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HAND HYGIENE SUPPORTS SAFE SURGICAL CARE
Special lecture for 5 May, 2016

Professor Didier Pittet
Infection Control Programme and WHO Collaborating Centre on Patient Safety,
University of Geneva Hospitals and Faculty of Medicine, Geneva, Switzerland

Professor Benedetta Allegranzi
Coordinator a.i, Infection Prevention and Control Global Unit,
Service Delivery and Safety, WHO, Geneva, Switzerland

Hosted by: Professor Joseph Solomkin
Professor of Surgery (Emeritus), University of
Cincinnati College of Medicine

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Delivery and Safety Department

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“The name is Odile. I have an appointment
with Dr. Knife”

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Let’s join hands for safe surgical care

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OUTLINE

- Global burden of disease in surgery
- The patient’s journey in surgery
- SAVE LIVES: Clean Your Hands 5 May campaign global reach #safesurgicalhands
- WHO Infection Prevention and Control Global Unit overview
- New WHO guidelines on SSI prevention outline

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Why focus on SSI?
According to WHO work on the global burden of HAIs, SSI are the most frequent type of HAI in LMICs and rates are significantly higher than in HICs.

HAI prevalence in USA - 2011

- 183 hospitals in 10 States: 11,282 patients
- **HAI PREVALENCE**: 4.0% (95% CI, 3.7-4.4)
- 648,000 patients with 721,800 HAI in U.S. acute care

  - Device-associated infections: 26%
  - **Surgical Site Infection**: 22% - 157,352 episodes per year
    - most frequent SSI: surgical-site infections were colon surgeries (14%), hip arthroplasties (10%), and small-bowel surgeries (6.4%)
    - 19% of HAI were present on admission and of these 67% were SSI
  - Pneumonia: 22%
  - Gastro-intestinal infections: 17%

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Costs of specific types of HAI in the USA

<table>
<thead>
<tr>
<th></th>
<th># of infections</th>
<th>Range of $ estimates based on 2007 CPI for all urban consumers</th>
<th>Range of $ estimates based on 2007 CPI for Inpatient hospital services</th>
<th>Range of estimate using CPI for all urban consumers (billions)</th>
<th>Range of estimate using CPI for Inpatient hospital services (billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSI</td>
<td>290,485</td>
<td>$11,874 - $29,443</td>
<td>$11,874 - $34,670</td>
<td>$3.22 - $8.35</td>
<td>$3.45 - $10.07</td>
</tr>
<tr>
<td>CLABSI</td>
<td>92,011</td>
<td>$6,461 - $25,849</td>
<td>$2,288 - $29,156</td>
<td>$0.59 - $2.38</td>
<td>$0.67 - $2.68</td>
</tr>
<tr>
<td>VAP</td>
<td>52,343</td>
<td>$14,806 - $27,570</td>
<td>$19,633 - $28,908</td>
<td>$0.78 - $1.45</td>
<td>$1.50 - $1.50</td>
</tr>
<tr>
<td>CAUTI</td>
<td>449,334</td>
<td>$749 - $832</td>
<td>$862 - $1,007</td>
<td>$0.34 - $0.37</td>
<td>$0.59 - $0.45</td>
</tr>
<tr>
<td>CDI</td>
<td>178,000</td>
<td>$5,682 - $8,090</td>
<td>$6,408 - $9,124</td>
<td>$1.01 - $1.44</td>
<td>$1.14 - $1.62</td>
</tr>
</tbody>
</table>


Pathogens responsible for SSI – USA 2009-2010

1 in 3 SSI is caused by S. aureus
44% of which is MRSA

Sievert DM, et al. ICHE; 2013;34:1-14

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Important link to the global AMR agenda

- As noted, WHO have reported that up to 31% of patients will get a surgical site infection
- 1 in 3 are due to *Staphylococcus aureus*, more than 40% of which is MRSA
- *This makes SSI prevention through hand hygiene action at the right times integral to the antimicrobial resistance agenda and even more critical*

