

STEC outbreak in kindergarten

Guðlaug Gyöfadóttir
Public health inspector

Tvö börn til viðbótar lögð inn á spítala vegna E.coli

Elisabet Inga Sigurðardóttir skrifar · 26. október 2024 13:40



Mánagarður er við Eggertsstötu í Reykjavík.

VÍSIR/EINAR

Innlent | mbl | 23.10.2024 | 0:26 | Uppfært 0:50

E.coli-hópsmit á leikskóla



Sóttvarnalæknir beinir því til foreldra barna á leikskólanum sem eru með möguleg einkenni að fara á bráðamóttöku Barnaspítala Hringins. *mbl.is/Eggert Jóhannesson*

Heilbrigðismál



35 börn í eftirliti vegna E.coli-sýkingar

35 börn eru nú í eftirliti hjá Landspítalanum vegna E.coli-hópsýkingar sem kom upp á leikskólanum Mánagarði í vikunni. Fjögur börn eru innliggjandi, þar af tvö á gjörgæslu.

Dorgils Jónsson
26. október 2024 kl. 12:48, uppfært kl. 12:49



⚠️ Þessi færsla er meira en 1 árs gömul



STEC - Shiga toxin forming *E.coli*

Escherichia coli (*E. coli*)

- *E. coli* bacteria normally live in the intestines of humans and animals

Shiga toxin–producing *E. coli* (STEC)

- STEC is a harmful type of *E. coli*
- Can cause severe infections in humans

Who is most at risk?

- Young children
- Older adults
- People with weakened immune systems

Serious Complications

- About 10–15% of infected children develop Hemolytic Uremic Syndrome (HUS)
- HUS occurs most commonly in children under 5 years of age

Symptoms of *E. coli* infection



**Watery diarrhea
(sometimes bloody).**



Low fever.



**Loss of
appetite.**



Nausea.



Vomiting.



**Stomach pains
and cramps.**



Fatigue.

First signs of a STEC outbreak

October 22nd

The kindergarten involved is located in Reykjavík and is operated by the Student Association of the University of Iceland

- 127 children in 7 departments

October 22nd 2024

- Four children sought medical care at the Childrens hospital and were diagnosed with STEC
- Parents were informed and advised to monitor symptoms
- Additional children came to the hospital the same evening

Kindergarten was temporarily closed from **October 23rd**

Leikskóla lokað vegna E.coli sýkingar

Sólrún Dögg Jósefsdóttir skrifar · © 23. október 2024 00:03



Leikskólinn Mánagarður stendur við Eggertsgötu í Vesturbæ Reykjavíkur.

VÍSIR/VIL

Leikskólanum Mánagarði í Reykjavík hefur verið lokað samkvæmt tilmælum sóttvarnarlæknis vegna alvarlegrar E.coli sýkingar. Þetta herma heimildir fréttastofu.

