University of Applied Sciences and Arts Northwestern Switzerland
School of Applied Psychology

SAFOSO

72 NRP Antimicrobial Resistance
National Research Programme

Final project presentation:

Consumer interventions to reduce risk of AMR transmission – Ensuring safe food handling

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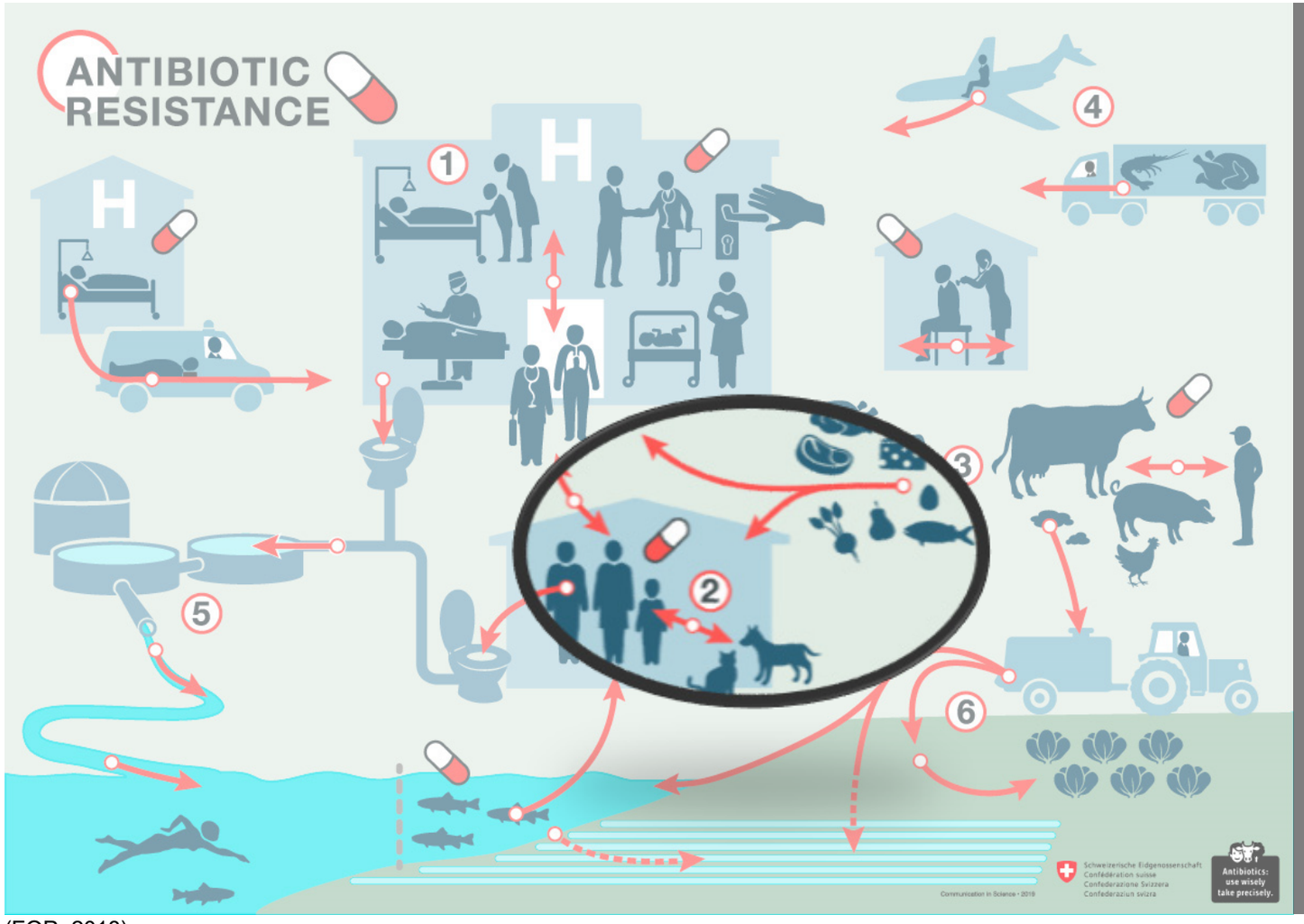
Aims



