

**Results of qualitative research on implementation of infection control best practice in European hospitals**

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Division of Infectious Diseases and Hospital Epidemiology  
PROHIBIT Study Group

Hosted by Prof. Yves Longtin  
McGill University, Montreal



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Quantitative

Numbers



11.5% (p=.3)

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Qualitative	Quantitative
Quotes	Numbers
“They said it was a priority...but then, they actually never showed up, we never saw them here at the bedside...”	11.5% (p=.3)

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Qualitative Research

Qualitative Research is intended to deeply explore, understand and interpret social phenomena **within its natural setting**.

[...] to explore the why and how of a situation, **not** only what, where, when.

Patton MQ: Qualitative Research and Evaluation Methods. Thousand Oaks, CA, USA: Sage Publications, Inc; 2002.

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Qualitative research

[...] rather than adopting a simplified, reductionist view of the subject in order to measure and count the occurrence of states or events, qualitative methods take a holistic perspective which preserves the complexities of human behavior.

Strong PM. The case for qualitative research. Internat J Pharm Pract 1992;1:185.



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Qualitative methods aim to **make sense** of, or interpret, phenomena in terms of the meanings people bring to them.



Greenhalgh T, Taylor R: How to read a paper: Papers that go beyond numbers (qualitative research). BMJ 1997, 315:740–743.



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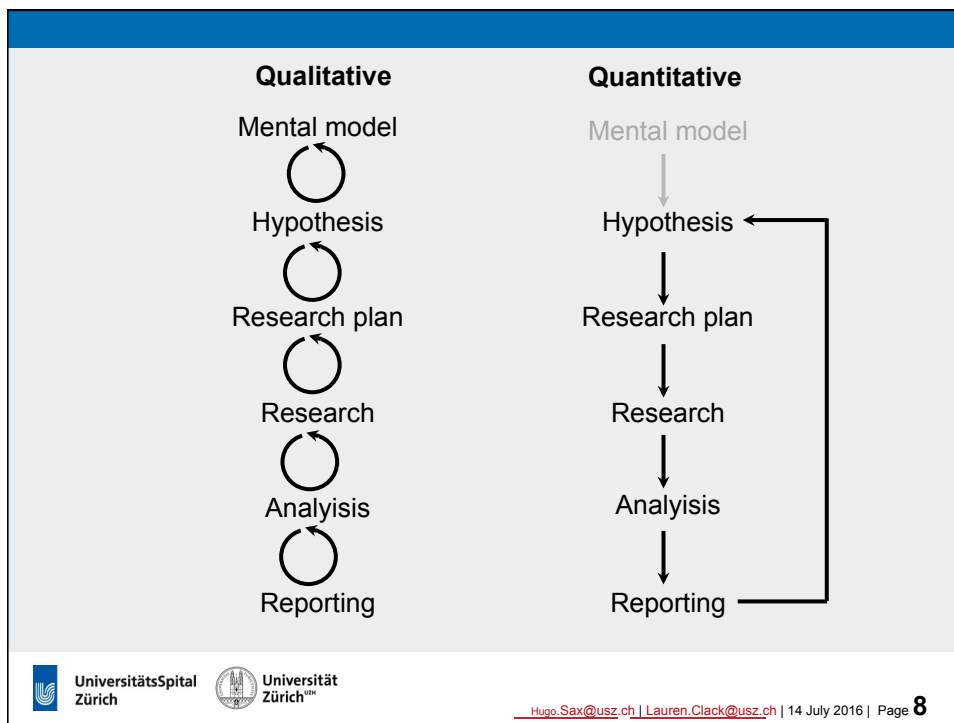
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Qualitative		Quantitative	
Complexity In context Emerging Purposeful sampling	Methods	Reductionist Context independent A priori Random, statistical power	
Triangulation Reflexivity Member checking Time in the field Negative cases	Validity	Rigorous Statistical significance Confounding/bias exclusion	
In parallel Transcription Coding Themes	Analysis	A posteriori Statistical analysis	

Mays NCP. Qualitative research in health care: Assessing quality in qualitative research. BMJ 2000, 320:50–52.