Steering group formed

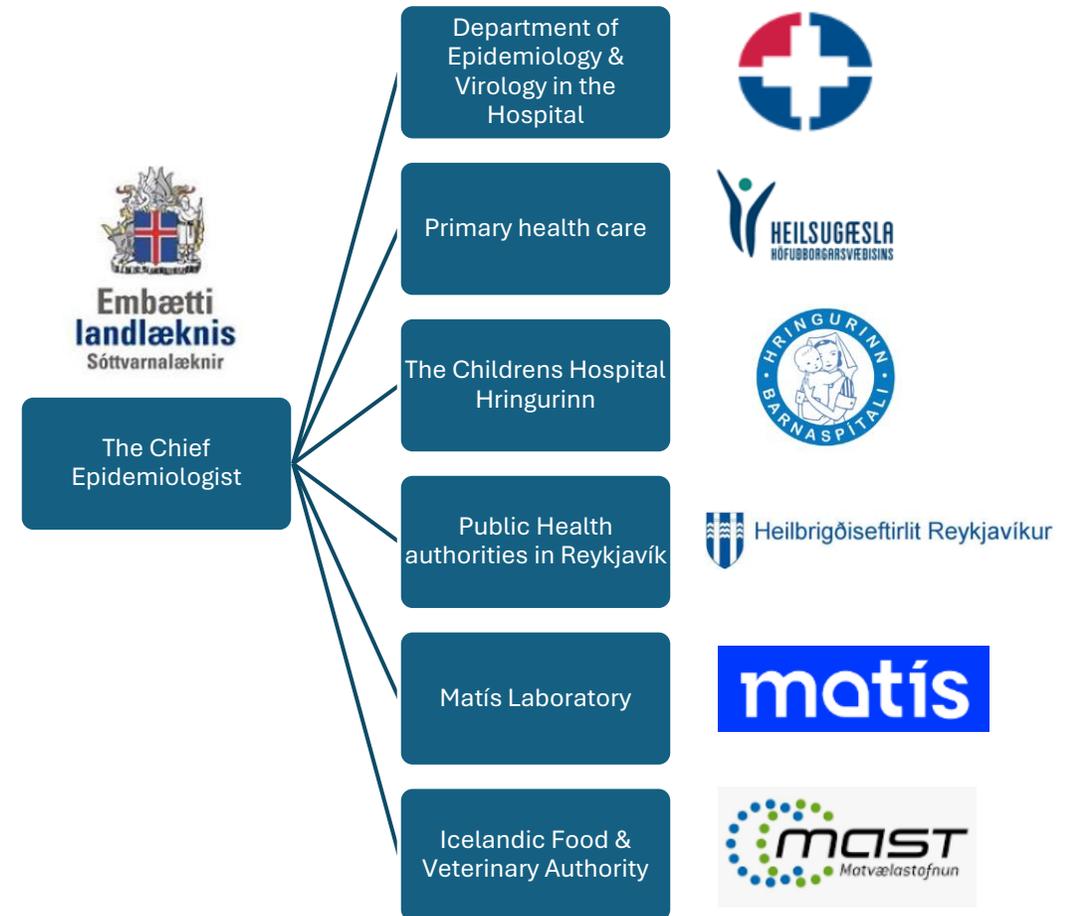
The Chief Epidemiologist convened a steering group

The group included:

- The Food and Veterinary Authorities
- Reykjavík Public Health Authorities
- Matís Laboratory
- Primary health care
- The Children's Hospital
- Department of Epidemiology & Virology (regional hospital)

First meeting held in the morning of **October 23rd**

- Follow-up meetings every 3–4 days



October 14th-18th Menu

Monday 14th Fish, potatoes and rye bread

Tuesday 15th Rice porridge and flatbread

Wednesday 16th Falafel with rice and sauce

Thursday 17th Spaghetti Bolognese (Vegan spaghetti bolognese)

Friday 18th Arabian lentilsoup

Health inspection October 23rd

- No obvious source of infection in the departments
- Cleanliness was good
- No recent animal contact or zoo visits
- Playground inspection showed no unusual findings

→ **Main suspect on menu: Spaghetti Bolognese served last week**

Inspection in kitchen October 23rd



- Cleanliness was good
- Handwashing sink – cold water only
- No information on staff training or education
- **Meat sauce had been prepared unsafely**
- Staff was unaware that the food preparation **did not comply with food safety standards**

Bolognese sauce prepared October 16th & 17th

Four frozen meat rolls (2 kg each) thawed in a refrigerator (Monday 14th–Wednesday 16th)

- Unlikely to fully thaw at 0–4 °C in 40–48 hours

Meat sauce prepared

1. Minced meat cooked, **not to boiling temperature**
2. Ingredients added: **Frozen** onion, **frozen** paprika, lentils, crushed tomatoes
3. Sauce left **at room temperature**, refrigerated over night
4. Reheated Thursday morning, **not boiled**

