

Tiger Mosquitos – borne diseases: Increased attention and mobilization from public health Strategies and pitfalls

Dr. med. Aleksandra Nobile

How to implement health and wellbeing policies on climate change
Brüssel 15.09. – 17.09.2025

Repubblica e Cantone Ticino

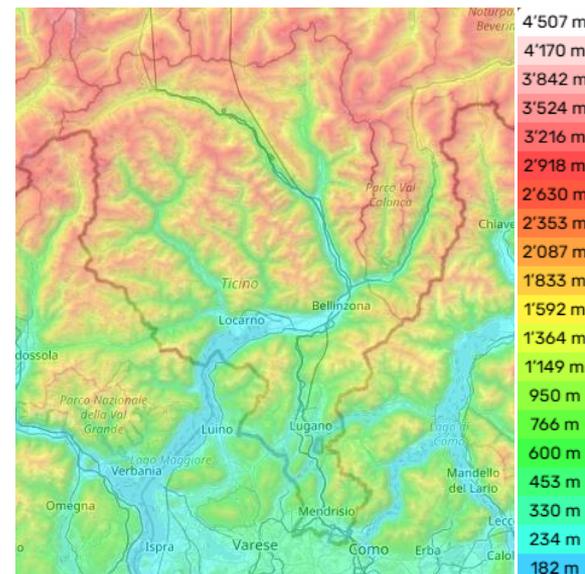
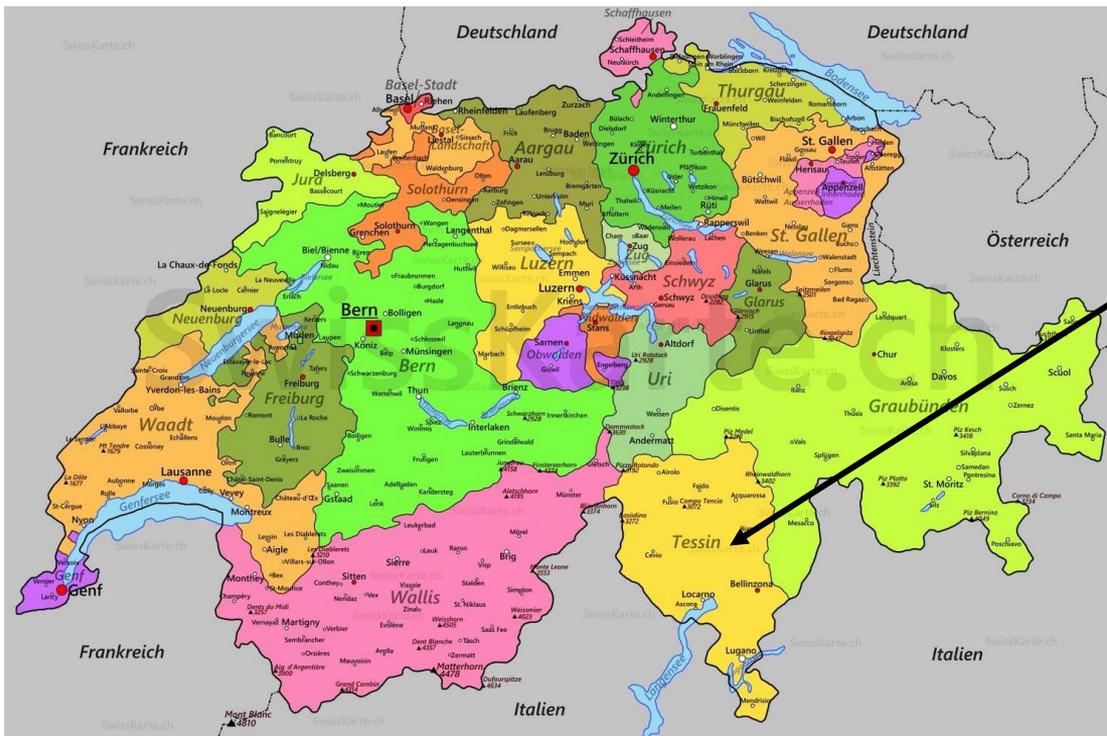
**Department of Health and Social Affairs
Division of Public Health
Office of the Chief Medical Officer**



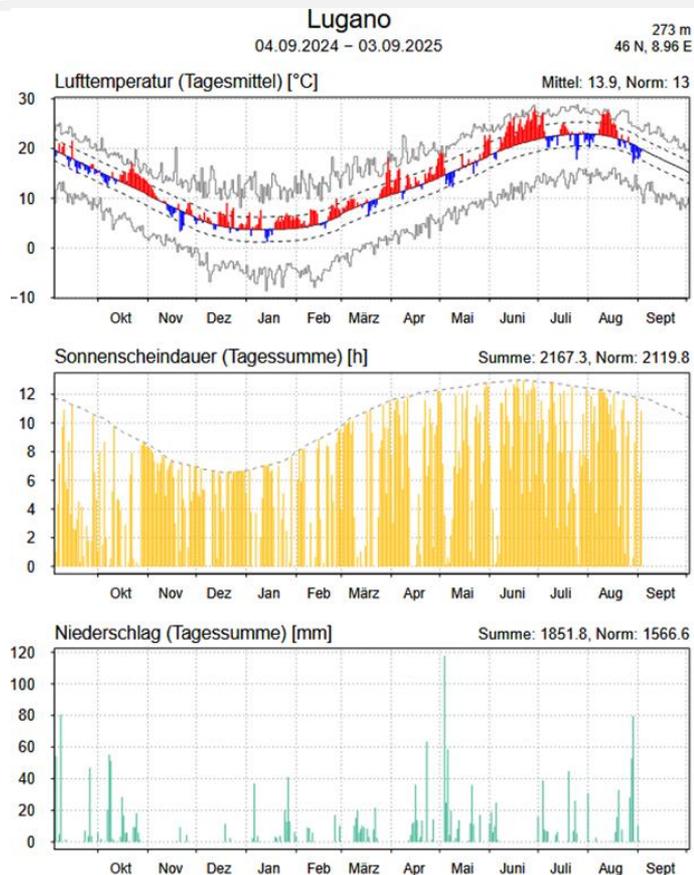
Switzerland - Ticino

Population (2024)

