

Innovation and Implementation Strategic Approaches to Recude Catheter-Related Bacterarmia

Dr. Walter Zingg, University of Geneva Hospitals

A World Health Organization Teleclass

PROHIBIT

Prevention of Hospital Infections by Intervention & Training

"INNOVATION AND IMPLEMENTATION STRATEGIC APPROACHES TO REDUCE CATHETER-RELATED BACTERAEMIA: THE RESULTS OF A EUROPEAN MULTICENTRE STUDY (PROHBIT)"

Dr. Walter Zingg
University of Geneva Hospitals

Hosted by Dr. Benedetta Allegranzi
WHO Patient Safety Agency

Sponsored by
WHO Patient Safety Challenge Clean Care is Safer Care

www.webbertraining.com January 29, 2014

Outline

BACKGROUND
THE GENEVA "REDCO-CVC project"
PROHIBIT
PROHIBIT – The catheter project
PROHIBIT – In Depth
SUMMARY

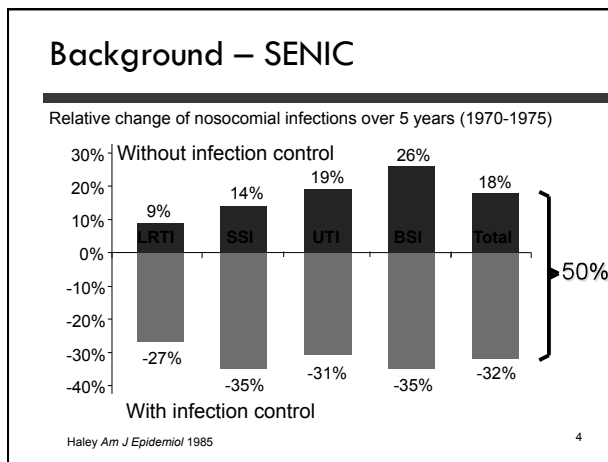
2

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3



Background – ECDC

ECDC – ICU-data

Table 1. Device-adjusted bloodstream infection rates by country, 2007

	pt days	N of CVC days_all	CUR	N of CA-BSI episodes	N of CR-BSI episodes	CA-BSI/1000 cvc-days	CR-BSI/1000 cvc-days
AT	75997	66359	87.3	128	108	1.9	1.6
BE	21999	15263	69.4	44	27	2.9	1.8
ES	142072	103030	72.5	497	355	4.8	3.4
FR	257638	160059	62.1	575	181	3.6	1.1
IT	22304	16467	73.8	75	38	4.6	2.0
LT	13715	10466	76.3	24	8	2.3	0.3
LU	27683	15559	56.2	43	40	2.8	2.6
PT	7800	6487	83.2	20	17	3.1	2.6
SK	1760	1407	79.9	7	3	5.0	2.1
Total	570968	395097	69.2	1259	751	3.2	1.9

CUR=Central line utilisation rate (N of CVC days * 100/ N of patient days)

5

Background – INICC

Type of ICU	ICU's, n	Patients, n	Pooled mean CLABSI rate
Medical	42	30,823	14.7
Medical cardiac	27	26,704	6.2
Medical/surgical	138	109,237	6.8
Neurologic	4	3,869	12.9
Neurosurgical	25	8,109	4.6
Pediatric	45	20,905	10.7
Respiratory	18	2,710	4.9
Surgical	50	63,270	5.0
Surgical cardiothoracic	28	25,130	1.5
Trauma	9	4,507	2.5
Overall	386	295,264	6.8/1'000 catheter-days

6.8/1'000 catheter-days

422 ICUs from 36 countries in Latin America, Asia, Africa, and Europe
Rosenthal. Am J Infect Control 2012;40:396

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Impact of a prevention strategy targeted at vascular-access care on incidence of infections acquired in intensive care

Philippe Eggimann, Stephan Harbarth, Marie-Noëlle Constantin, Sylvie Touveneau, Jean-Claude Chevolet, Didier Pittet

Multimodal intervention:

- Education/Training
- Standardized processes
- Maximal sterile barrier precautions
- Chlorhexidine
- Hand hygiene
- Catheter care
- etc.

Eggimann. *Lancet* 2000;355:1864 7

Guidelines	Control period*
Material preparation	Based on physicians' individual preferences.
Positioning of patient	According to nursing habits acquired elsewhere—eg, nursing school, hospital wards.
Line insertion	General institutional recommendations.
Skin preparation	Hair-shaving.
Skin antiseptics	Povidone iodine 10% or alcohol-based (70%) solution of chlorhexidine gluconate (0.5%).
Barrier precautions	Sterile gloves, small fenestrated sheets, paper mask.
Insertion technique	Various techniques; no specific training of ICU physicians.
Dressing	Several types according to individual non-standardised criteria. Transparent occlusive dressings or prepared devices for peripheral lines.
Replacement	Every 24 h for all dressings, administration sets, and devices.
General handling	Universal precautions.
Device removal	Peripheral line: after 3-5 days. Central line: no specific recommendations.
Hand hygiene during insertion and care	Handwashing with surgical soap in sink before and after each patient care, or hand disinfection.

8

Guidelines	Intervention period†
Material preparation	Material prepared according to detailed list to avoid interruption during insertion (cards available in preparation room).
Positioning of patient	Recommendations for placing of patients and devices to permit optimum access to insertion site. Presence of nurse to assist physician mandatory.
Line insertion	Detailed written guidelines.
Skin preparation	Hair-cutting instead of shaving. Skin cleansing with surgical swab.
Skin antiseptics	Alcohol-based (70%) solution of chlorhexidine gluconate (0.5%), with 2-min drying time before insertion.
Barrier precautions	Sterile gown and gloves, large sheets, cap, surgical mask (except for peripheral lines).
Insertion technique	Specific training of ICU physicians;‡ promotion of subclavian (CVC) and wrist vein (short lines) sites.
Dressing	Occlusive devices not allowed. Written guidelines for dressing. Replaced every 72 h except for the first dressing after catheter insertion. Dry gauze-based dressing occluded with porous adhesive band obligatory.
Replacement	Every 72 h for administration sets and devices; every 24 h for lipid emulsion lines. Lines for blood product infusions immediately removed after use.
General handling	Opening of hub: on antiseptic-impregnated pads after hand disinfection. General measure: new caps after any opening of hubs.
Device removal	Peripheral line: after 72 h systematically. Central line: as clinically indicated, no routine replacement. Any access: prompt removal if not absolutely necessary. Clinical sepsis: guidewire exchange if unexplained.
Hand hygiene during insertion and care	Hand disinfection: strongly emphasised before and after any care. Handwashing: for soiled hands, followed by hand disinfection.