HAI episodes per year in Europe

<table>
<thead>
<tr>
<th>HAI type</th>
<th>LN INT</th>
<th>PSN (LN INT)</th>
<th>HAI inc.%</th>
<th>N HAI /year</th>
<th>LCI (95% CI)</th>
<th>% of total HAI</th>
<th>% of total HAI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumonia/LRT</td>
<td>8.9</td>
<td>6.7</td>
<td>0.95</td>
<td>860 938</td>
<td>(522 771-1 500 038)</td>
<td>24.4</td>
<td>(14.8-42.5)</td>
</tr>
<tr>
<td>Urinary tract</td>
<td>8.0</td>
<td>6.3</td>
<td>0.98</td>
<td>888 106</td>
<td>(527 129-1 554 275)</td>
<td>25.2</td>
<td>(14.9-44.0)</td>
</tr>
<tr>
<td>Surgical site</td>
<td>15.0</td>
<td>9.3</td>
<td>0.60</td>
<td>543 149</td>
<td>(298 167-1 062 673)</td>
<td>15.4</td>
<td>(8.4-30.1)</td>
</tr>
<tr>
<td>SSI soft tissue</td>
<td>12.8</td>
<td>9.0</td>
<td>0.11</td>
<td>103 796</td>
<td>(59 364-217 627)</td>
<td>2.9</td>
<td>(1.2-7.0)</td>
</tr>
<tr>
<td>Other HAI types</td>
<td>13.2</td>
<td>7.9</td>
<td>0.26</td>
<td>326 903</td>
<td>(151 302-790 238)</td>
<td>9.3</td>
<td>(4.3-21.8)</td>
</tr>
<tr>
<td>Total HAI (a)</td>
<td></td>
<td></td>
<td></td>
<td>3 529 778</td>
<td>(1 941 952-8 250 382)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(EGDC, Point Prev Report 2011-12)
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**SSI cumulative incidence by operation type – 2008-2011**

![Graph showing cumulative incidence of surgical site infections by year and operation type, EU/EEA, 2008–2011.](image)

ECDC Annual Epidemiological Report 2013

**SSI burden in low-/middle-income countries**

![Article and report on the burden of endodontic health care-associated infections in developing countries.](image)

Published on 5 May 2011
http://www.who.int/gpsc/en

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Prevalence of health care-associated infection in low-middle-income countries, 1995-2010

Range: 5.7-19.1%
Pooled prevalence: 10.1% (95% CI 8.4-12.2)
In high-quality papers: 15.5% (95% CI 12.6-18.9)

WHO Report on the Burden of Endemic Health Care-associated Infection Worldwide

Type of hospital-acquired infection

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Systematic review on SSI epidemiology in LMIC (1995-2015)*

Incidence of surgical site infections (107 studies)

Pooled cumulative incidence: 11.2% (95% CI, 9.7 to 12.8) per 100 surg pts
7.1% (95% CI 4.6-10.2) per 100 surg procedures
\( I^2 = 99\% \)
* 256 studies included

SSI frequency* in specific African countries

*High-quality prevalence and incidence studies

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**SSI frequency* in the Asia Pacific region (1995-2015)**

*High-quality prevalence and incidence studies

**Gaps in SSI surveillance in LMIC**

No data from many countries

Inconsistent use of
- Definitions and surveillance methodologies
- Post-discharge surveillance
- Use of N of patients as denominator

Limited data on
- Microbiology and antibiotic resistance
- NNIS index and other risk factors
- Impact of SSI
- 18-58% SSI diagnosed after discharge

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Let’s follow the patient’s journey in surgery

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« Welcome to our hospital, Odile »

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« My first contact with a surgeon »

Hand hygiene, a sign of respect

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« Here is probably the surgeon »

www.tinyurl.com/5momentssurgery

« Describing the pain to the surgeon »

www.tinyurl.com/5momentssurgery

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« Yes, you need a surgical procedure »

Surgery – Admission office

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« My first contact with an anesthesiologist »
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« Pre-surgery check-up »
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My 5 moments for
HAND HYGIENE

1. BEFORE TOUCHING A PATIENT
2. BEFORE CLEANING SURGICAL WOUND
3. AFTER RISKY EXPOSUREroring
4. AFTER TOUCHING A PATIENT
5. AFTER HAND WASH OR USE

61% of health workers do not clean their hands at the right moment

Moments for Hand Hygiene

Handwash or use

« My first time in an operating theater »

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« My anesthesiologist is here, .....rubbing his hands; I feel good »

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« Placing a tube in my trachea... »

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My 5 Moments for Hand Hygiene
Focus on caring for a patient with an endotracheal tube

Key additional considerations for adult patients with endotracheal tubes

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« But, where is my surgeon? »
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Surgical Handrubbing Technique

- Handwash with soap and water on arrival to OR, after having donned theatre clothing (cap/hat/bonnet and mask).
- Use an alcohol-based handrub (ABHR) product for surgical hand preparation, by carefully following the technique illustrated in images 1 to 12, before every surgical procedure.
- If any residual talc or biological fluids are present when gloves are removed following the operation, handwash with soap and water.

