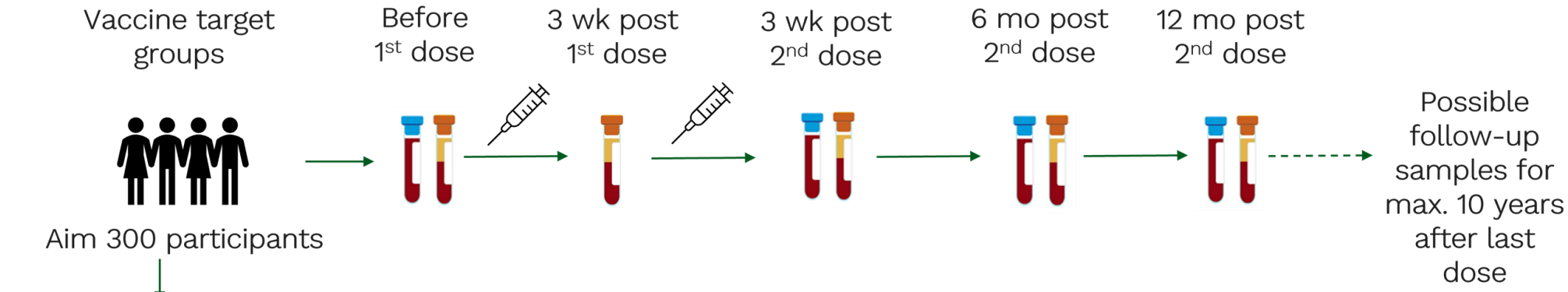
thl

Avian influenza vaccination started in June-July 2024

- Finland was ready to start vaccination already in 2023 when the epidemic was at its highest
- EMA: Vaccine MA in June 2024 – much delayed from the initial estimates
- By 23 November 2024, a total 490 (5%) of target group has taken 1st dose,
  395 also the 2nd dose
- Behavioral research on reasons taking / not taking vaccine will be done Nov-Dec 2024 to help plan the early 2025 vaccine campaigning
- Vaccinations planned to resume more actively before spring migration of birds in 2025



THL sponsors a Phase IV Observational Study of Immune Responses to the Avian Influenza Vaccine in Finland; Study cohorts and samples



Study cohort 1
Target groups of the avian influenza vaccine campaign 2024

Study cohort 2
Subjects of cohort 1 who have previously received H5N1 vaccine in 2009 and/or 2011

In addition, safety information is collected via passive surveillance
In collaboration with Fimea

Ekström et al. *Avian influenza vaccine induced immune responses – study design and methods of a clinical vaccine trial in Finland.* Poster at Nordic Vaccine Meeting, Copenhagen 12-13 September 2024.

Immunological analyses in 2024

- We aim to complete the immunological analyses of samples from study participants (n=43) collected in 2024 by the end of the year.
- Neutralizing antibodies will be measured both at THL using a microneutralization test and in collaboration with Erasmus MC in the Netherlands using the HI test. Cell-mediated immunity will be studied in collaboration with the University of Turku, Finland and Erasmus MC.
- In addition, antibody levels will be measured using a multiplex method for both H5 and seasonal influenza antigens (H1, H3) with a FMIA method (fluorescent multiplex immunoassay) set up at THL, in collaboration with RIVM, the Netherlands.
- From this small cohort it will be possible to assess antibody responses against the vaccine virus and epidemic viruses. The sample size for assessing cell-mediated immunity is quite comprehensive.

Question & comments ?

Terveyden ja hyvinvoinnin laitos

3.12.2024

Thank you!

Backup slides

Zoonotic influenza vaccine composition

Influenza virus surface antigens (haemagglutinin and neuraminidase)* of strain:

- **A/Astrakhan/3212/2020 (H5N8)-like strain (CBER-RG8A) (clade 2.3.4.4b**) 7.5 micrograms**

  per 0.5 ml dose

* propagated in fertilised hens' eggs from healthy chicken flocks

** expressed in micrograms haemagglutinin (HA).

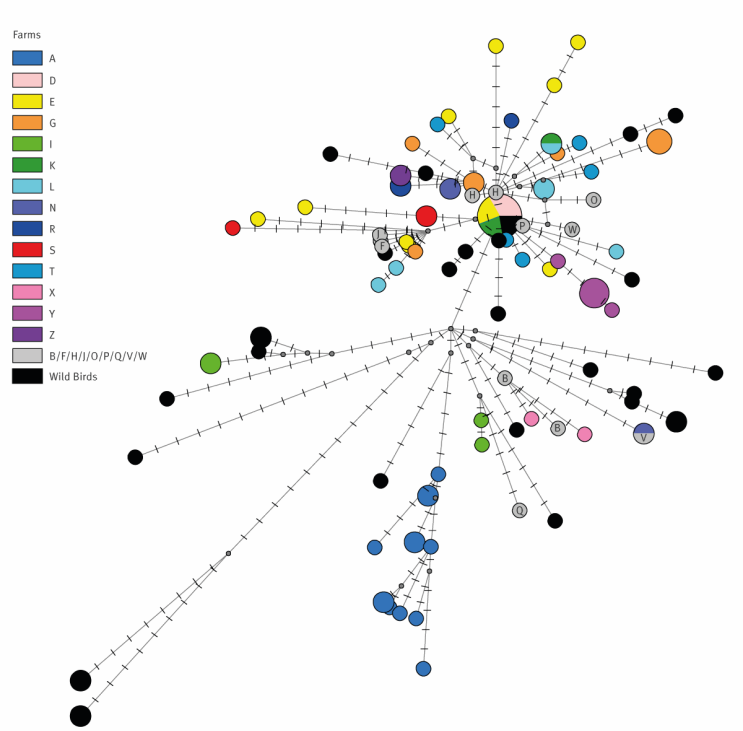
- **Adjuvant MF59C.1** containing per 0.5 ml dose:
- squalene (9.75 mg), polysorbate 80 (1.175 mg), sorbitan trioleate (1.175 mg), sodium citrate (0.66 mg) and citric acid (0.04 mg).

- Zoonotic Influenza Vaccine Seqirus may contain trace residues of egg and chicken proteins,

  ovalbumin, kanamycin, neomycin sulphate, formaldehyde, hydrocortisone and

  cetyltrimethylammonium bromide which are used during the manufacturing process (see section 4.3).

Reducing the risk of human infections to an acceptable level



Kareinen et al. EuroSurv. 2024

- The outbreak was seeded by several independent introductions from the environment/wild birds to the farms
- New legislation in April 2024 to improve health security on fur farms describes practices for
  - safe food and water
  - restricting contacts between farmed animals and wild and domestic animals
  - pest control
  - mitigation on mechanical transmission of pathogens
- Microbial surveillance on farms has been increased
- How effective will the measures be in preventing further fur farm outbreaks?