9

Intervention period†	Initiative from the ICU
Material prepared according to detailed list to avoid interruption during insertion (cards available in preparation room).	Initiative from the ICU
Recommendations for placing of patients and devices to permit optimum access to insertion site. Presence of nurse to assist physician mandatory.	↓
Detailed written guidelines.	Contact infection control
Hair-cutting instead of shaving. Skin cleansing with surgical swab.	↓
Alcohol-based (70%) solution of chlorhexidine gluconate (0.5%), with 2-min drying time before insertion.	Detailed protocol based on literature
Sterile gown and gloves, large sheets, cap, surgical mask (except for peripheral lines).	↓
Specific training of ICU physicians;‡ promotion of subclavian (CVC) and wrist vein (short lines) sites.	Teaching on the ward
Occlusive devices not allowed. Written guidelines for dressing.	↓
Replaced every 72 h except for the first dressing after catheter insertion.	Bedside teaching
Dry gauze-based dressing occluded with porous adhesive band obligatory.	CVC-insertion
Every 72 h for administration sets and devices; every 24 h for lipid emulsion lines. Lines for blood product infusions immediately removed after use.	↓
Opening of hub: on antiseptic-impregnated pads after hand disinfection. General measure: new caps after any opening of hubs.	Surveillance
Peripheral line: after 72 h systematically.	
Central line: as clinically indicated, no routine replacement.	
Any access: prompt removal if not absolutely necessary.	
Clinical sepsis: guidewire exchange if unexplained.	
Hand disinfection: strongly emphasised before and after any care.	
Handwashing: for soiled hands, followed by hand disinfection.	

10

Background – Eggimann

	Control period		Intervention period			
	Incidence density	95% CI	Incidence density	95% CI		P
Novocomial infections						
Bloodstream	11.3	10.0-12.6	3.8	3.1-4.5		<0.001
Microbiologically documented	3.1	2.5-3.7	1.2	0.9-1.5		<0.001
Clinical sepsis	8.2	7.2-9.2	2.6	2.2-3.0		<0.001
Exit-site catheter	9.2	8.1-10.3	3.3	2.8-3.8		<0.001
Skin or mucous membranes	102	114	30	7.0	0.62 (0.41-0.93)	<0.02
Miscellaneous*	15	17	9	2.1	1.26 (0.55-2.87)	<0.66
Total	468	524	145	34.0	0.65 (0.54-0.78)	<0.001

*Including secondary bloodstream infections occurring during the control period (one *Candida albicans* urinary-tract infection) and the intervention period (one each of *Enterobacter cloacae* skin and urinary-tract infections, one *C. albicans* urinary-tract infection).

Eggimann. *Lancet* 2000;355:1864 11

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12

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An Intervention to Decrease Catheter-Related Bloodstream Infections in the ICU

Peter Pronovost, M.D., Ph.D., Dale Needham, M.D., Ph.D., Sean Berenholtz, M.D., David Sinopoli, M.P.H., M.B.A., Haitao Chu, M.D., Ph.D., Sara Cosgrove, M.D., Bryan Sexton, Ph.D., Robert Hyzy, M.D., Robert Welsh, M.D., Gary Roth, M.D., Joseph Bander, M.D., John Kepros, M.D., and Christine Goeschel, R.N., M.P.A.

Bundle:

- Hand hygiene
- Maximal sterile barrier precautions*
- Skin antiseptis with Chlorhexidine
- Avoiding femoral access
- Removing catheter when not needed anymore

*Mask, cap, sterile gown, large sterile drape, sterile gloves
* Targeting catheter-insertion

Pronovost. *New Engl J Med* 2006;355:2725

Background – Pronovost

Median/1'000 catheter-days

Table 3. Rates of Catheter-Related Bloodstream Infections (before Implementation of the Study Intervention) to 18 Months of Follow-up.*

Study Period	No. of ICUs	No. of Bloodstream Infections per 1000 Catheter-Days			
		Overall	Teaching Hospital	Nonteaching Hospital	<200 Beds ≥200 Beds
Baseline	55	2.7 (0.6-4.8)			
During implementation	96	1.6 (0-4.4)†	1.7 (0-4.5)	0 (0-3.5)	0 (0-5.8)
After implementation					
0-3 mo	96	0 (0-3.0)‡	1.3 (0-3.1)†	0 (0-1.6)†	0 (0-2.7)
4-6 mo	96	0 (0-2.7)‡	1.1 (0-3.6)†	0 (0-0)‡	0 (0-3.2)‡
7-9 mo	95	0 (0-2.1)‡	0.8 (0-2.4)‡	0 (0-0)‡	0 (0-0)‡
10-12 mo	90	0 (0-1.9)‡	0 (0-2.3)‡	0 (0-1.5)‡	0 (0-0)‡
13-15 mo	85	0 (0-1.6)‡	0 (0-2.4)‡	0 (0-0)‡	0.2 (0-2.3)‡
16-18 mo	70	0 (0-2.4)‡			

Mean/1'000 catheter-days: 7.7

Mean/1'000 catheter-days: 1.3

Pronovost. *New Engl J Med* 2006;355:2725

Background – Pronovost

Explaining Michigan: Developing an Ex Post Theory of a Quality Improvement Program

1. **Generating isomorphic pressures** for ICUs to join the programme and conform to its requirements
2. Creating a densely **networked community** with strong horizontal links that exerted normative pressures on members
3. Reframing **CVC-BSIs as a social problem** and addressing it through a professional movement combining "grassroots" features with a vertically integrating program structure
4. Using several interventions that functioned in different ways to **shape a culture of commitment** to doing better in practice
5. Harnessing data on infection rates as a disciplinary force
6. Using "hard edges"

Dixon-Woods. *Milbank Quarterly* 2011;89:167

15

Table 1 Multimodal "bundle" strategies in the prevention of catheter-related or catheter-associated bloodstream infections