- Switzerland 9,1 Mio.
- Ticino 360'000 habitants

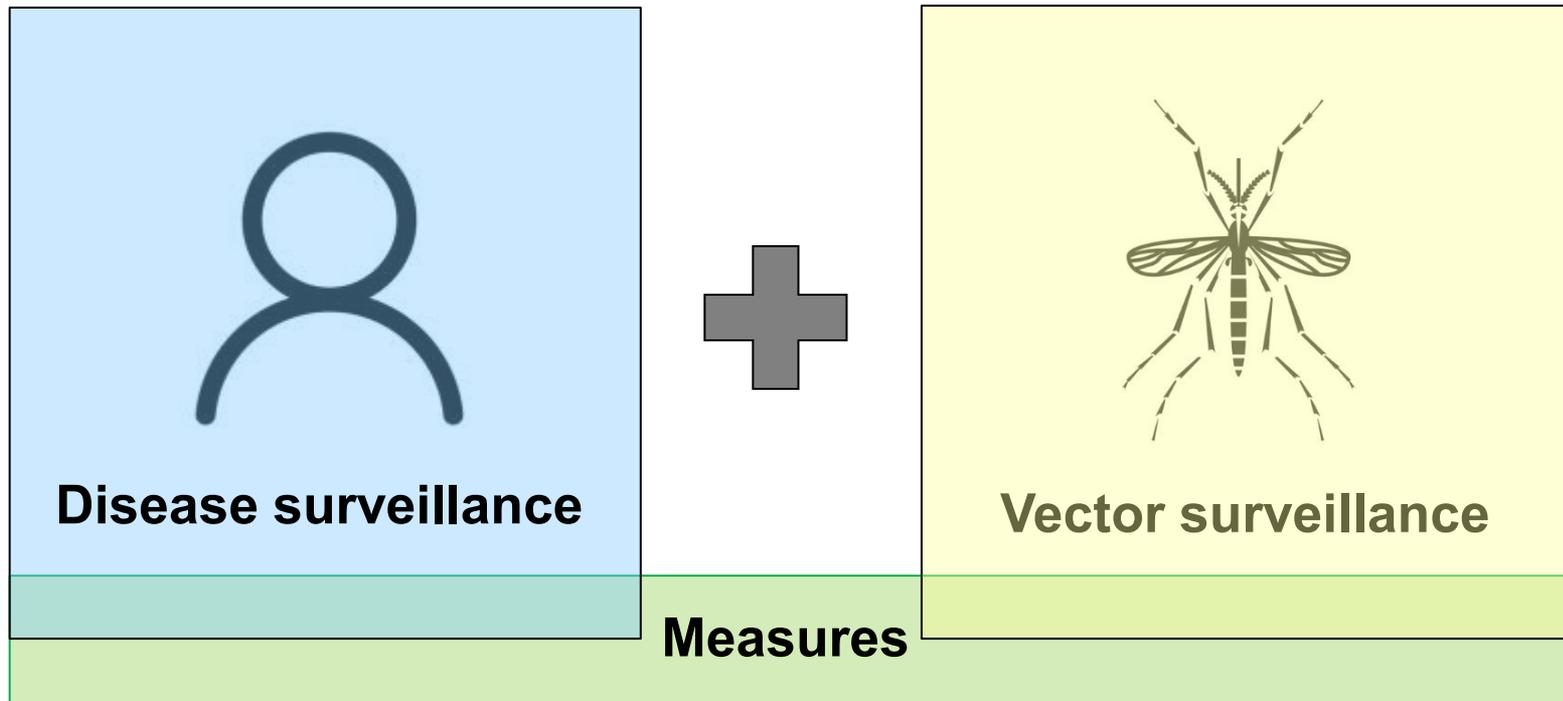


Climate: Lugano

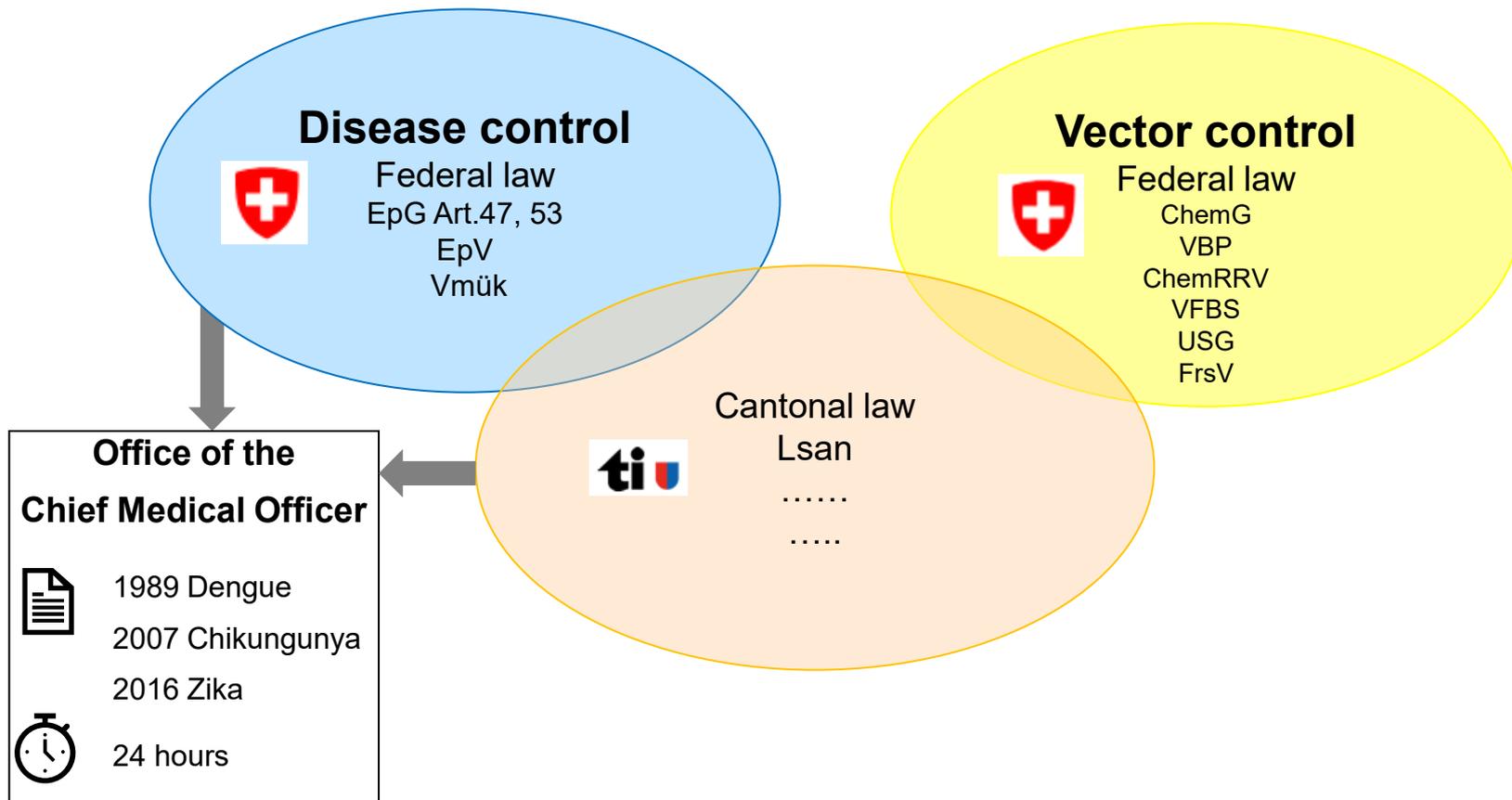


Objective

The cantonal plan to combat the tiger mosquito aims to reduce the risk of autochthonous cases of arboviral diseases