→ No leftovers remained

→ **No cooking temperature records available**

→ Samples taken: **frozen minced meat, frozen paprika, yellow melon**



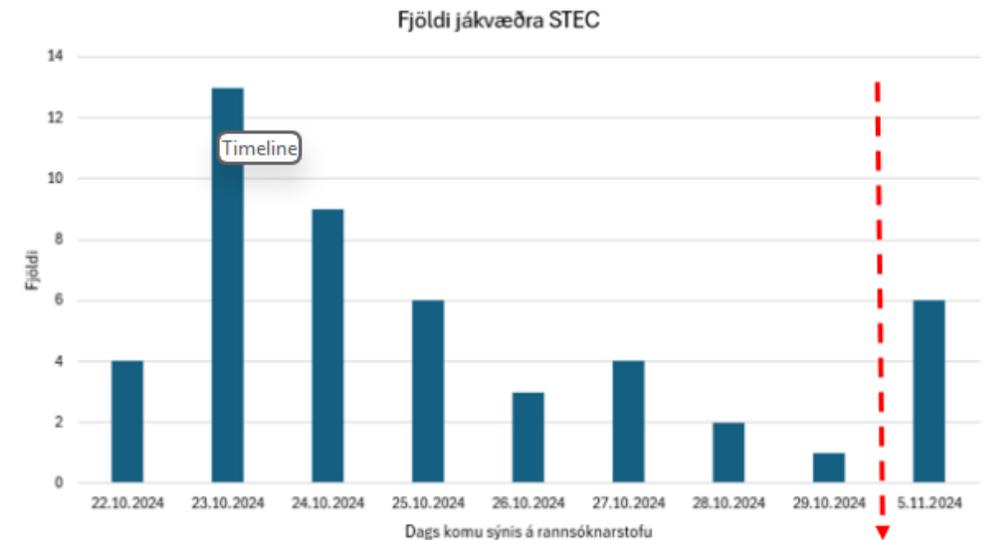
Outbreak overview

49 people infected, including 45 children from the kindergarten

- Symptoms ranged from mild diarrhea to bloody diarrhea and HUS
 - 12 children hospitalized with HUS (Hemolytic Uremic Syndrome) (24.4%)
 - 5 children required intensive care
 - 2 children needed dialysis due to kidney failure

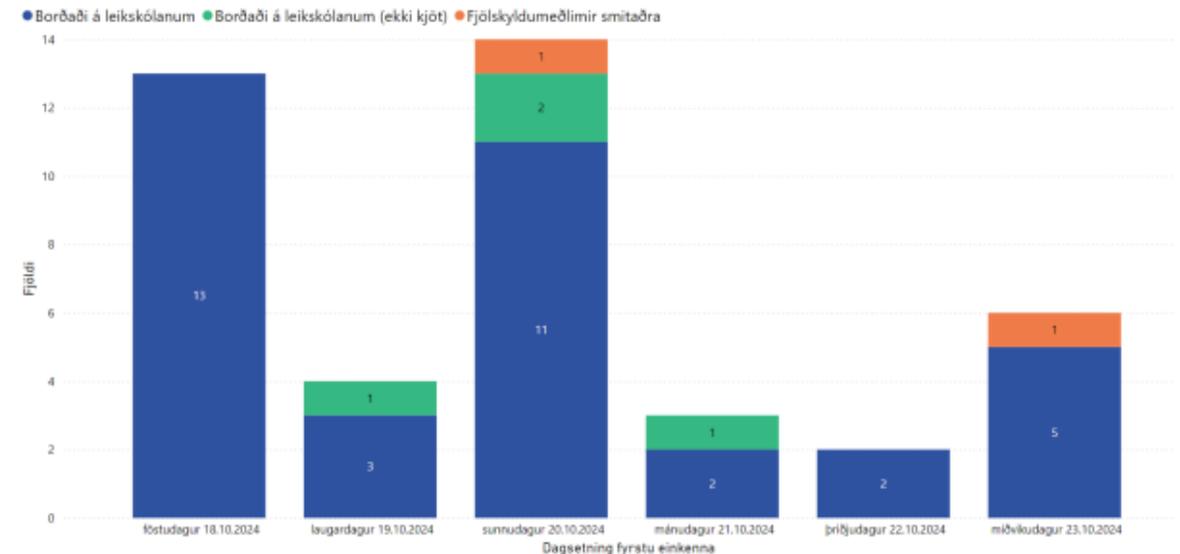
Investigation updates (October 28th)