Study	City, country	Setting	Study time	Practice interventions	Implementation Strategies	Outcome		P-value	Type
						Baseline	Intervention		
Zingg et al (2007)	Zurich, Switzerland	5 ICUs, single center	4 months	Hand hygiene; optimized catheter dressing; maximal barrier precautions; chlorhexidine; catheter care	Tool preparation; guided by hotline; healthcare workers' perceptions; bedside training; business	3.9	1.0	P<0.001	CABIS
Aparinbanank et al (2008)	Pharmarak, Thailand	Hospital-wide, single center	36 months	Hand hygiene; full barrier precautions at catheter insertion; CHG for skin antisepsis; avoiding the femoral vascular site; removing unnecessary catheters; bundle review	Education; posters; hand hygiene tools	14.0	1.44	P<0.001	CABIS
D'Elia et al (2017)	Rhode Island, USA	23 ICUs, intensive	30 months	Handwashing; full barrier precautions at catheter insertion; CHG for skin antisepsis; avoiding the femoral vascular site; removing unnecessary catheters	Comprehensive unit based safety program	3.73	0.87	P<0.0001	CABIS
Quinn et al (2017)	Dallas, USA	1 ICU	12 months	Hand hygiene; optimized catheter dressing; maximal barrier precautions; chlorhexidine; catheter care	Education; posters; hand hygiene tools	1.1	0.7	P<0.0004	CABIS
Maria et al (2012)	Barcelona, Spain	1 ICU	12 months	Hand hygiene; optimized catheter dressing; maximal barrier precautions; chlorhexidine; catheter care	Education; posters; hand hygiene tools	3.9	1.0	P<0.001	CABIS
Miles et al (2007)	USA	1 ICU	12 months	Hand hygiene; optimized catheter dressing; maximal barrier precautions; chlorhexidine; catheter care	Education; posters; hand hygiene tools	1.1	0.7	P<0.001	CABIS
Pinedo et al (2008)	Barcelona, Spain	1 ICU	12 months	Hand hygiene; optimized catheter dressing; maximal barrier precautions; chlorhexidine; catheter care	Education; posters; hand hygiene tools	6.7	2.4	P<0.010	CABIS
Phon-Phan et al (2008)	Madrid, Spain	3 ICUs, single center	18 months	Hand hygiene; optimized catheter dressing; maximal barrier precautions; chlorhexidine; catheter care	Education; posters; hand hygiene tools	4.2	2.0	P<0.0001	CABIS
Pronovost et al (2007)	Michigan, USA	1 ICU	12 months	Hand hygiene; optimized catheter dressing; maximal barrier precautions; chlorhexidine; catheter care	Education; posters; hand hygiene tools	1.1	0.7	P<0.0001	CABIS
Venkatesh et al (2012)	New York, USA	1 ICU	12 months	Hand hygiene; optimized catheter dressing; maximal barrier precautions; chlorhexidine; catheter care	Education; posters; hand hygiene tools	0.7	1.7	P<0.0001	CABIS
Water et al (2008)	San Antonio, USA	8 ICUs, multi-center	12 months	Hand hygiene; optimized catheter dressing; maximal barrier precautions; chlorhexidine; catheter care	Education; posters; hand hygiene tools	6.9	2.4	P<0.0001	CLASS
Schulman et al (2017)	New York State, USA	18 NCSJs, multi-center	12 months	Hand hygiene; optimized catheter dressing; maximal barrier precautions; chlorhexidine; catheter care	Education; posters; hand hygiene tools	3.5	2.1	P<0.001	CLASS

Multimodal strategies in the prevention of catheter-related or catheter-associated bloodstream infections have become standard in the intensive care-setting

Zingg. *Curr Opin Infect Dis* 2011; 24:377

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PROHIBIT – The catheter project

PROHIBIT – In Depth

SUMMARY

17

REDCO – CVC

„Réduction des complications des Cathéters Veineux Centraux“

18

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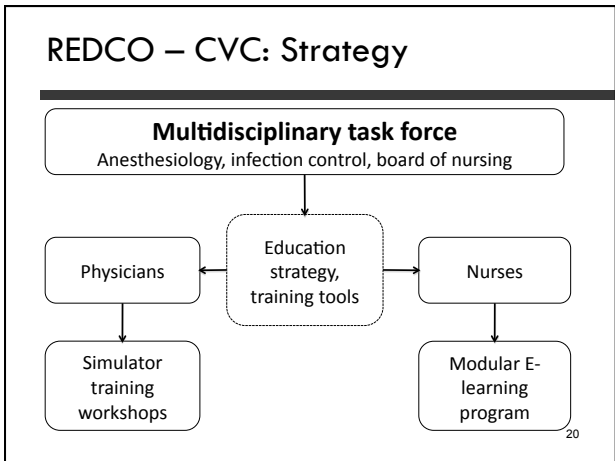
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REDCO – CVC

The aim of the study was to test the effectiveness of a hospital-wide training program on the reduction of central venous catheter-related bloodstream infections (CRBSI) by standardization of practice upon insertion and care

19



REDCO – CVC: Materials

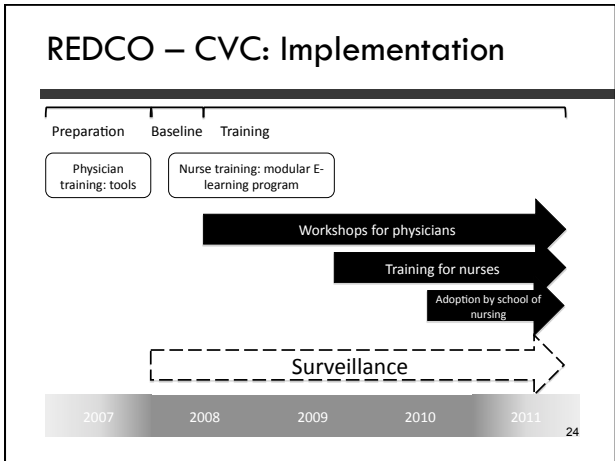
Line cart

Comprehensive insertion kit

21



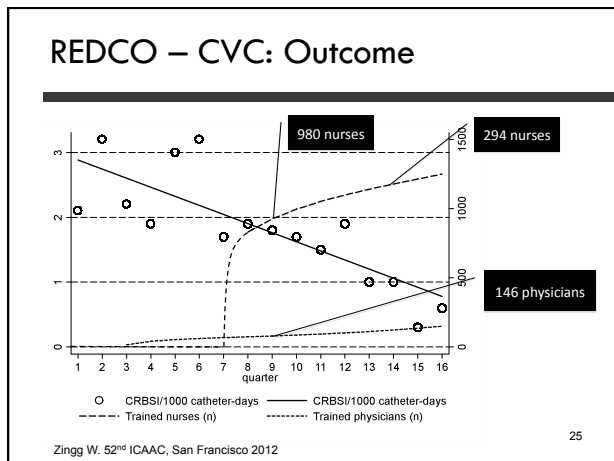
22



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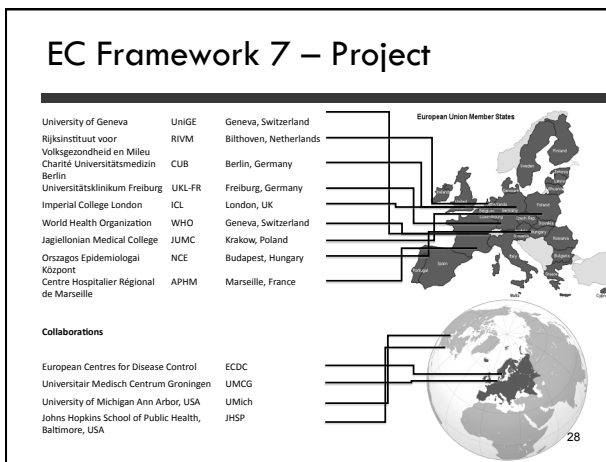