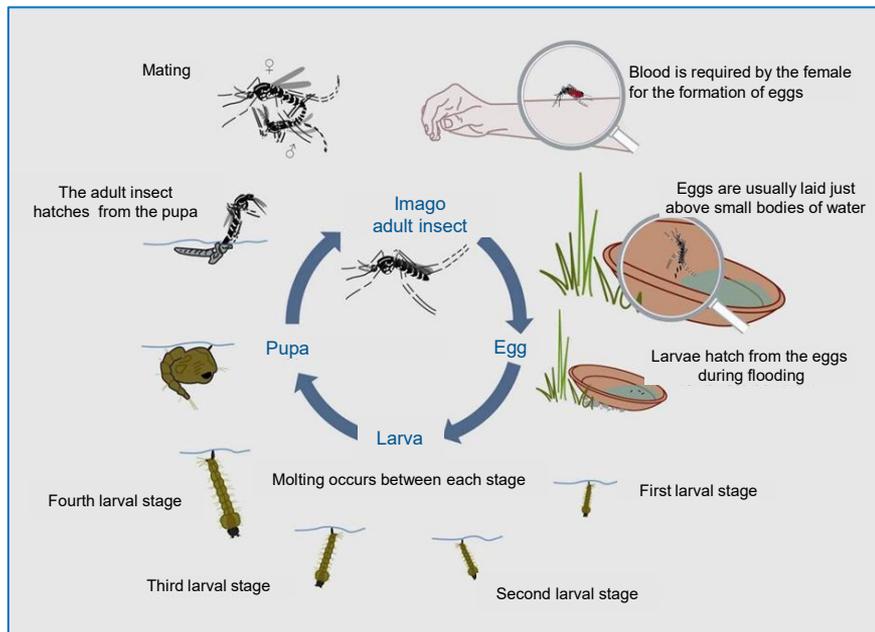


Legal Framework



Tiger Mosquitos

Life Cycle



Biogens

Ticino

- 2000 Surveillance started by University of Applied Sciences of Southern Switzerland (SUPSI)
- 2003 First detection of Tiger Mosquitos in Canton Ticino
- 2009 Systematic surveillance

SUPSI: Scuola Universitaria Professionale della Svizzera Italiana

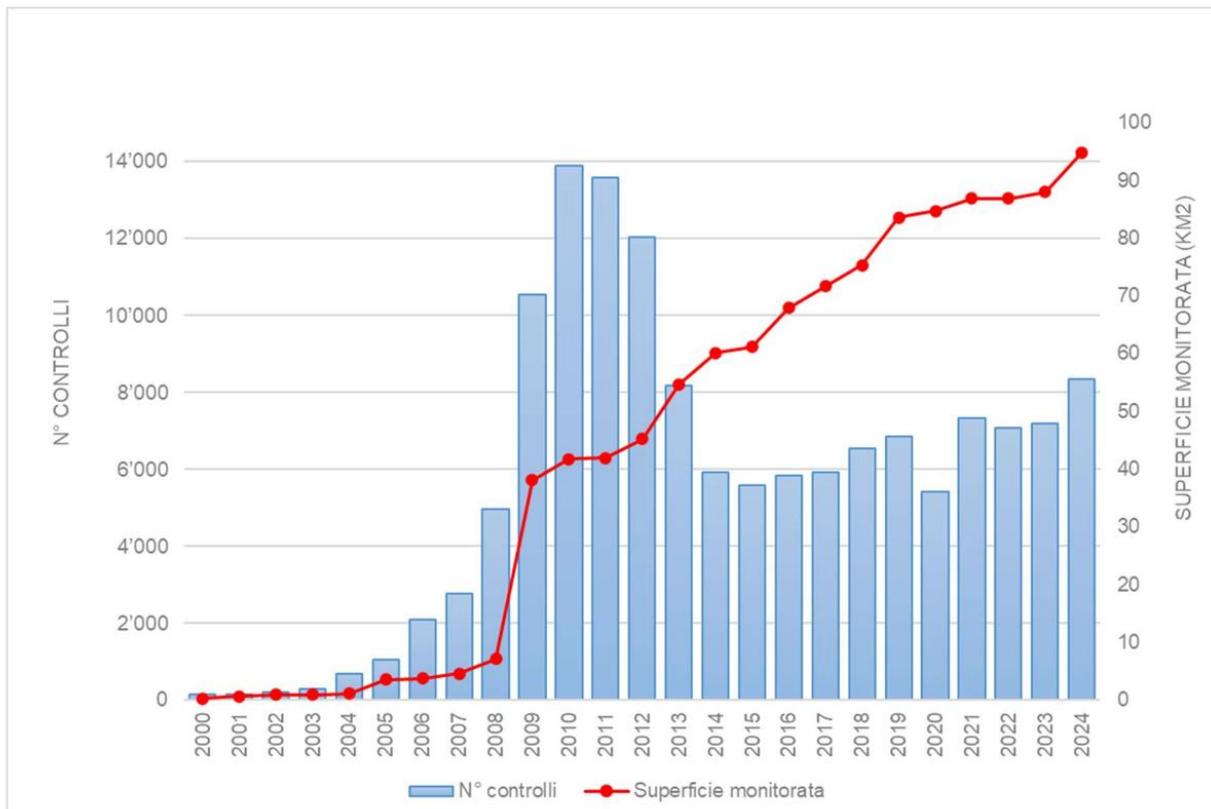
Tiger Mosquitos surveillance in Ticino

- Surveillance: Mid May to mid September since 2009
- 85 municipalities involved
- 95% of the population covered by the surveillance
- 1'517 ovitraps
- Control each 2 weeks
- 8'330 samples/year



Ovitrap

Surveillance 2000 - 2024



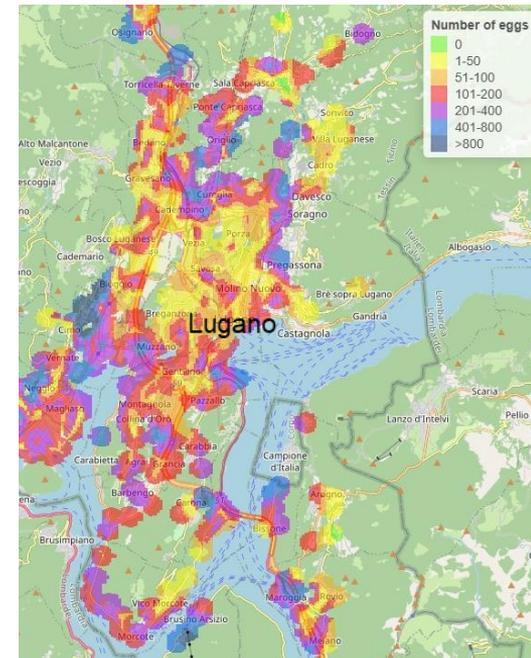
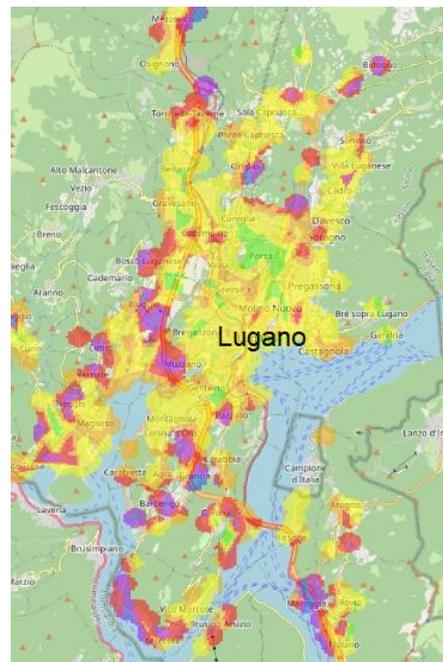
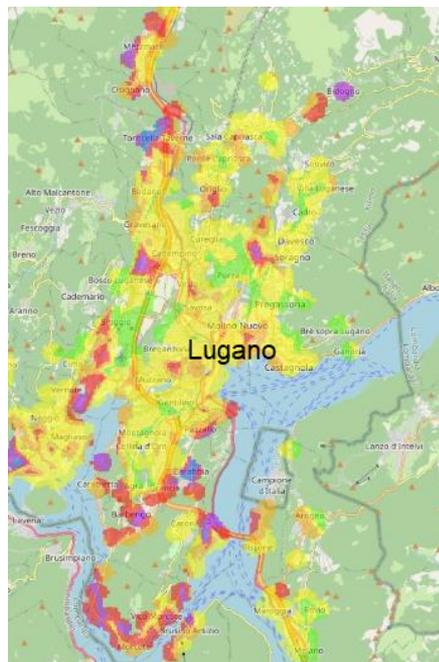
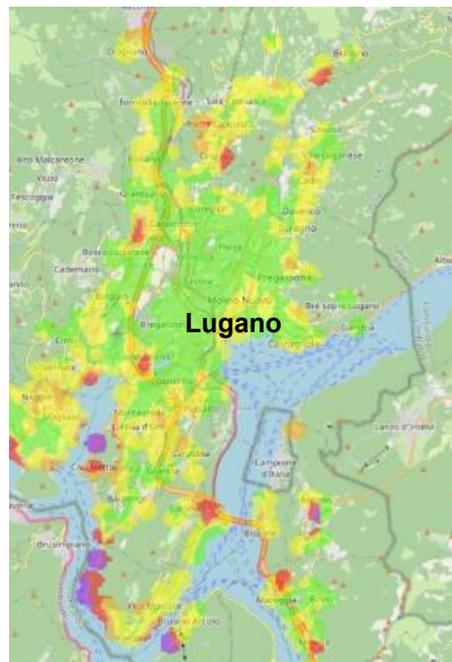
Situation in Lugano, summer 2025

