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Knowledge • Innovation • Inspiration

Risk Management of water systems in residential homes: The 'process' of Legionella prevention

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Challenge and research aim

- 'Guide to *Legionella* Risk Assessment' (Water Management Society)
- '**duty holder**', 'responsible person', 'deputy responsible person' and 'other key persons'
- Responsible Heads of Estates and Facilities
- Residential homes = elderly people
- Shower heads = aerosols

Aim (intrinsic)

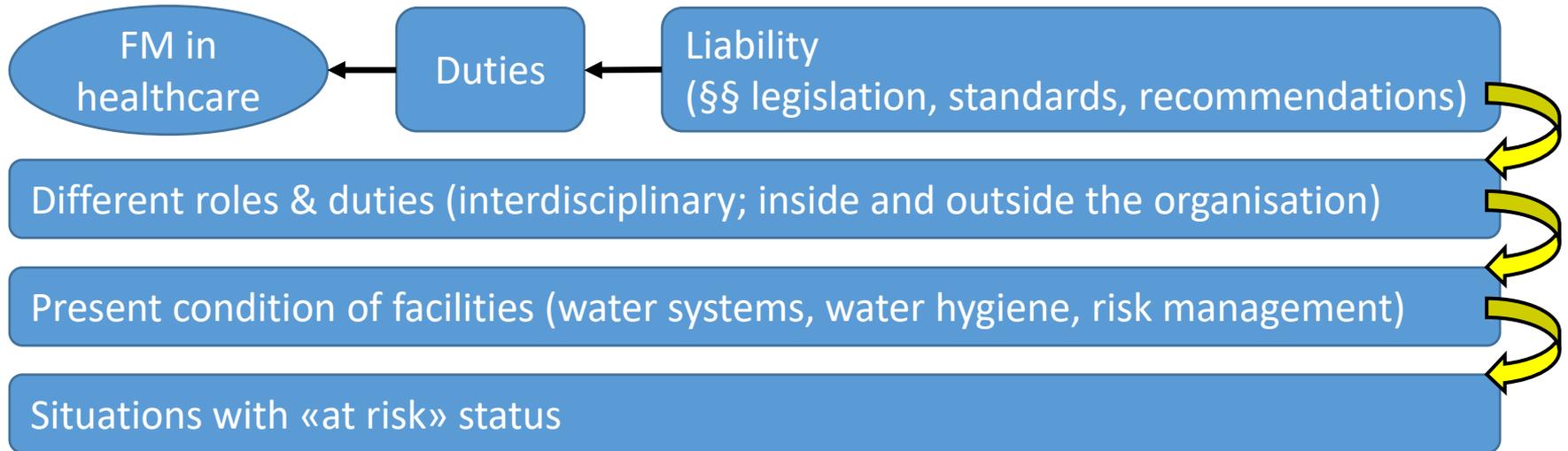
Case study on present state of *Legionella* risk management

Motivator (extrinsic)

New Legislation: Introduction of a maximum level for *Legionella* in water used for showers

Theory, background & context

«*Legionella*» and «*Pseudomonas*» are 'prominent' representatives for issues of water hygiene and risk management of water systems



Is a generalised «process» of *Legionella* prevention of water systems possible or subject to parameters or criteria specific to facilities?

Methodology

Case Study
research design

Sample size:
10 residential
homes, randomly
selected in the
canton of Zurich.

Legionella in
shower outlets
Compliance with
FOPH?

Sampling



Data A

- Microbiology testing
- Water samples of shower heads
- *Legionella pneumophila*
- *Legionella* spp.
- Microbiological testing according to SN EN ISO 11731-2:2008-05
- Culture method and FCM-IS



Data B

- questionnaire about the water system of the facility
- 5 categories:
- General questions
- System properties
- Hygiene / maintenance
- Monitoring / recording
- Showers

A N A L Y S I S

Present situation

Results

Question	Object									
	A	B	C	D	E	F	G	H	I	J
Guidelines for water hygiene quality?	FOPH	QMS	n/a	FOPH	n/a	n/a	n/a	n/a	n/a	PHI
Controls and frequencies conducted on the water system?	<p>[This question was answered with a very wide variation of control measures and frequencies. It requires a separate, in-depth discussion from an operative perspective.]</p>									
Installation date of the drinking water system in the building?	1974	2013	n/a	2010	2004	1993	1993	2011	*	**
Parts of the water system that have been replaced or reconstructed?	y	y	n/a	n/a	y	y	y	n	y	n/a
Problems of water quality in past?	y	n	y	n	y	n/a	n	n	n	n/a
Dead lines in water system?	y	n	n/a	n	y	n/a	n/a	n	n/a	n

Conclusion

Generalisation impossible, but indications:

- Legal framework or potential threats are not always identified sufficiently
 - Determination of strategies to counteract *Legionella*
 - For risk assessment: Considering parameters specific to the organisation
 - ‘Defective’ water system reducing the facilities’ value
 - Hazard to people and the responsibilities of duty holders
- **Professionals with operator duties must bear all this in mind!**

Recommendation to practitioners

- Although guided by WHO's water safety plan, «blind spots» remaining
 - One shouldn't neglect or trivialise issues of water hygiene
 - Ascertain the present state of your organisation's water system
 - Keep records up to date and make available
 - Improve continuously
 - Manage risks (education, qualified personnel)
 - Legal obligations, technical standards
- **no universal solution available!**

Suggestions for future research

- For FM's: Orientation/Guidance for people on duty
- Identification of process owners, description of roles, tasks and duties
- Internal and external considerations and forces combined ensuring water hygiene

→ How to mobilise?

- Examples of «best practice», Case studies considering practice and research
- Crossing borders of «old habits» or «fear of failing»

→ e.g. an international platform for FM's, sharing experience

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