1. Identify the **relevant transmission pathways** of antimicrobial resistant bacteria between animals and the Swiss population

2. Investigate the **effectiveness of intervention strategies** that promote safe food handling among consumers.

(FOP, 2018)

Overview of the project

1. Which transmission pathways of AMR bacteria are relevant for the Swiss population?
   ► *Risk map*

2. How do different stakeholders perceive AMR transmission pathways?
   ► *Mental models of veterinarians, farmers & consumers*

3. What pathways, behaviors and predictors should be addressed to promote AMR prevention measures among consumers?
   ► *Gap analysis based on studies 1 and 2*

4. Which intervention strategies can effectively promote AMR prevention measures and its predictors?
   ► *Experiments to test different strategies*

5. To what extent can a tailored intervention promote AMR prevention measures among consumers?
   ► *Randomized controlled trial*

Study 1: Relevant transmission pathways

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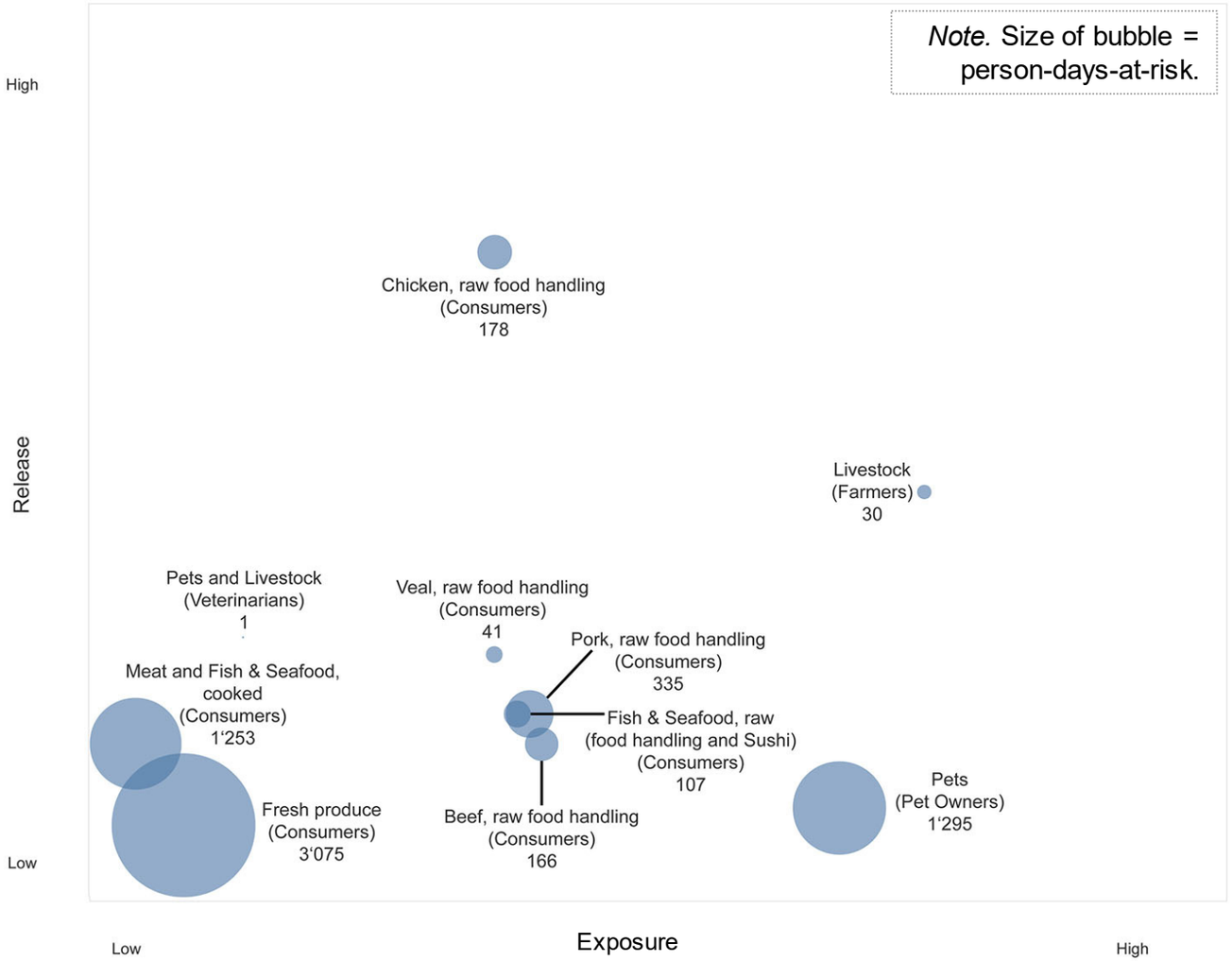
Study 1: Relevant transmission pathways