May 2025

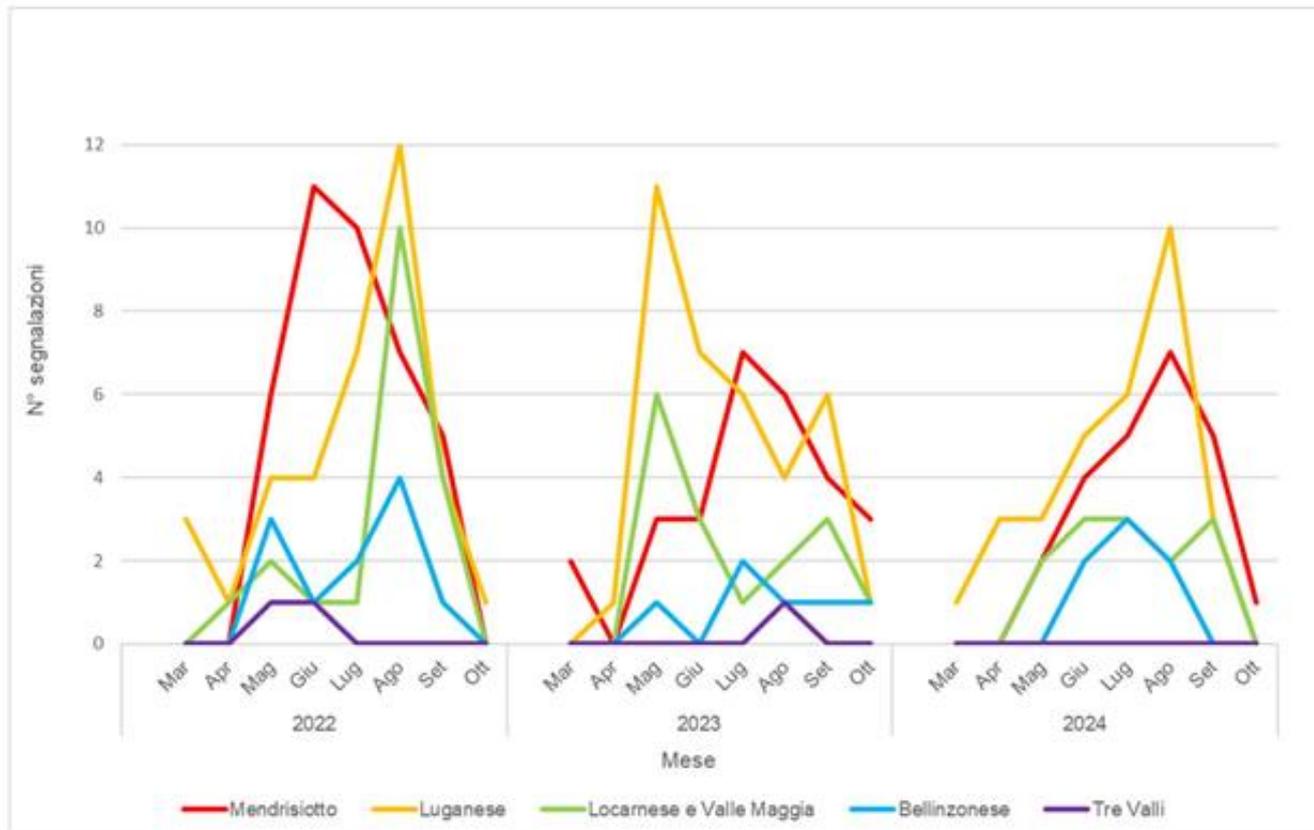
June 2025

July 2025

August 2025



Residents' reports, 2022 - 2024

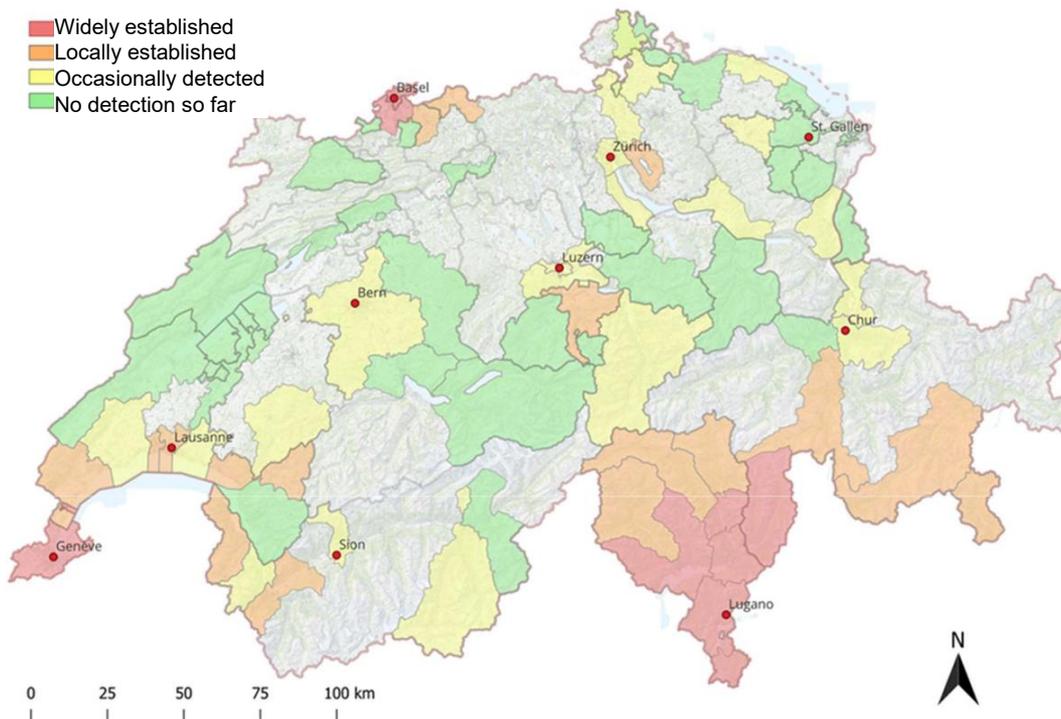


App



<https://www.zanzare-svizzera.ch/>

Situation in Switzerland, 2024



Measures against Tiger Mosquitos: Institutions and persons involved

Institutions

- University of Applied Sciences of Southern Switzerland (SUPSI)
- Department for the Protection of Air, Water and Soil (SPAAS)
- Municipalities
- Civil Protection
- Federal Roads Office
- Swiss Federal Railways