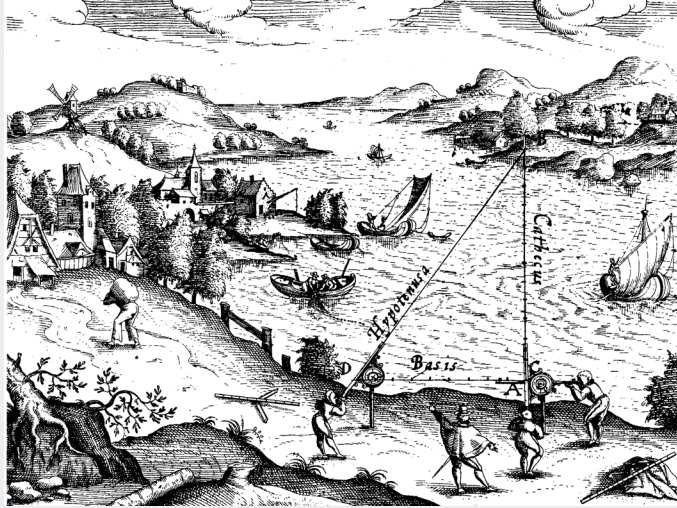


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△ Triangulation



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○ Reflexivity



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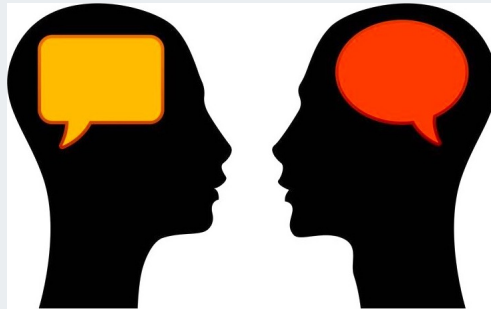


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⇔ Member checking

Submit results of the analysis to participants for verification.



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### Quality of qualitative research

**Box 1 Prompts for appraising qualitative research**

- Are the research questions clear?
- Are the research questions suited to qualitative inquiry?
- Are the following clearly described?
  - sampling
  - data collection
  - analysis
- Are the following appropriate to the research question?
  - sampling
  - data collection
  - analysis
- Are the claims made supported by sufficient evidence?
- Are the data, interpretations, and conclusions clearly integrated?
- Does the paper make a useful contribution?

Dixon-Woods M. The problem of appraising qualitative research. Qual Saf Health Care 2004, 13:223–225.



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Mixed-methods studies

Qualitative  Quantitative

**Box 1** | Qualitative and quantitative methods can be integrated at different stages in a research project

- Design—eg, using qualitative interviews to develop a quantitative measure
- Sampling—eg, using an initial survey to determine or provide a sampling frame for qualitative interviews
- Analysis—eg, using qualitative research to inform priors for bayesian statistical analysis
- Interpretation—eg, integrating the findings in chapter, papers, reports  
O’Cathain suggests that health services research tends to be weakest at integrating at the analysis stage.<sup>20</sup>

Pope C, Mays N: Critical reflections on the rise of qualitative research. BMJ 2009, 339:b3425–b3425.



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European Commission - Framework Programme FP7 Health

# PROHIBIT

Prevention of Hospital Infections by Intervention & Training

The objective of PROHIBIT is to understand the variations of healthcare-associated infection prevention in Europe and to test the success of a catheter-related bloodstream infection prevention strategy.



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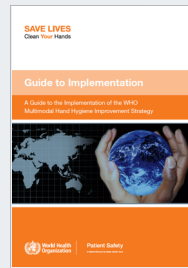
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**Table 1 PROHIBIT work packages and their objectives**

Work package (WP)	Title	Objective
WP 1	Project Management	Ensure that the project's main scientific objectives are realized on schedule and on budget.
WP 2	Systematic review of European guidelines for HAI-prevention, surveillance and public HAI reporting	Detect and analyze current guidelines and recommendations in European countries for HAI-prevention of HAI. In addition, this work package will review HAI surveillance activities and schemes and public HAI reporting efforts in European countries.
WP 3	Survey of policy and practice for HAI-prevention in European hospitals	Assess the activity of European hospitals in HAI-prevention using a questionnaire of key determinants in a sample of hospitals in all European countries.
WP 4 (InDepth)	In-depth qualitative investigation of success factors for adoption and implementation of infection prevention practices	Identify facilitators and barriers for successful adoption and implementation of evidence-based infection prevention practices by European hospitals.
WP 5	Randomized effectiveness trial of two interventions to reduce catheter-related blood stream infections	Demonstrate the effectiveness of implementation of two interventions to prevent CRBSI: 1) the WHO hand hygiene promotion strategy and 2) a CRBSI prevention bundle.
WP 6	Synthesis and dissemination	Provide tools for HAI-prevention to be used by stakeholders at multiple levels of health care systems.