Images 3-7: Spread the handrub on the right forearm up to the elbow. Ensure that the whole skin area is covered by using circular movements around the forearm until the handrub has fully evaporated (15-20 seconds).

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Put approx. 5ml (3 doses)

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Repeat steps 1-7 for other hand & forearm

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« Where am I ?.... Is surgery over ? »
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Recovery Room  www.tinyurl.com/5momentsSurgery

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Pain control in recovery room

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Managing medical devices

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My 5 Moments for Hand Hygiene
Focus on caring for a patient with a Urinary Catheter

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IV device management

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My 5 Moments for Hand Hygiene
Focus on caring for a patient with a peripheral venous catheter

1. Indication: Check the patient’s venous access and the intravascular lines. Remove the venous line if appropriate.
2. Indication: Wash your hands and remove gloves if appropriate.穿便装
3. Indication: Put on a clean sterile glove if appropriate.
4. Indication: Put on a sterile surgical glove if appropriate.
5. Indication: Put on sterile surgical gloves if appropriate.

Key additional considerations for peripheral intravenous catheters
1. Indication: Check the patient’s venous access and the intravascular lines. Remove the venous line if appropriate.
2. Indication: Wash your hands and remove gloves if appropriate.穿便装
3. Indication: Put on a clean sterile glove if appropriate.
4. Indication: Put on a sterile surgical glove if appropriate.
5. Indication: Put on sterile surgical gloves if appropriate.

Length of stay increases by 3-20 days in SSI cases
31% of patients will get an SSI

MOMENTS FOR HAND HYGIENE
2 & 3
Post-op wound dressing removal

Patient leaves recovery area
SEE YOUR HANDS

« What is the next step ?.... Is risk over ? »

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Surgical site care / wound care

Surgical site and wound care require careful attention and right on time hand hygiene practices

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1. Before touching a patient
2. Before touching the surgical area
3. After contact with blood/contaminated body fluid
4. After removing PPE
5. After touching patient surroundings

Immediately before touching the post-operative wound dressing/site, for example:
1a. Before physically examining the post-operative wound site, including before taking wound samples for microbiological investigations, if required
1b. Before touching the wound to remove stitches/ clips
1c. Before preparing the necessary items for replacing the wound dressing
1d. Before replacing the actual post-operative wound dressing

Immediately after any task involving potential body fluid exposure, such as:
3a. After post-operative wound examination/sample collection
3b. After removing stitches/clips
3c. After undertaking a post-operative wound dressing change

« My surgeon post-op visit »

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Moments for Hand Hygiene

Patient safely discharged

Post-op wound dressing removal

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« I am going back home ... »
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« Safe surgical care all along the patient’s journey »

At: www.who.int/gpsc/5may/video/en/

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Surgery admission office

www.who.int/gpsc/5may/EN_PSP_GPSC1_5May_2016/en/

Anesthesiology

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Surgical hand preparation

Safe care in the Recovery Room

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Pre & Post surgical care

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Leadership promoting the campaign

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Experts around the world show commitment to WHO 5 May campaign
In part of the major global effort to improve hand hygiene in healthcare, the WHO SAVE LIVES: Clean Your Hands campaign every year asks people to share their photographs. In 2015, social media analytics reported a reach of 80 million for #WASHwithWHO, with thousands of people posting their photographs. This year leaders from around the world have already taken their photographs in support of the 2016 theme of #WASHwithOurHands.

Surgical leaders in Ghana
National and regional activities in France
WHO Eastern Mediterranean Region
Translated materials in Hungarian, Bulgarian among others
Many activities in Sierra Leone and the Western Pacific Region
Mexico

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Private Organizations for Patient Safety

POPS supports 5th of May with:
- Landing page
- Educational Materials
- Translations
- Social media presence
- Press releases

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JOIN US!