Private persons

- Residents
- Local/neighbourhood communities
- Schools
- Hospitals
- Nursing homes

Vector Control: Prevention

- Diversified Information
- Residents



www.supsi.ch/go/zanzare



Contact phone number



E-mail

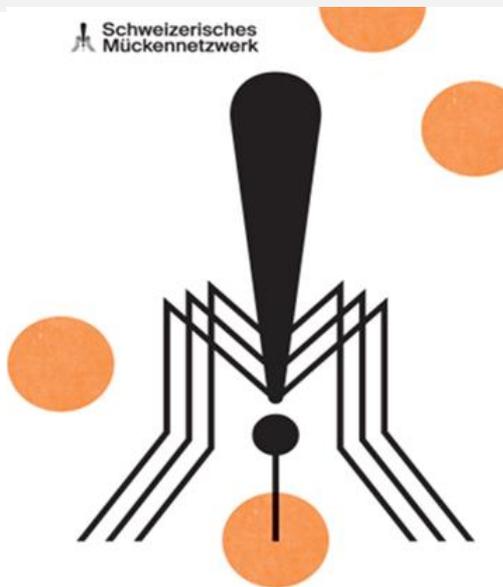


Information for the population

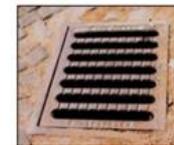
- Website in different languages
- Key information on the surveillance system
- Instructions for what residents can do
- Self-protection



Measures in Private Property



- VectoBac® smal bags 50g (9-12 CHF)



About 30 grains VectoBac® per manhole

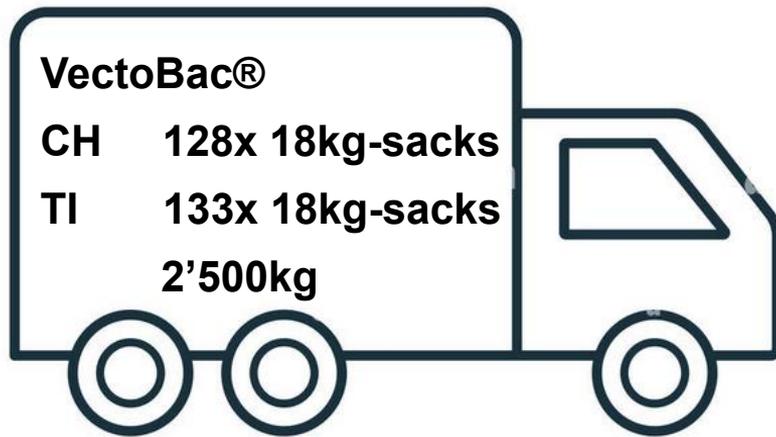
- Instructions for use: <http://www.supsi.ch/go/zanzare>

Measures in the Public Space

Selective biocide *Bacillus thuringiensis israelensis* (VectoBac®)

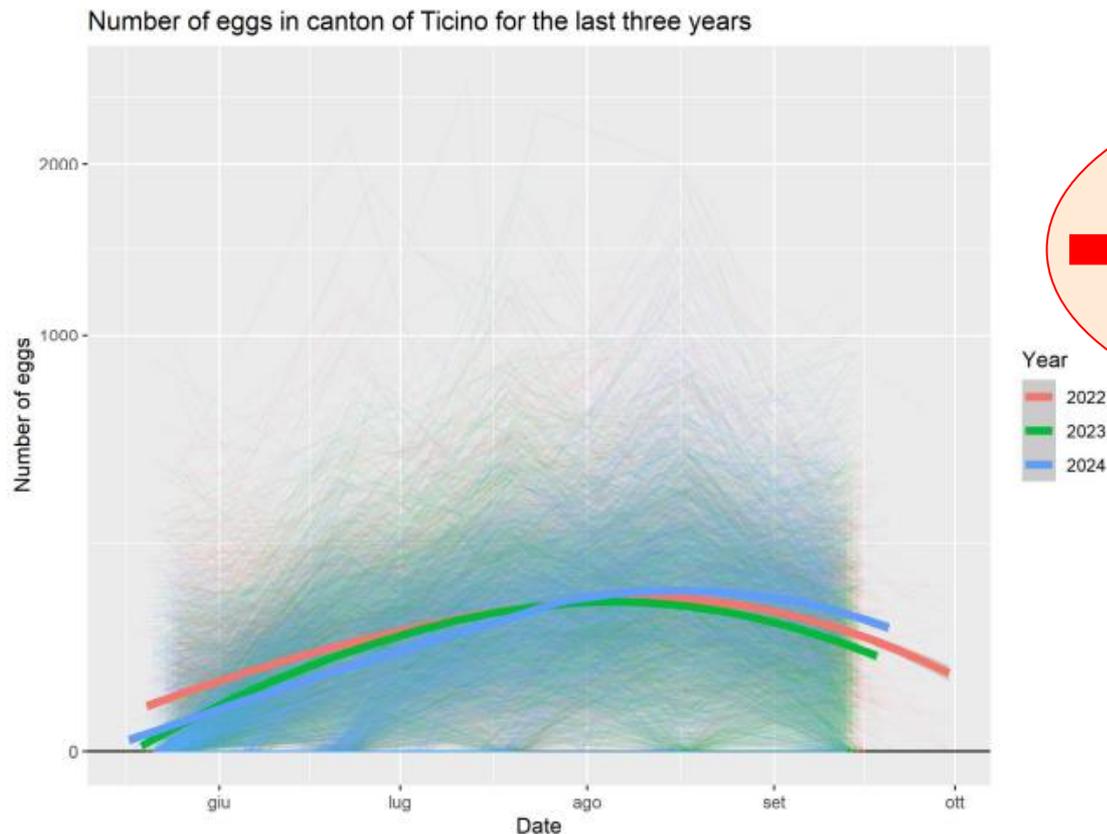


B. sphaericus (VectoMax®FG) 10g/manhole
every 8 weeks



Do these measures
make a difference?