CRBSI, catheter-related bloodstream infection; HAI, healthcare-associated infection(s); WHO, World Health Organization.



Restricted use  
Clean insertion and maintenance

General use of hand hygiene

Both together

CVC insertion performance

Hand hygiene performance

Rate of catheter-related bloodstream infections

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**indepth**

**STUDY PROTOCOL** Open Access

**Implementation of infection control best practice in intensive care units throughout Europe: a mixed-method evaluation study**

Hugo Sax<sup>1,2\*</sup>, Lauren Clack<sup>1,2</sup>, Sylvie Touveneau<sup>1</sup>, Fabricio da Liberdade Jantarada<sup>1</sup>, Didier Pittet<sup>1</sup>, Walter Zingg<sup>1</sup> and PROHIBIT study group

**Abstract**

**Background:** The implementation of evidence-based infection control practices is essential, yet challenging for healthcare institutions worldwide. Although acknowledged that implementation success varies with contextual factors, little is known regarding the most critical specific conditions within the complex cultural milieu of varying economic, political, and healthcare systems. Given the increasing reliance on unified global schemes to improve patient safety and healthcare effectiveness, research on this topic is needed and timely. The 'inDepth' work package of the European FP7 Prevention of Hospital Infections by Intervention and Training (PROHIBIT) consortium aims to assess barriers and facilitators to the successful implementation of catheter-related bloodstream infection (CRBS) prevention in intensive care units (ICU) across several European countries.

**Methods:** We use a qualitative case study approach in the ICUs of six purposefully selected acute care hospitals among the 15 participants in the PROHIBIT CRBS intervention study. For sensitizing schemes we apply the theory of diffusion of innovation, published implementation frameworks, sensemaking, and new institutionalism. We conduct interviews with hospital health providers/agents at different organizational levels and ethnographic observations, and conduct rich artifact collection, and photography during two rounds of on-site visits, once before and once one year into the intervention. Data analysis is based on grounded theory. Given the challenge of different languages and cultures, we enlist the help of local interpreters, allot two days for site visits, and perform triangulation across multiple data sources. Qualitative measures of implementation success will consider the longitudinal interaction between the initiative and the institutional context. Quantitative outcomes on catheter-related bloodstream infections and performance indicators from another work package of the consortium will produce a final mixed-methods report.

**Conclusion:** A mixed-methods study of this scale with longitudinal follow-up is unique in the field of infection control. It highlights the 'Why' and 'How' of best practice implementation, revealing key factors that determine success of a uniform intervention in the context of several varying cultural, economic, political, and medical systems across Europe. These new insights will guide future implementation of more tailored and hence more successful infection control programs.

**Trial registration:** Trial number: PROHIBIT-241928 (FP7 reference number)

**Keywords:** Implementation, Infection control, Catheter-related bloodstream infections, Hand hygiene, Intensive care units, Best practice, Organizational culture, Organizational case studies, Organizational innovation, Organizational decision making, Patient safety