- ### REDCO - CVC
- #### Key factors for success
- Administrative support
 - Multidisciplinary task force
 - Improved equipment (carts, insertion kits)
 - Engagement of front-line staff
 - Professional groups were addressed separately
 - Practical workshops
- Zingg W. 52nd ICAAC, San Francisco 2012

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 PROHIBIT – The catheter project
 PROHIBIT – In Depth
SUMMARY

27

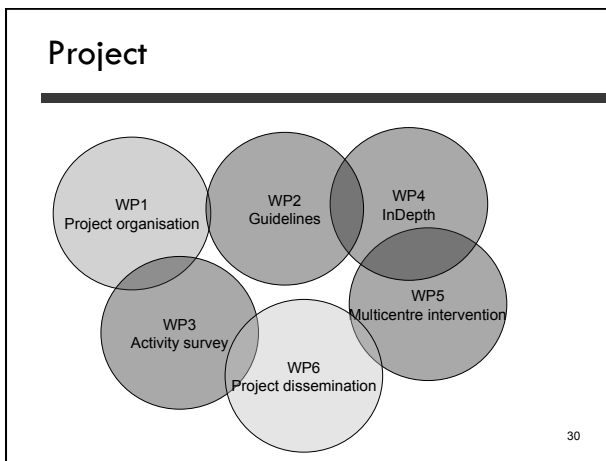


Aims

The aim of PROHIBIT is to provide the vision for policy makers, managers and healthcare workers to prevent transmission of HAI by improving understanding of European **guidelines** and hospital policies and **practices for HAI* prevention**, by overcoming common **barriers for implementing** evidence-based best practices, and by testing the **effectiveness of 2 interventions** to prevent catheter related bloodstream infection

*HAI: healthcare-associated infection

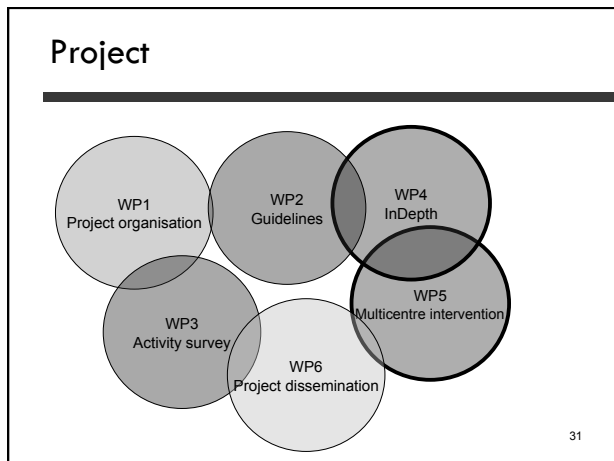
29



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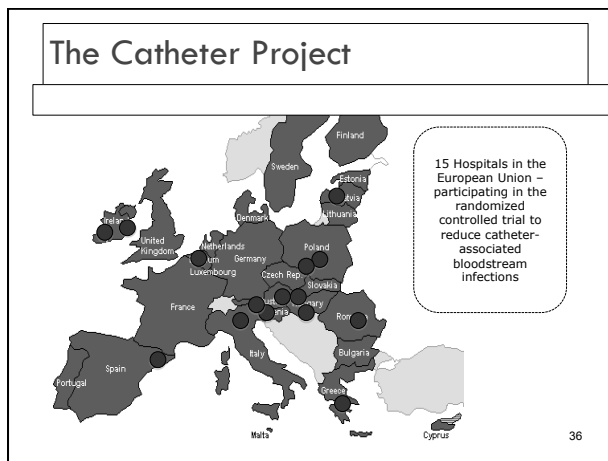
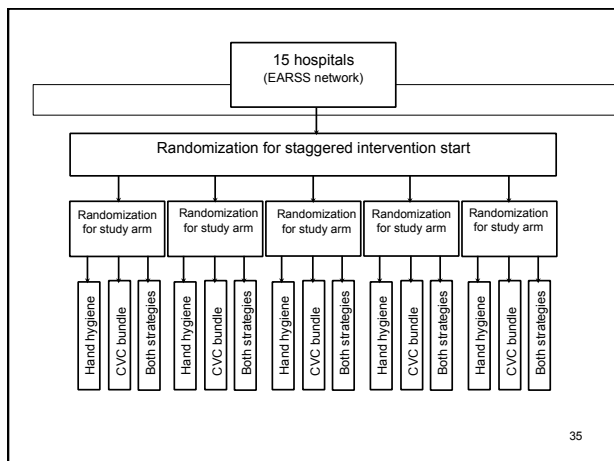
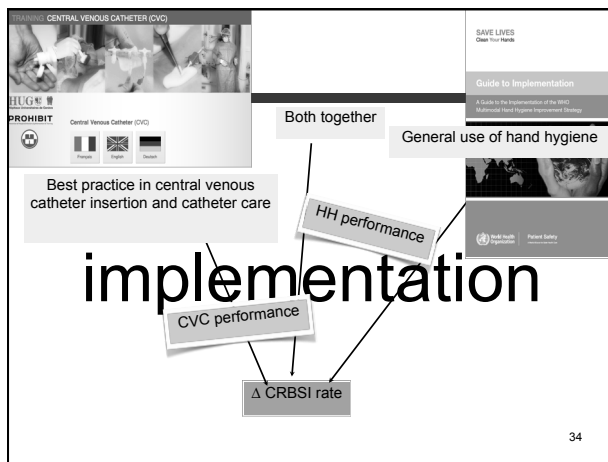
32

The Catheter Project

The objective of the catheter project was to test the effectiveness of bundle strategies and hand hygiene in the prevention of central line-associated bloodstream infections

The setting was a stepped-wedge cluster-randomization in intensive care units among 15 European hospitals