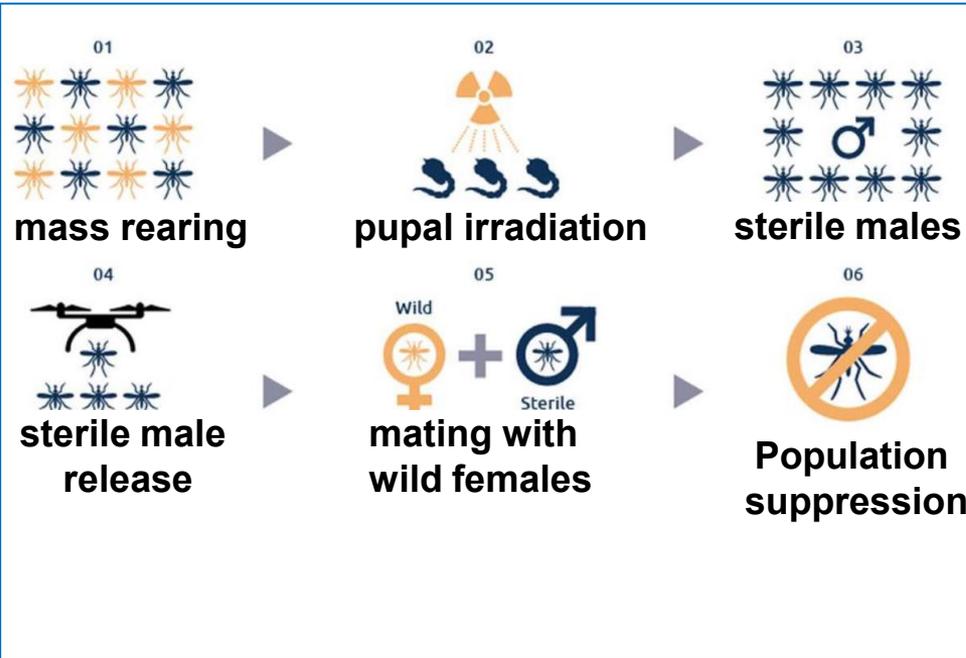
Epidemiology of the Tiger Mosquito in Ticino, 2022 - 2024



Efficacy of all measures
Reduction by 74% of
the Mosquito population

Sterile insect technique, part of integrated control measure

Sterile Insect Technique



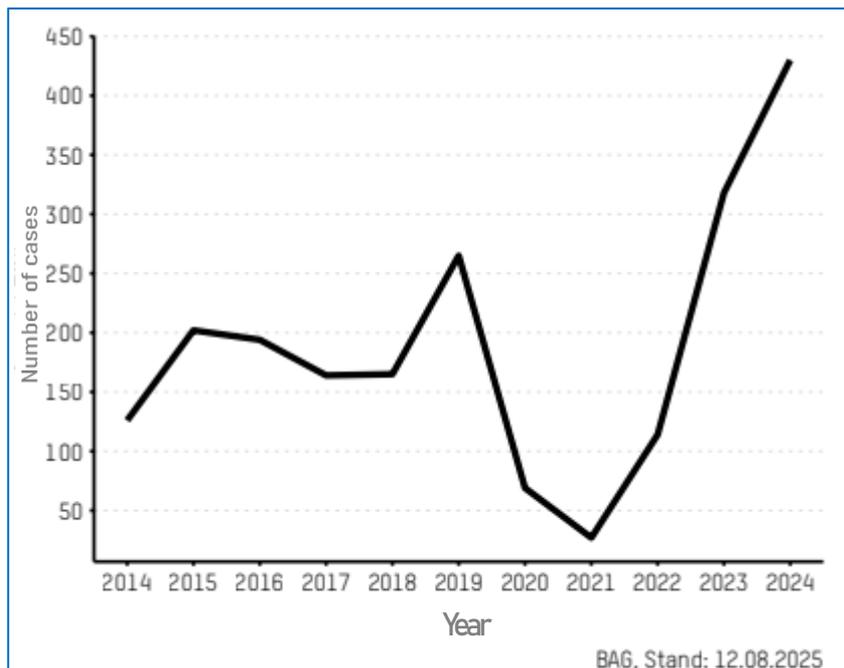
Studies

- 2022 pilot study 10'000♂
- 2023 field study 150'000♂/week
- 2025 75'000♂/week, from June to September, near hotels or schools

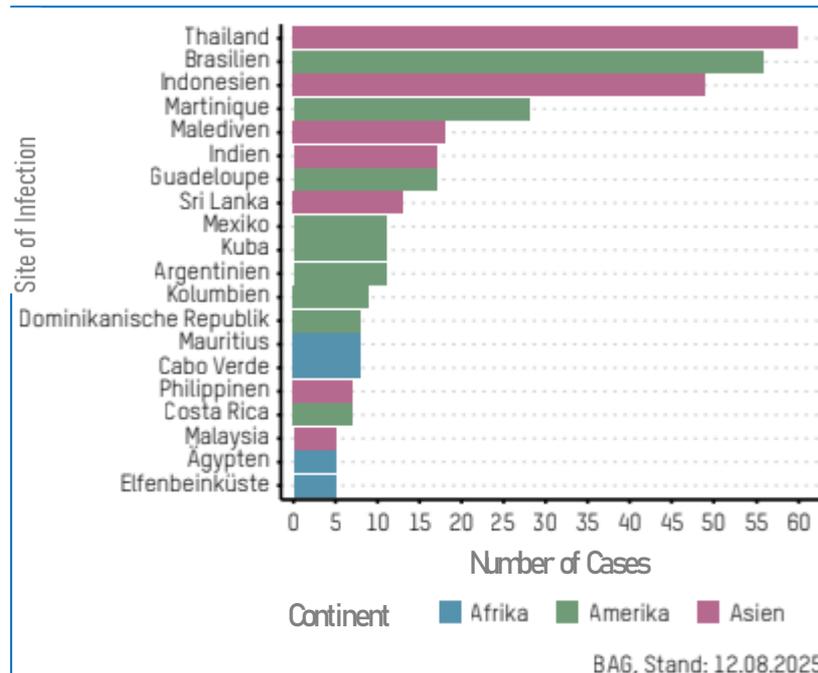
Reduction 90% of the local mosquito population