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**Case study method**

**Case = hospital; Intensive Care Unit**

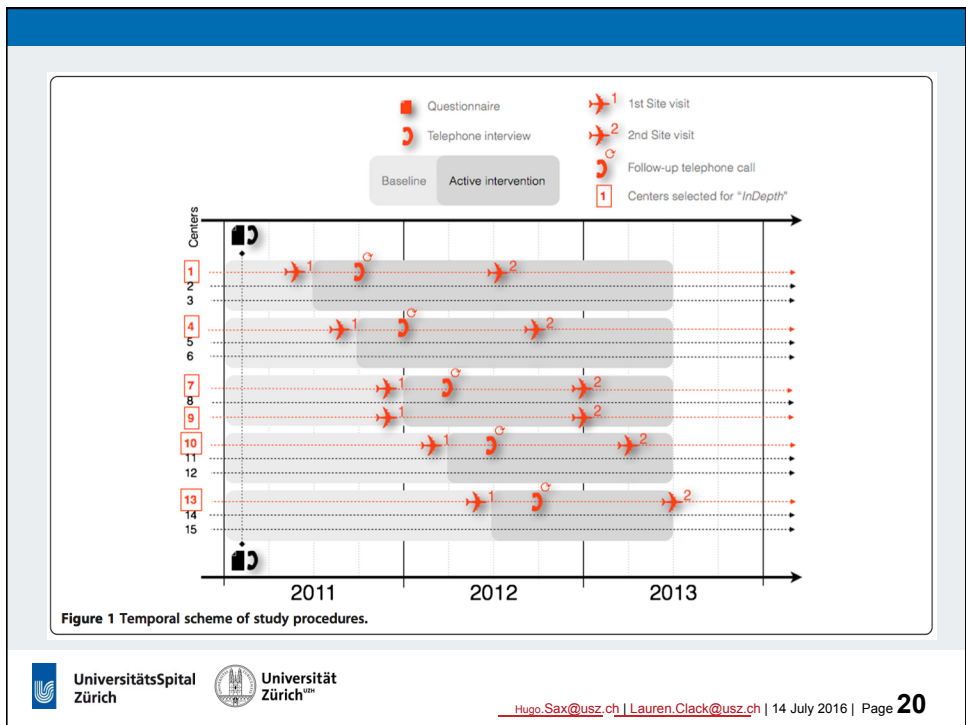
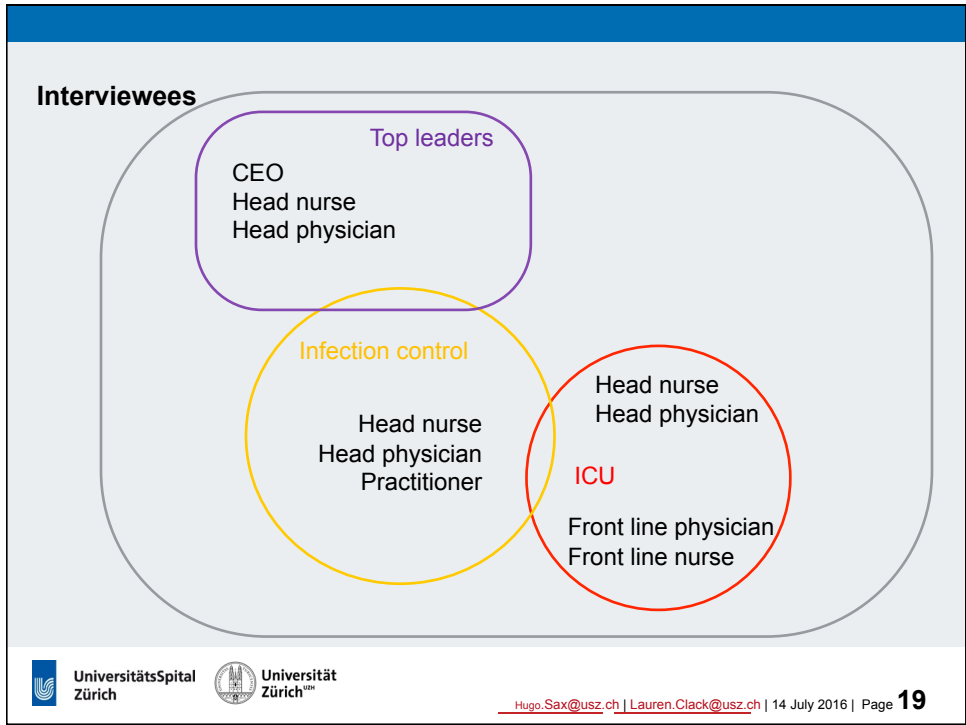
Interviews, Photos, Observations, Artefacts

Case A | Cross-case analysis | Case B

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## Boundary Spanning



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## Horizontal vs. Vertical Boundary Spanning



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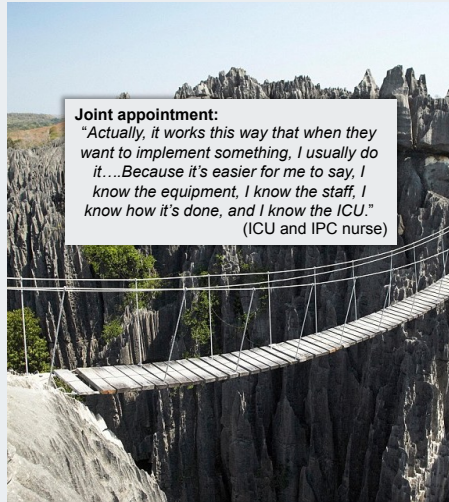