33



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The Catheter Project

A stepped wedge randomised controlled trial has sequentially rolled out defined intervention packages over a period of 36 months

Hospital	Start date	Intervention												
		P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	
1	1-7-2011 (Bsm)													
2	1-7-2011 (HH)													
3	1-7-2011 (CVC)													
4	1-10-2011 (Bsm)													
5	1-10-2011 (HH)													
6	1-10-2011 (CVC)													
7	1-1-2012 (Bsm)													
8	1-1-2012 (HH)													
9	1-1-2012 (CVC)													
10	1-4-2012 (Bsm)													
11	1-4-2012 (HH)													
12	1-4-2012 (CVC)													
13	1-7-2012 (Bsm)													
14	1-7-2012 (CVC)													

37

The Catheter Project

Centralised training of hospital delegates

- Simulator-based training
- "Carepractice.net"
- WHO hand hygiene strategy
- Implementation strategy

38

The Catheter Project

Outcomes and process indicators

Catheter-related bloodstream infections in all CVCs in ≥ 1 ICU

Patient characteristics

CVC characteristics

Hand hygiene compliance

- Measured according to the WHO "5 Moments for Hand Hygiene"
- On average 5 observations per week

CVC bundle compliance

- On average 3 observations per week

39

The Catheter Project

3,784 observations

40

The Catheter Project

Overall HH compliance

59,122 hand hygiene opportunities from 6,749 observation sessions

41

The Catheter Project

Data from 25,377 patients with 35,894 central venous catheters: 263,093 catheter-days and 384 catheter-related bloodstream infections

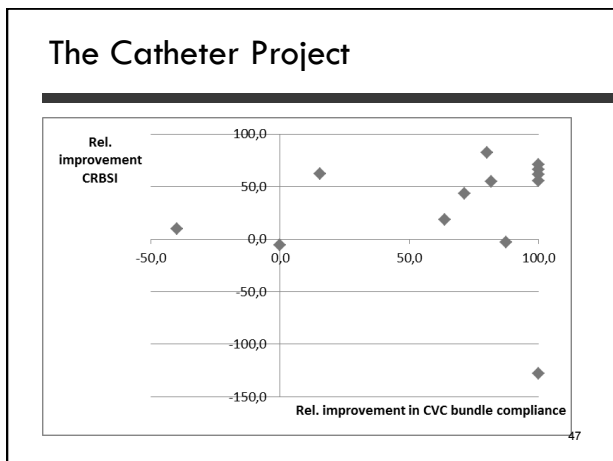
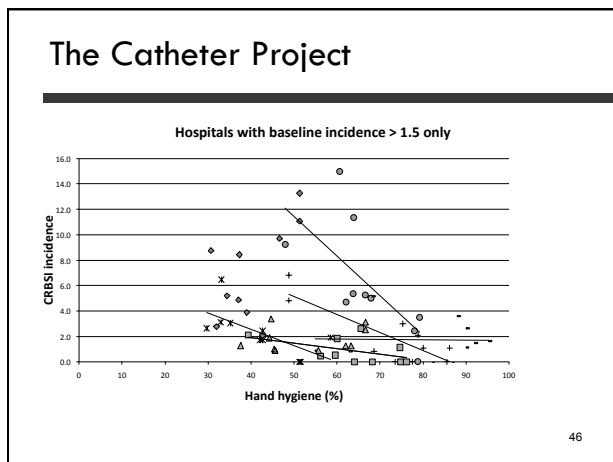
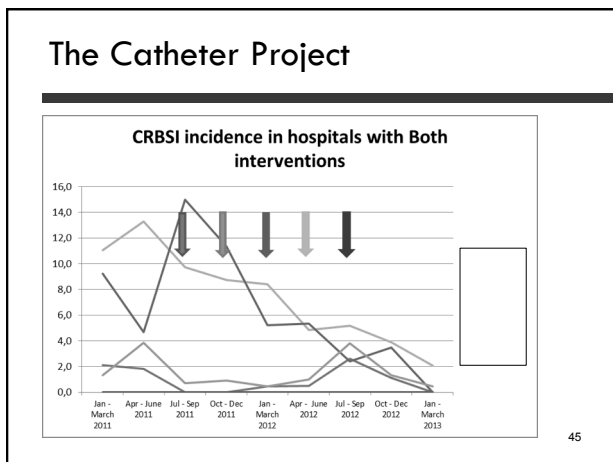
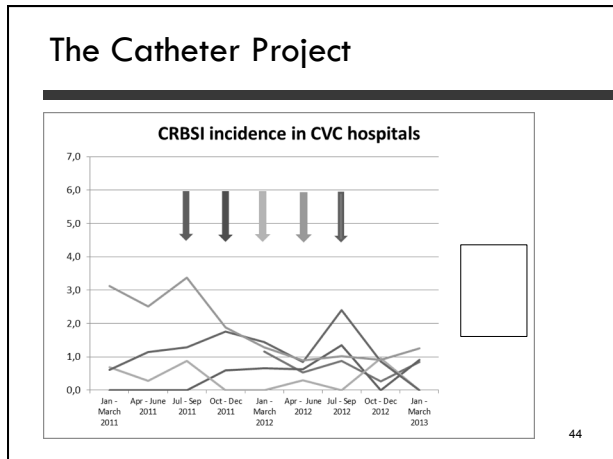
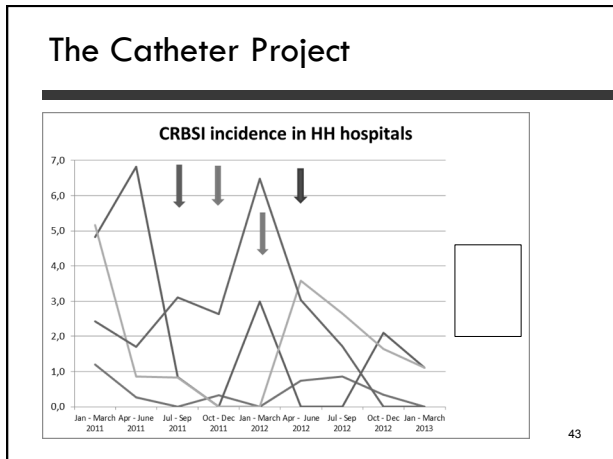
CRBSI incidence

42

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48

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InDepth

The objective of *InDepth* was to determine key factors for success or failure in the implementation of good practices in the prevention of healthcare-associated infections among a representative sample of hospitals participating in the catheter project

49

InDepth



"Why are some hospitals more successful in implementing best infection control practices than others?"

"What are the barriers and facilitators in implementing best infection control practice?"