Epidemiology of Dengue in Switzerland, 2014 -2024

Annually reported Dengue cases

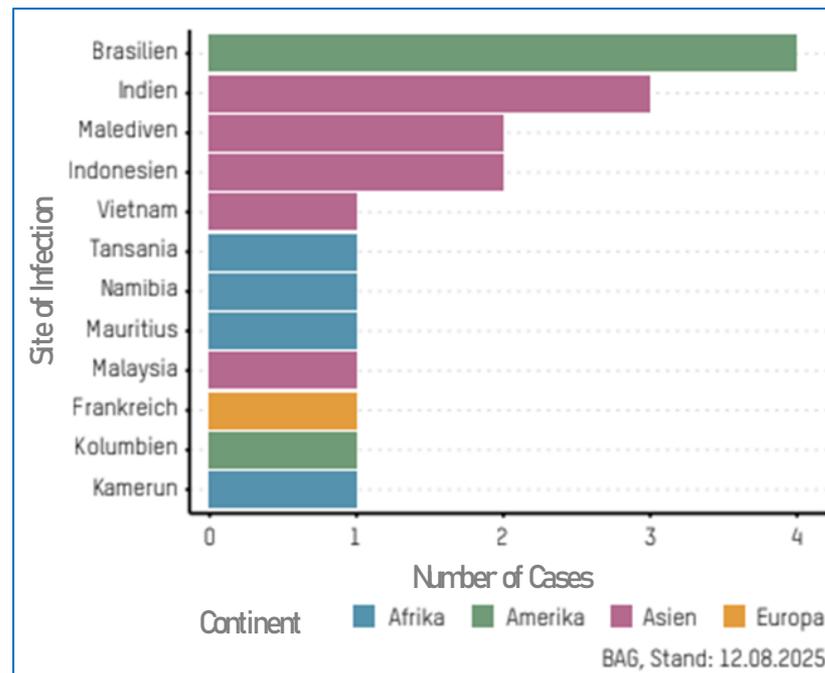
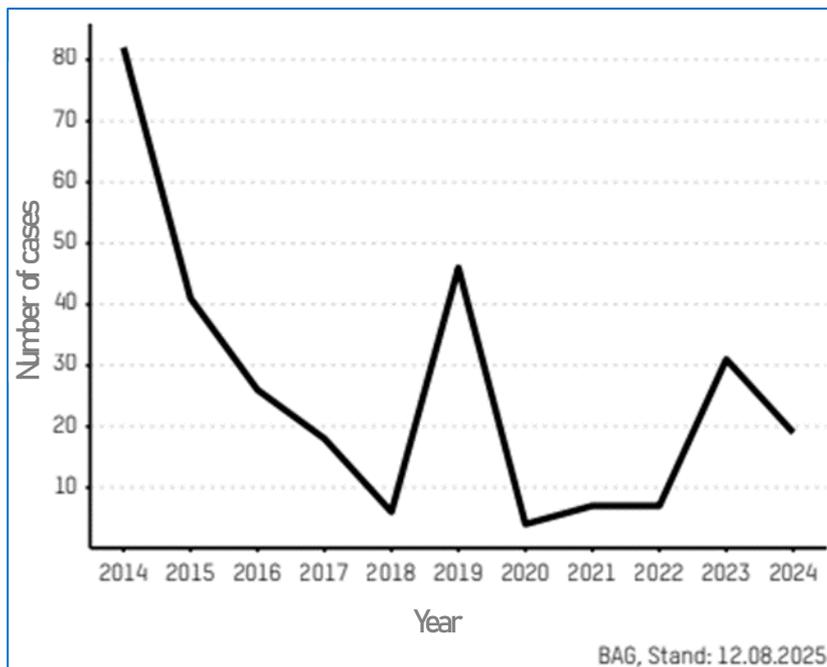


Site of Infection



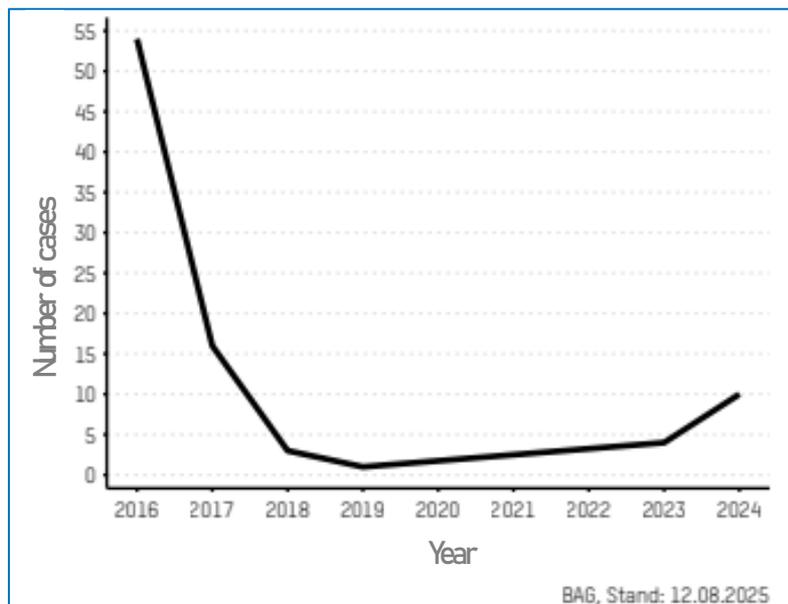
Epidemiology of Chikungunya in Switzerland, 2014 -2024

Annually reported Chikungunya cases Site of Infection



Epidemiology of Zika in Switzerland, 2014 -2024

Annually reported Zika cases



Epidemiology of Dengue and Chikungunya, last 9 months (TI, CH)

Dengue, number of cases and incidence

	12-2024	1-2025	2-2025	3-2025	4-2025	5-2025	6-2025	7-2025	8-2025	9-2025
Cases monthly										
TI	0	2	0	1	1	0	1	0	1	0
CH*	13	19	9	12	23	27	20	18	8	0
Incidence per 100'000 residents										
TI	0	0.48	0	0.3	0.3	0	0.3	0	0.3	0
CH*	0.16	0.18	0.11	0.14	0.28	0.26	0.24	0.17	0.1	0

Chikungunya, number of cases and incidence

	12-2024	1-2025	2-2025	3-2025	4-2025	5-2025	6-2025	7-2025	8-2025	9-2025
Cases monthly										
TI	0	0	0	0	0	0	1	0	2	0
CH*	0	1	2	1	7	11	12	9	8	1
Incidence per 100'000 residents										
TI	0	0	0	0	0	0	0.3	0	0.61	0
CH*	0	0.01	0.02	0.01	0.08	0.11	0.14	0.09	0.1	0.05

➤ **No autochthonous cases in Canton Ticino and in Switzerland**

Prevention begins bevor travelling...

Are you travelling to a region with a high risk of mosquito-borne diseases?

Beware of illnesses such as Chikungunya, Dengue and Zika

Protect yourself from mosquito bites



Wear long and light clothing



Use mosquito repellent



Use mosquito nets

If you have **symptoms** such as

fever
joint and muscle pain
rash
headache

Contact a **doctor**

Be especially careful during pregnancy



Are you travelling to a region with a high risk of mosquito-borne diseases?



Get country-specific information at
HealthyTravel.ch



...and does not end when coming back home

Are you travelling from a region with a high risk of mosquito-borne diseases?

Beware of illnesses such as Chikungunya, Dengue and Zika

If you have **symptoms** such as

- fever
- joint and muscle pain
- rash
- headache

Contact a doctor

Be especially careful during pregnancy



Protect yourself from mosquito bites during the first 14 days after your arrival.

 Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Department of Home Affairs FDHA
Federal Office of Public Health FOPH