Info&Tools – 5 May – SAVE LIVES: Clean Your Hands
http://www.who.int/gpsc/5may/en/

POST YOUR PHOTOS/SELFIES at:
http://cleanhandssavelives.org

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140 countries committed to address health care-associated infection
World population coverage: > 95%

111

Countries committed: Oct 2005 – 4 May 2016

112

Countries with health-care facilities registered for SAVE LIVES: Clean Your Hands global campaign
18,738 in 176 countries, new for 2016
San Marino and Turks and Caicos

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1st Hand Sanitizing Relay Guinness World Record on Compliance with Hand Hygiene
Hong Kong Baptist Hospital

Get ready this year again!

Hanrub technique to practice
Make sure staff practice in advance

How to Handrub?

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JOIN US!

All info: www.tinyurl.com/HHRelay
Send your photos and videos at:
CleanHandsSaveLives.org
handhygienerelay@cleanhandssavelives.org

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Come share your own Relay on:
facebook.com/groups/HandSanitizingRelay
And break the Guinness World Record in 2016!

All the information: www.who.int/gpsc/5may/en/
handhygienerelay@cleanhandssavelives.org

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WHO Survey 2015
Hand Hygiene Self-Assessment Framework Results

• From June 2015 to January 2016, health care facilities were invited to participate in WHO’s second survey based on completion of the Hand Hygiene Self-Assessment Survey (HHSAS)
• A dedicated, protected online site was used
• In additional to online submission, data could also be submitted by email direct to WHO to allow for ease of data submission where necessary
• Staff at WHO were allocated to undertake data entry and quality checks

www.tinyurl.com/HHSASFsurvey
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Explaining the HHS AF

- The maximum overall score is 500 points

- **Inadequate** (overall score 0-125): Significant improvement required

- **Basic** (overall score 126-250): Further improvement is required

- **Intermediate** (overall score 251-375): Crucial to develop long-term plans to ensure sustained improvement and progress

- **Advanced** (overall score 376-500): Hand hygiene promotion and optimal hand hygiene practices have been sustained and/or improved, thus helping to embed a culture of quality and safety around hand hygiene promotion in the health care setting

www.tinyurl.com/HHSAFsurvey

http://www.who.int/gpsc/5may/hhsa_framework-2015/en/

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www.tinyurl.com/HHSASFsurvey

Education & training


www.tinyurl.com/HHSASFsurvey

Evaluation & feedback

WHO Hand Hygiene Self-Assessment Framework Global Survey 2015

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www.tinyurl.com/HHSAFsurvey

Reminders in the workplace
WHO Hand Hygiene Self-Assessment Framework Global Survey 2015

www.tinyurl.com/HHSAFsurvey

Institutional safety climate
http://www.who.int/gpsc/5may/hhsa_framework-2015/en/

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WHO survey 2015 – Results

- Overall mean score: intermediate
- Majority of facilities were intermediate or advanced (87%)
- High proportion qualified for leadership level (79%)
- Lowest scores concerned evaluation and feedback and institutional patient safety climate
- Lowest mean score: African region (280.9 ± 127.3) from 60 facilities
- Highest mean score: South East Asian region (420.6 ± 77.6) from 231 facilities

Find the full report: http://www.who.int/gpsc/5may/EN_PSP_GPSC1_5May_2016/en/

Many people to thank – some featured on WHO campaign web pages – THANK YOU!

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Facilities awarded with the Hand Hygiene Excellence Award in South-East Asia and Western Pacific, in Europe, and in Latin America

www.handhygieneexcellenceaward.com

Adapt to Adopt

www.tinyurl.com/AdaptToAdopt

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THIERRY CROUZET
CLEAN HANDS
SAVE LIVES

FOREWORD
Dr. Margaret Chan
WHO Director-General
Sir Liam Donaldson
WHO Patient Safety Envoy

CleanHandsSaveLives.org

CARING HANDS KILLING HANDS

"...18 MILLION
DEATHS
EACH YEAR,
A GLOBAL
CHALLENGE..."
PROF. DIDIER PITTEL

CLEAN HANDS
A FILM DIRECTED BY GERALDINE ANDEO AND STEPHANE BANTINI

Teaser
www.tinyurl.com/CleanHandsEngl

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Outline

• Global burden of disease in surgery
• The patient’s journey in surgery
• SAVE LIVES: Clean Your Hands 5 May campaign global reach #safesurgicalhands