Sax H, Clack L, Touveneau S, Jantarada FD, Pittet D, Zingg W. *Implement Sci* 2013;8:24

50

InDepth

Grounded approach

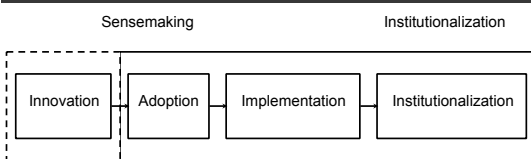
Sensitizing schemes

- Diffusion of innovation
- Sensemaking
- New institutionalism

Comprehensive framework for implementation research

51

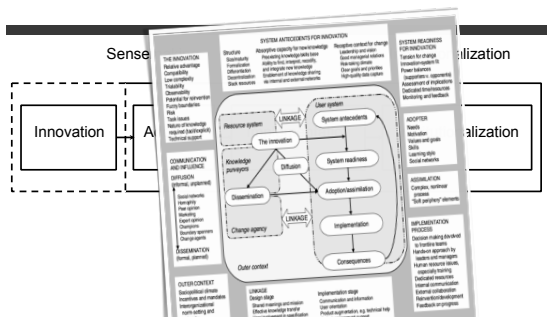
Diffusion of innovation



Greenhalgh T, Robert G, Macfarlane F, Bate P, Kyriakidou O: Diffusion of innovations in service organizations: systematic review and recommendations. *Milbank Q* 2004, 82:581-629.

52

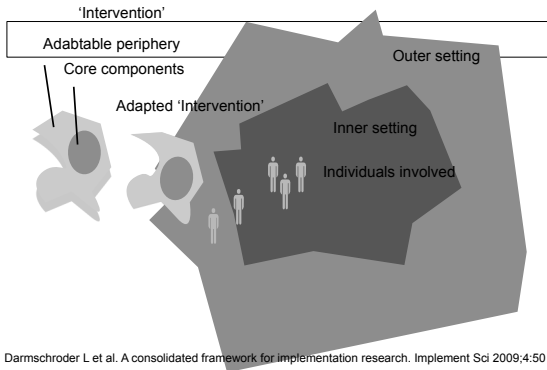
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53

Diffusion of innovation



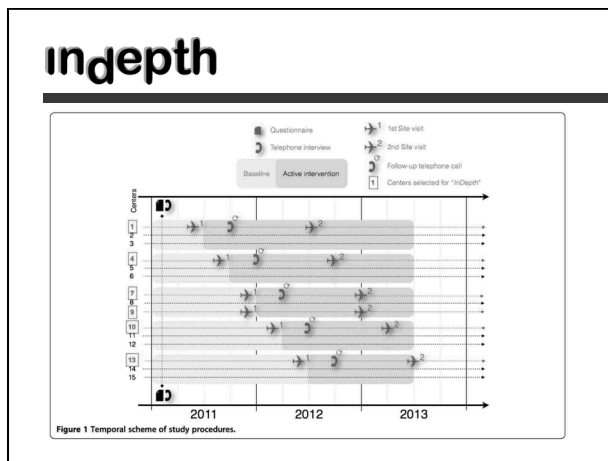
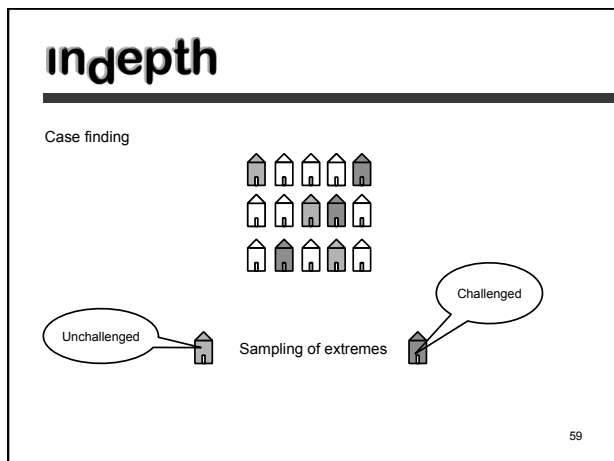
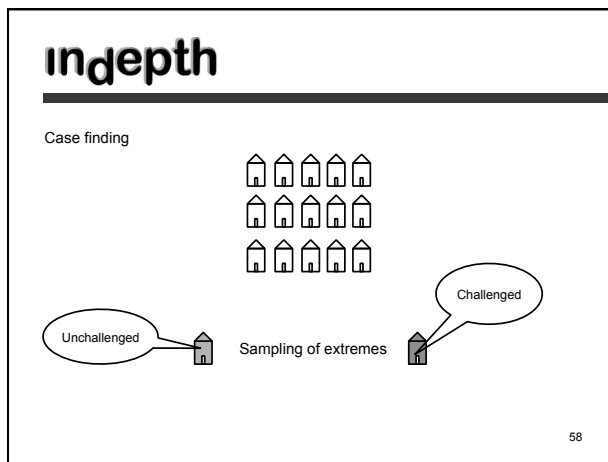
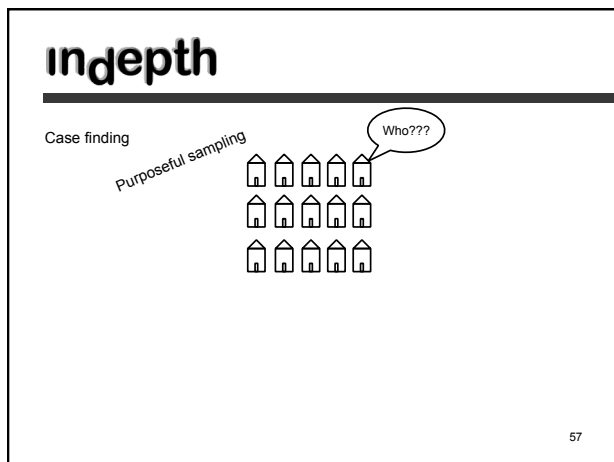
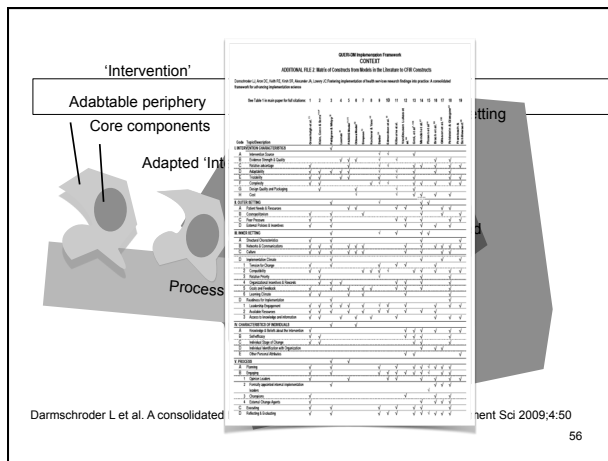
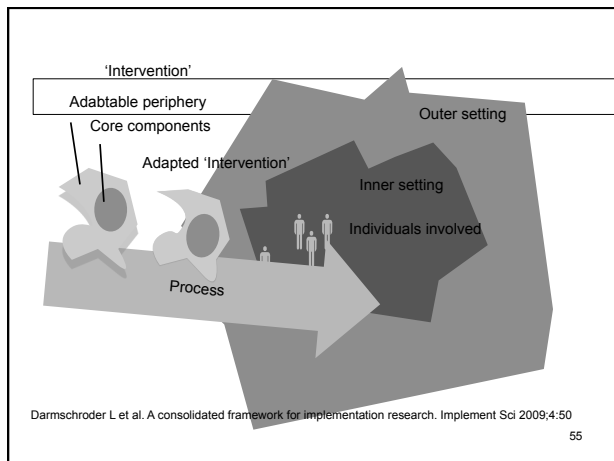
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54