- Expert workshop, 7 experts
- Risk assessment:
  1) Hazard identification
  2) Release assessment
  3) Exposure assessment
  4) Consequences assessment

  (see Risk-Assessment Framework of the OIE, Vose, 2001)
- 3rd dimension: exposure frequency (*person days-at-risk*).



Lechner, I., Freivogel, C., Stärk, K.D.C., & Visschers, V.H.M. (2020). Exposure pathways to antimicrobial resistance at the human-animal interface—A qualitative comparison of Swiss expert and consumer opinions. *Frontiers in Public Health, 8*.

Study 2: Perception of AMR transmission pathways

1. Which transmission pathways of AMR bacteria are relevant for the Swiss population?
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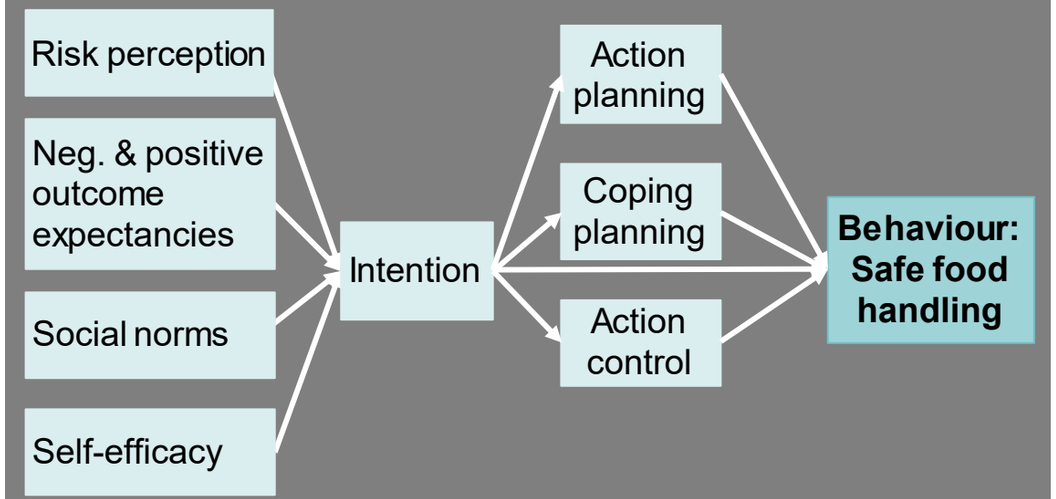
Study 2: Perception of AMR transmission pathways

A. Interviews with 14 consumers, 6 farmers and 6 veterinarians about food handling and pet care

B. Online survey with 665 consumers



(Health Action Process Approach [HAPA], Schwarzer, 1992)

- Low awareness of AMR exposure through food or pets
- Improve behaviour by raising self-efficacy in preventive measures and coping

	Intention		*Behaviour*	
Predictors	β		β	
Risk perception	0.10	***	-0.01	
Positive outcome expectancy	0.07	*	0.04	
Negative outcome expectancy	-0.05		0.02	
Self-efficacy	0.65	***	0.22	***
Subjective Norms	0.06		0.07	*
Intention			0.41	***
Action planning			0.04	
Coping planning			0.15	***
Action control			0.07	*
R^2	0.56		0.60	

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$

Freivogel, C., & Visschers, V.H.M. (2020). Understanding the underlying psychosocial determinants of safe food handling among consumers to mitigate the transmission risk of antimicrobial-resistant bacteria. *International Journal of Environmental Research and Public Health, 17,* 2546.