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## Horizontal vs. Vertical Boundary Spanning



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## Implementation Fitness



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Implementation Fitness



**Leadership on board:**  
 "I read the protocol, and to head of department, and said [this is] another intervention study, and this is about the PROHIBIT. This makes sense to me. And he said that it makes sense to him as well because it's the quality improvement, and we did another study before, and that also led to some quality improvements."  
 (IPC Physician)

**Existing protocols:**  
 "We actually produced a protocol some years before that time point for CVC insertion, and to have a program that proposed to do research on that topic was very timely... So PROHIBIT has found prepared ground"  
 (Head Nurse)

**Identified champions:**  
 "[The ICU physician] had been involved in the national pilot project of surveillance... that's why he was picked [to participate in PROHIBIT]. You know, why we dealt with him, because he had...supported that project. And we thought it was the natural follow on for him to get involved with this."  
 (IPC Physician)

Implementation Fitness



## Implementation Fitness



**(Perceived) lack of experience:**  
*"I don't think they're really experienced in implementing bundles because we make the bundles."*  
(ICU Physician)



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## Disruptive Events



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## Disruptive Events



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## Results summary

- **Boundary spanners:** individuals who have multiple roles within an organisation, and who traverse institutional boundaries to accelerate change.
  - Inter-organisational and Intra-organisational
  - Horizontal boundary spanning: between departments
  - Vertical boundary spanning: up organisational hierarchy
  - Lack of boundary spanners is a barrier particularly when an organisation has silos – (a.k.a. different departments function independently)
- **Implementation fitness:** how suitable an organisation is to integrate research findings and evidence into practice.
  - Implementation is like a muscle – the more you flex it, the stronger it becomes!
  - Previous participation in quality improvement initiatives is a facilitator to future initiatives
  - Lack of experience (or perceived lack of experience) may be a barrier



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## Results summary

- Disruptive events: circumstances that interrupt the routine functioning of an organisation.
  - Disruptive events may increase awareness surrounding IPC issues (e.g. outbreaks)
  - Disruptive events may take priority and shift focus away from IPC issues (e.g. hospital relocation)



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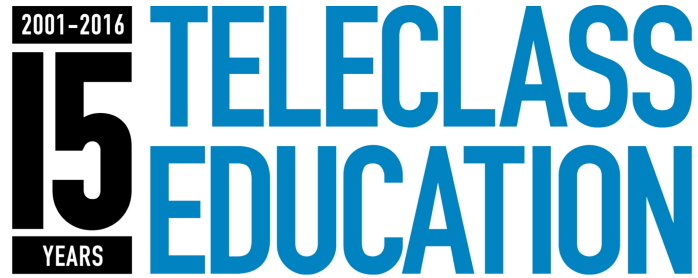
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- July 21 **BEHAVIOURAL AND ORGANIZATIONAL DETERMINANTS OF SUCCESSFUL INFECTION PREVENTION AND CONTROL INTERVENTIONS**  
Dr. Enrique Castro-Sánchez, Imperial College London, England
- August 10 (*Free South Pacific Teleclass*)  
**CAN PATIENT EMPOWERMENT BE USED AS A STRATEGY TO IMPROVE INFECTION CONTROL COMPLIANCE?**  
Dr Holly Seale, School of Public Health and Community Medicine, UNSW Australia
- August 18 (*Free Teleclass*)  
**USE OF HYPOCHLORITE (BLEACH) IN HEALTHCARE FACILITIES**  
Prof. William Rutala, University of North Carolina Hospitals
- August 25 **APPLICATIONS AND LIMITATIONS OF DIPSLIDES AND PCR FOR REAL-TIME ENVIRONMENTAL CONTAMINATION EVALUATION**  
Dr. Tobias Ibfelt, Copenhagen University Hospital, Denmark  
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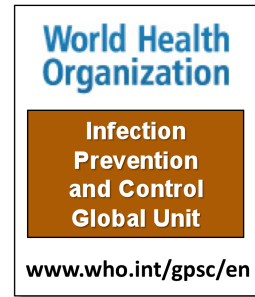
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