- Vegan children infected
- Additional samples taken



Onset of symptoms

- 13 children showed symptoms the night after eating spaghetti bolognese (~12–18 hours later)
 - Earlier than typical *E. coli* incubation (2–4 days)
- Four vegan children showed symptoms from Saturday to Monday
- 14 people developed symptoms on Sunday



Mynd 1: Upphaf einkenna (upplýsingar sem lágu fyrir fyrstu vikuna)

STEC Lab findings October 28th



Minced meat → STEC Positive

Other foods → STEC Negative

Next step → Confirm outbreak source by **matching children's STEC genes to the meat**



Regulations and source of contaminated meat

EU regulation: Meat with possible *E. coli* contamination may be distributed.

Producers must **minimize contamination risks**.

Meat used in the kindergarten, **mix of:**

- Beef from Germany
- Lamb from Iceland

Exact source of contamination could not be determined.

Vegan Children Infected

Possible Explanations

Surprising since minced meat was the suspected source

Possible reasons:

- **Secondary transmission** from infected children (Friday October 18th)
- **Cross-contamination** in the kitchen
- **Accidental tasting** of meat sauce

Exact cause may never be known





Health inspection October 29th

All departments inspected

- Handwashing sinks were clearly labeled and distinguished from sinks at diaper-stations
- Soap, sanitizer, paper towels available at each handwashing sink
- Toys had been cleaned
- Facilities cleaned by a professional cleaning company
- Parents had picked up childrens belongings and received cleaning instructions
- Staff had signed health declarations

Information meeting with staff November 1st

- Short presentation about hygiene and STEC
- Communicate precautions for reopening after the outbreak
- Answer questions from staff and build confidence



STEC source confirmed October 31st

Matching STEC strains found in childrens stool samples and meat

- Identified as **serotype O145**

Confirmed source: mixed meat served in the kindergarten



Kindergarten reopening plan

Reopening date: **November 5th** (14 days after closure)

- Risk of secondary infection considered

Symptom-free children allowed to return on **November 5th**

Children who **had symptoms** after **October 17th** must:

- Be **symptom-free for 48 hours**
- Provide **two negative STEC tests**

...before they were allowed to return



Leikskólinn Mánagarður opinn á ný

Lovísa Arnardóttir skrifar · 5. nóvember 2024 12:40



Leikskólinn er við Eggertsgötu og er rekinn af Félagsstofnun stúdenta.

VÍSIR/EINAR

Health inspection November 5th

- 60 of 127 children had returned to the kindergarten
- Contract with service company - Food **ready-to-heat**,
- New kitchen employee **trained in food safety**
- Cleanliness protocols reviewed in kitchen and departments
- Public health inspectors spoke briefly with staff if needed

Food Safety in kindergartens

Before outbreak:

- Food often prepared by staff with **limited formal training**.

After outbreak:

- Online **food safety course** introduced in Reykjavík, **mandatory** for all staff
- Kitchen staff are now mostly trained in food safety
- More kindergartens use **ready-to-heat** or **easy-to-cook** meals



New inspecting protocols

CS310313

Ask **detailed questions** about staff and procedures:

- **Education & background** of kitchen staff
- Meat: delivered **frozen or fresh**, defrosting method, cooling space
- Advance preparation of food
- **Cooling and/or reheating** of large quantities
- **Check cooking and core temperatures** before serving
- Ensure staff **sign and update health declarations** regularly



News from Iceland



Police investigating E. coli outbreak at Mánagarður

The parents of a young girl who was critically ill at the children's hospital, requested that the case be investigated.

Darren Adam
17. February 2025 - 12:32



⚠ Please note that this article is over 10 month old



Long-Term Health Impact

- The most serious effects were seen in children who developed HUS
- Regular **medical follow-up until at least 18 years of age**
- **Lifelong monitoring** may be needed if kidney damage is permanent

Legal Action Following Outbreak

- STEC Outbreak entered the **criminal justice system**
- **Parents requested investigation**
- Complaint directed at the **Student Association of the University of Iceland** (kindergarten operator)
- **Three individuals** given formal suspect status



Thank you

Any questions?