For more information, visit:
www.bag.admin.ch/travelinfo

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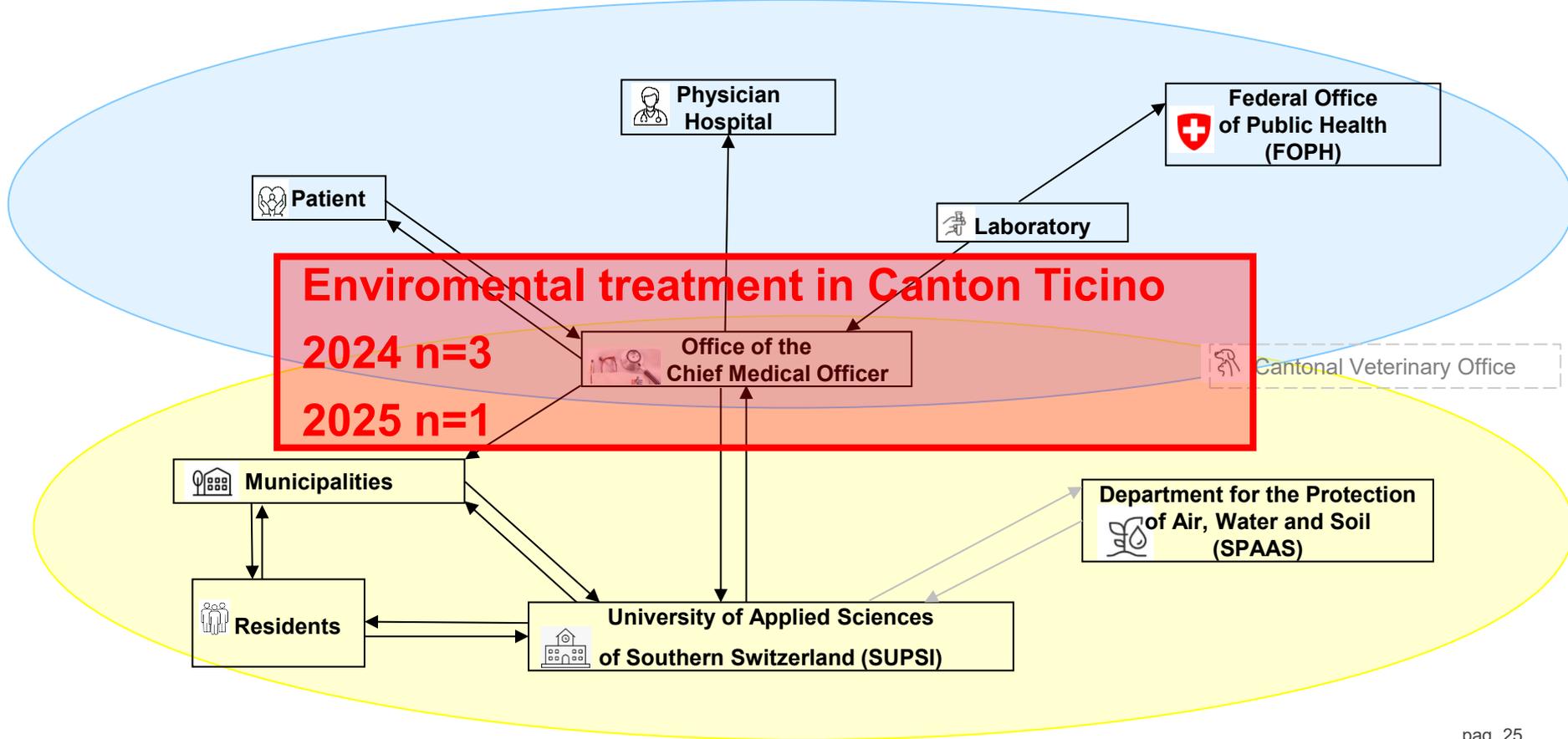


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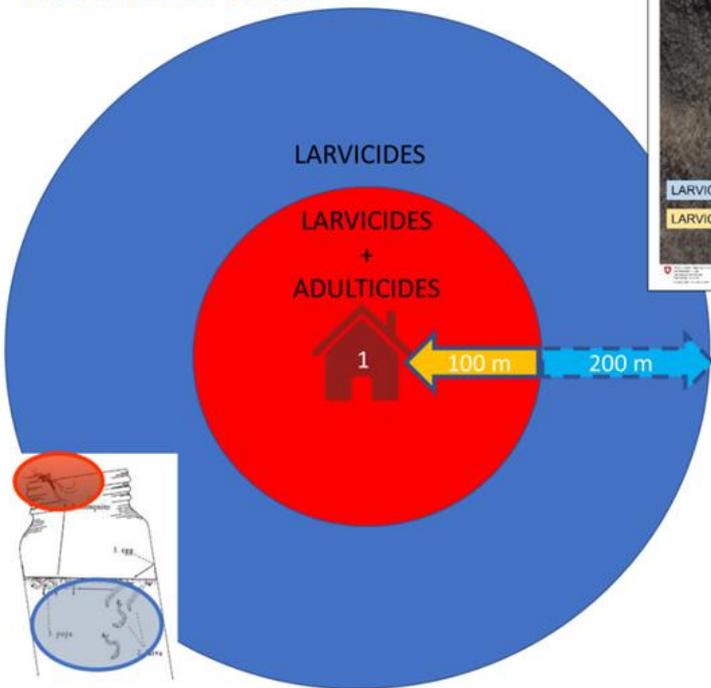
Collaboration in case of an imported case



How do we treat an imported case; environmental treatment

Ufficio del medico cantonale – 091 814 4002 – Fax 091 814 44 46 – dss-umc@ti.ch

TREATMENT AREA



SUPSI

Algoritmo per intervento straordinario arbovirosi (Dengue, Chikungunya, Zika)

RESPONSABILI LABOR	PROCESSO	DOCUMENTI E FONTE DATI
	Notifica laboratorio	Dichiarazione obbligatoria del laboratorio (Doc01)
UMC	NO Dati ANUS? SI	Dichiarazione obbligatoria del medico (Doc02, Doc03, Doc04)
UMC	Contattare il paziente	Modulo per la raccolta delle informazioni (Doc05)
UMC	NO Rischio di contaminazione? SI	Documento trasmissione paziente e zanzare (Doc06)
UMC	Contattare SUPSI	Tel. SUPSI: 091 058 666 62 38 o cellulare DI Eleonora Fiacco
UMC, SUPSI	NO Intervento straordinario? SI	Dati sorveglianza zanzara tigre SUPSI
UMC	Emettere l'ordine straordinario	Decisione trattamento straordinario (Doc07)
UMC	Informare il Comune	Lettera al Comune (Doc08) Lettera ai cittadini (Doc09)
SUPSI	Informare il Servizio tecnico del Comune	Mapa dell'intervento in base ai dati del paziente (modello v. Doc10)
SUPSI con Servizio tecnico	Intervento Servizio S Presa Prezzi Servizio S Raccoglie le analisi Servizio S	
UMC, SUPSI	NO Intervento riuscito? SI	
SUPSI	NO Dichiarazione obbligatoria rapporto di fine intervento	Rapporto di fine esercizio a UMC (modello v. Doc11)

*UMC raccoglie informazioni presso il laboratorio dichiarante e/o il medico che ha chiesto l'esame.

Pitfalls

Residents

- Knowledge
- Collaboration

Media

Legal aspects

- Data Privacy
- Proportionality

Environmental considerations

- Weather
- Animals



Mendrisiotto Riscontrato un caso di febbre dengue a Rancate

L'uomo ha contratto la malattia mentre era in vacanza con la famiglia alle Maldive - le autorità effettuano un trattamento straordinario contro la zanzara tigre



Cost effectiveness

- Human resources
- Financial resources

Medical knowledge

- Delay in diagnostics
- Laboratory
- Delay in notification

Summary

- **Major challenges**

Resources

Unpreventable events

- **Topics that need follow-up and community building across regions**

- **Success factors**

Legal Framework

Collaboration

Development of a culture on residents' level

- **Indicators**

Mosquitos' surveillance data

Number of environmental treatment



Thanks to:

**Population
Municipalities**

**Dr. med. Giorgio Merlani, Chief medical Officer
Dr. med. Mario Lazzaro, Vice Chief medical Officer
Dr. Eleonora Flacio, SUPSI**

Repubblica e Cantone Ticino

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