Study 4: Testing intervention strategies

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Study 4: Testing intervention strategies

Methods:
- Three online experiments
- Different samples of Swiss consumers
- 5 strategies
- Effects measured through questionnaires

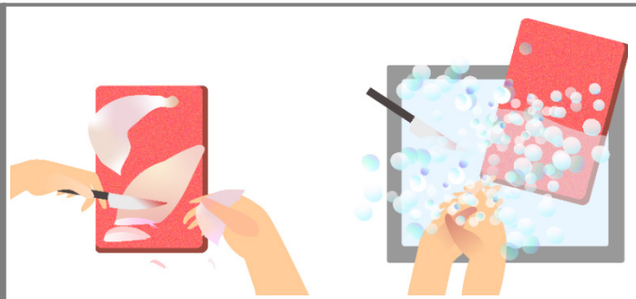
Results:
- Video raised knowledge and risk perception
- Personalized risk message did not affect risk perception or intention
- Goal setting improved behaviour and coping planning

Educational video

Personalized risk message

…6 out of 10 chicken legs may contain antibiotic resistant bacteria.
You indicated to eat chicken meat **once a week**. To do this safely and worriless, make sure to prepare and store the meat and other fresh foods hygienically.

Goal setting + recommendations



Wash your hands and kitchen utensils well with soap and water immediately after contact with raw meat.

Freivogel, C., & Visschers, V. H. M. (2021). Antimicrobial-resistant bacteria in food: Which behaviour change strategies increase consumers' risk awareness and preventive food-handling behaviour? *Health Psychology and Behavioral Medicine, 9,* 350-379.

Study 5: Tailored intervention

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Study 5: Tailored intervention

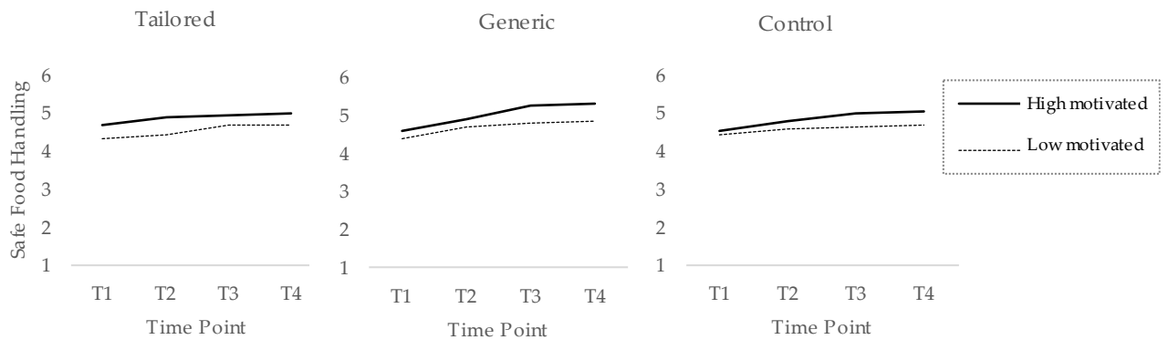
- Online intervention, May-August 2020
- Representative sample from German-speaking cantons (N = 398 completed)

	Time point			
Intervention	**T1**	**T2**	**T3**	**T4**
Tailored	Q1 + TI1	Q2 + TI2	Q3 + TI3	Q4
Generic	Q1 + video	Q2 + cues	Q3 + cues	Q4
Control	Q1	Q2	Q3	Q4

Week 2 Week 4 Week 8

Notes. Q = Questionnaire, TI = Tailored intervention

- Safe food handling increased in all three conditions
- This increase over time was stronger among low motivated participants in the tailored intervention than the control condition, also for intention, self-efficacy and risk perception.



Conclusions

Contributions to *Behaviour change:*

- Psychological behavioural determinants that promote safe food handling and safe pet care, based on HAPA
- Evidence-based intervention strategies that effectively promote safe food handling among consumers

Advances to *Behaviour change:*

- Determinants of safe food handling: risk perception, self-efficacy, intention, and coping planning,
- Determinants of safe pet care: social norms and the pet's status in the household
- Educational video and goal setting influence determinants of safe food handling

Innovation aspect:

- Theory-based investigation of determinants of safe food handling and safe pet handling
- Development and test of strategies that promote safe food handling

Improvement of existing materials:

- Suggestions how to improve "Sicher Geniessen" campaign (Federal Food Safety and Veterinary Office).

Thank you!

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