• WHO Infection Prevention and Control Global Unit overview
• New WHO guidelines on SSI prevention outline

WHO Infection Prevention and Control Global Unit

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WHO IPC Global Unit
VISION & MISSION

VISION
Protecting patient and health worker lives across the world through excellence in infection prevention and control

MISSION
WHO IPC Global Unit will drive IPC to the top of the agenda in all countries by providing innovative, effective technical guidelines and strong coordination with the goal of reducing infections and antimicrobial resistance in health care and revolutionizing the way IPC is applied

Infection Prevention and Control

• IPC occupies a unique position in the field of patient safety and health system strengthening since it is universally relevant to the protection of health workers and patients, at every single health-care encounter.
• Strengthened IPC capacity will contribute to:
  – AMR global & national action plans
  – Preparedness and response to outbreaks, incl. by emerging resistant pathogens
  – Implementation of the post-Ebola country capacity building plans
  – Implementation of the International Health Regulations
  – Achievement of quality universal health coverage
  – Improvement of patient and health worker safety
  – Implementation of strategic goal 5 of the new WHO Global Strategy on integrated people-centered health services

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IPC Global Unit – FUNCTIONS

IPC Global Unit – OBJECTIVES (1)

1. Provide leadership through advocating for reductions in HAIs and raising awareness among policy makers, health workers, patients, the public, and other relevant stakeholders.

2. Develop technical guidance and standards and related multimodal implementation strategies catalyzing behavior change among health workers and targeting different stakeholders and audiences including patients.

3. Strengthen IPC at the point of care by embedding IPC in clinical practice and focusing on clinical procedures at high risk for microbial transmission and HAIs (e.g. hand hygiene, surgery and the use of invasive devices).

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IPC Global Unit – OBJECTIVES (2)

4. Strengthen the integration between patient safety and IPC with a people-centered perspective.

5. Develop frameworks for IPC capacity building in countries including template action plans and Core Components of IPC programmes, and support to Member States in their implementation.

6. Provide technical expert support to other programmes within WHO and the United Nations family, coordinating integration of IPC efforts across the organization and performing as the WHO IPC hub.

7. Strengthen monitoring and evaluation to inform and maximize global learning.

Working across the 3 levels of WHO & with MS and partners

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IPC Global Unit
TECHNICAL AREAS OF WORK 2015-17

• Hand hygiene
• Burden of health care-associated infections (HAIs)
• Prevention of surgical site infections
• Injection Safety
• IPC to combat AMR
• Ebola Response and Recovery
• IPC country capacity building
• Prevention of sepsis and catheter-associated bloodstream infections
• Prevention of catheter-associated urinary tract infections


<table>
<thead>
<tr>
<th>Global strategic objectives</th>
<th>Examples of key actions for national action plans</th>
</tr>
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</table>
| 1. Improve awareness and understanding of AMR | • Risk communication  
• Education |
| 2. Strengthen knowledge through surveillance and research | • National AMR surveillance system 
• Laboratory capacities 
• Research and development |
| 3. Reduce the incidence of infection through effective sanitation, hygiene and infection prevention measures | • IPC in health care (incl. liaison with WASH) 
• Community level prevention (incl. liaison with WASH) 
• Animal health |
| 4. Optimize the use of antimicrobial medicines | • Access to qualified antimicrobial medicines 
• Animal health |
| 5. Ensure sustainable investment in countering antimicrobial resistance | • Measuring the burden of AMR 
• Assessing investment needs 
• Establishing procedures for participation |

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Outline

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SSI prevention is complex...

Surgical Hand Preparation
Skin Antiseptic Preparation
Antibiotic Prophylaxis
Normovolemia
Sterilization
Surveillance
Drapes
Volume
Oxygen therapy

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SSI Prevention Guidelines – WHO perspectives

- Need for updated, evidence-based guidelines
- Lessons learned from the WHO HH guidelines: need for global approach
- Valid for any country, but including specific perspectives depending on resources available
- Strong component on implementation strategies and surveillance
- Associated implementation tools
- Lessons learned from use of WHO checklist and other interventions
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« Let’s enjoy the priviledge to work as a team... »

Follow and like @didierpittet @WHO
www.who.int/gpsc/5may
www.cleanhandssaveslives.org
#safeHANDS #SafeSurgicalHands

CleanHandsSaveLives.org

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