Innovation and Implementation Strategic Approaches to Recude Catheter-Related Bacteremia

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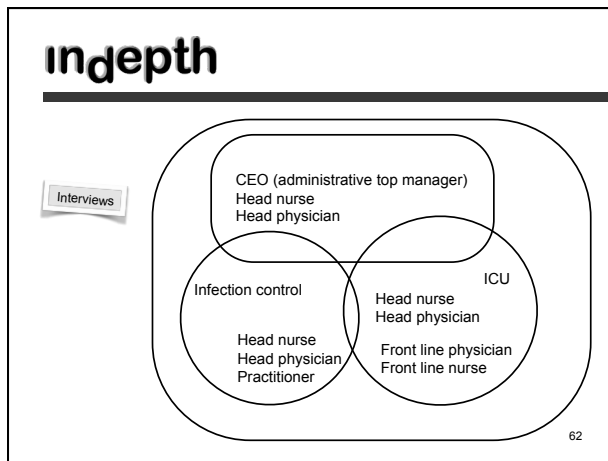
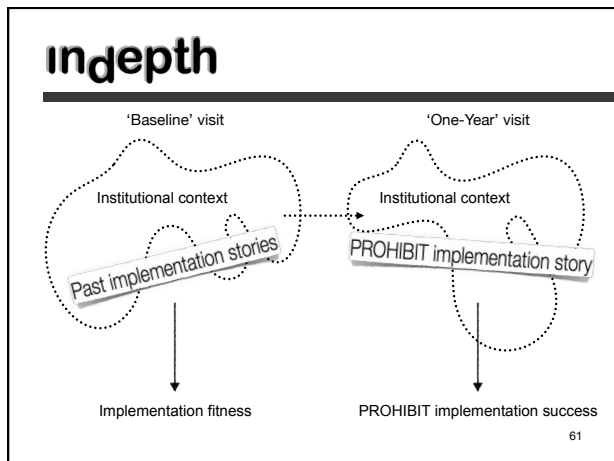
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Innovation and Implementation Strategic Approaches to Recude Catheter-Related Bacterarmia

Dr. Walter Zingg, University of Geneva Hospitals

A World Health Organization Teleclass



indepth

- 12 two-day site visits
- 132 recorded interviews (±1 hour)
- 6'336 pages of transcripts
- 48 hours of ethnographic observations
- 500 photographs
- >200 artefacts (guidelines, posters, etc.)

indepth

Major codes at 1st site visit

- Material & Environment
- Training
- Influential individuals
- Network & Communication
- Staffing
- Monitoring & Feedback
- Safety culture
- Innovation

- Resources
- Staff issues
- Education, training commitment
- Safety culture
- Internal policies
- External policy
- Influential individuals / Leadership
- Networks and communication
- De-facto power distribution
- Attitude of excellence, cosmopolitanism and guideline uptake
- Work attitude
- Consequential disruptive events
- Previous implementation experiences
- Monitoring and feedback
- Physical environment and equipment
- Perceived value of the intervention
- Implementation Process and activities
- Intervention Adaptation
- Perceived Implementation Success
- Hospital Management Priorities

64

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Major implementation codes

- Perceived value of intervention
- Intervention adaptation
- Perceived implementation success
- Hospital management priorities
- Innovation(s)

- Resources
- Staff issues
- Education, training commitment
- Safety culture
- Internal policies
- External policy
- Influential individuals / Leadership
- Networks and communication
- De-facto power distribution
- Attitude of excellence, cosmopolitanism and guideline uptake
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- Perceived Implementation Success
- Hospital Management Priorities

65

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'Individuals make a difference'


Clack L. 23rd ECCMID, Berlin 2013

66

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Street-credit

An individual who earns respect through their "on the ground" presence and (clinical) experience

+

“They would not so much accept somebody who's just coming and say, I've got a Nobel prize and then he's not here all the time. So it's nice for, this is different, you know, they really like the people who are involved in medical care.”
Head of IC, talking about ICU staff


-

“Our previous head was very much lab person, and a person who would do things from his office. But you would never see him on the ward.”
IC Physician, talking about previous IC Head Physician

“The communication between the Nurse chief and the nurses is problematic... conflict about planning, and nurse Chief telling the nurses to do something at the patients, but they know, the Nurse chief hadn't seen or wasn't at the patient since 20 years, and staff like this.”
ICU Physician, talking about ICU Head Nurse

“It's very important for us to go to the wards, talk to the people, which like we, doctors, like we did that before, but now that she's coming it's, we do it even more, and I think it's very important. To show them that we're there, to show them that you know what they're doing...”
IC Physician, talking about IC Head Physician

67



Solution Finder

An individual who presents solutions and makes things happen

“I would summarize it like this: she shows both the problem and the solution and I prefer this method. I do not need to ask what I have to do, because she tells me. And she does it in a friendly, not authoritarian way. She supports me during the implementation.”
CEO, talking about head of Infection Control

“The overall relationship is more negative than positive with the head of the department: mostly the answer is that you have to find a solution yourself, and I don't feel that there's so much support.”
ICU Head Nurse, talking about ICU Head Physician

“It happened that I was watching them using this alcohol hand scrub and I could see they didn't have enough and I asked what happened, and then they told me that hadn't any more because they had no budget for it, so then I immediately contacted the management and asked them to give like higher budget for this disinfectant and then this could be solved.”
Head of Infection Control

68




Innovator (a.k.a. Ideator)

An individual who brings new ideas to an organization and promotes innovation

“For instance, non invasive ventilation, not very common [in this country]... I saw in a congress, so I asked a firm to give me this equipment. We opened a publication and... we try on one of our colleagues. This is, in this team is, main part are young doctors, they're really enthusiastic, they want to try something new.”
Head of ICU

“He's also someone who is very practical but also innovative. He brings new things. And I think that we're just trying a little bit more to, not just do what was always have been done, but try to focus and see what can be changed, whether it makes sense to put power in, and what's maybe not so important.”
IC Physician, talking about ICU Physician

69



Relationship-oriented leader

An individual that channels interpersonal interactions to build effective working relationships

“(When asked about how to gain respect in the ICU) Constantly working with them! Constantly being there, constantly talking to people. Um, getting to know them, their names. Because there are so many staff in the ICU, it's getting to know the people.”
IC Nurse

“But maybe there's another problem, because hospital department Head nurses [have] bad communication with hospital Head nurse.”
IC Nurse, talking about administration

“I have a good relationship with the consultant, if there's a specific problem in an area, I've no difficulty in going to the consultant or the chair of surgery, or the chair of medicine, to say to them, 'listen this report is not good, you know, what are you going to do about it?'”
Head Nurse

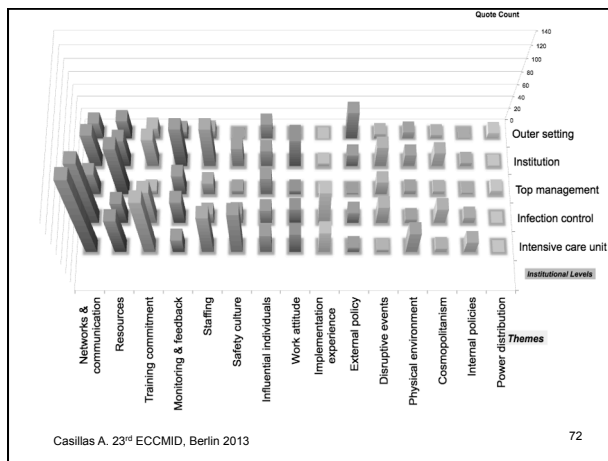
70

indepth

Other themes...

- Communication
- Champions
- Generations of healthcare workers
- "Brain drain"
- Work attitude
- Safety culture (teaching, critical incidents)

71



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Outline

BACKGROUND
THE GENEVA „REDCO-CVC project“
PROHIBIT
PROHIBIT – The catheter project
PROHIBIT – In Depth
SUMMARY

73

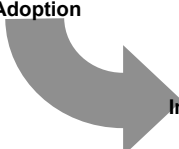
Summary

Adoption

74

Summary

Adoption

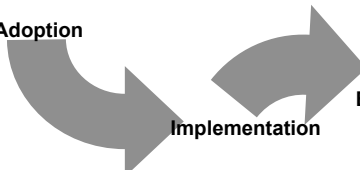


Implementation

75

Summary

Adoption



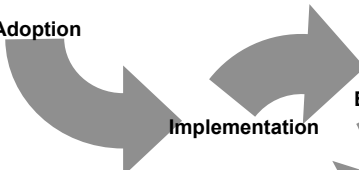
Implementation

Evaluation

76


Summary

Adoption



Implementation

Evaluation

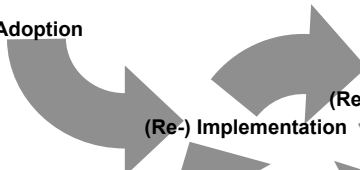


Barrier Identification

77


Summary

Adoption



(Re-) Implementation

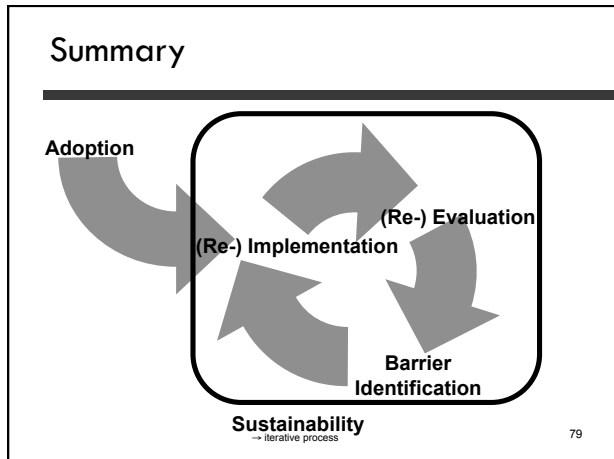
(Re-) Evaluation



Barrier Identification

78

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- Summary**
- High vs. low baseline CLABSI-rates
 - Multidisciplinarity – ICU professionals as teachers
 - Multimodality
 - Leadership – Role model
 - Safety culture – Learning from errors
 - Communication – Speaking up
 - Generations – Younger healthcare workers more flexible, but also less knowledgeable
 - Staffing issues – Brain drain
 - Culture of excellence
 - External pressure
- 80

PROHIBIT
 Prevention of Hospital Infections by Intervention & Training

INNOVATION AND IMPLEMENTATION
 STRATEGIC APPROACHES TO REDUCE
 CATHETER-RELATED BACTERAEamia: THE
 RESULTS OF A EUROPEAN MULTICENTRE
 STUDY (PROHBIT)

2014 WHO Teleclass Schedule
 Clean Care is Safer Care

<p>January 29 Innovation and implementation strategic approaches to reduce catheter-related bacteraemia: The results of a European multicentre study (PROHIBIT) <i>Dr. Walter Zingg, Switzerland</i></p>	<p>May 5 Special lecture for International Hand Hygiene Day <i>Prof. Didier Pittet, Switzerland</i></p>
<p>March 7 How to prevent the spread of multiresistant bacteria <i>Dr. Stephan Harbarth, Switzerland</i></p>	<p>September 3 New WHO global campaign to eliminate unsafe therapeutic injections <i>Dr. Benedetta Allegranzi, Switzerland</i></p>
<p>April 9 Highlights on SSI prevention: The new CDC guidelines and more <i>Dr. Joseph Solomkin, USA</i></p>	<p>October 8 Public reporting and disclosure of HAI rates: Positive impact or confusion? <i>Dr. Maryanne McGuckin, USA</i></p>
	<p>November 5 Global application of behaviour change models and infection control strategies <i>Dr. Michael Borg, Malta</i></p>

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