# Hand hygiene programs in Healthcare settings

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*The Persatuan Kawalan Infekis & Antimicrobial Kota Kinabalu Sabah (PKIAKKS)*
*6th Borneo Infection Control Congress*
*Kompleks Pentadbiran Kerajaan Persekutuan Sabah, Kota Kinabalu Sabah*
*20th-21st September 2018.*

# Where are we at?

# WHO - Global hand hygiene improvement progress: two surveys using the WHO Hand Hygiene Self-Assessment Framework

- **2009**
  - SAVE LIVES: Clean Your Hands
  - WHO Guidelines for Hand Hygiene in Healthcare
- **2010**
  - The Hand Hygiene Self-Assessment Framework (HHSAF)
    - Tracking healthcare facility (HCF) level of progress
    - Implementation and continuous improvement
    - It was launched in following usability and reliability testing
- WHO has conducted two global surveys
  - **2011 & 2015**


*Global hand hygiene improvement progress: two surveys using the WHO Hand Hygiene Self-Assessment Framework. Journal of Hospital Infection.Published online: July 30, 2018* https://doi.org/10.1016/j.jhin.2018.07.036

# WHO - Global hand hygiene improvement progress: two surveys using the WHO Hand Hygiene Self-Assessment Framework

- **2011**
  - 2119 health facilities
  - 69 countries
- **2015**
  - 807 health facilities
  - 91 countries
- A total of 86 facilities submitted results for both surveys
- Overall score increased significantly ($p<0.001$) from 335.1 (SD±97.5) to 374.4 (SD±90.5)


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# WHO - Global hand hygiene improvement progress: two surveys using the WHO Hand Hygiene Self-Assessment Framework

- A total of 86 HCF from 31 countries participated in both surveys
  - 65.1% non-teaching
  - 50% acute care
  - 76.7% private sector
- The average number of beds per facility
  - 491.2 (SD±668.9) in 2011 and
  - 490.0 (SD±707.3) in 2015 (p=0.902)
- The **majority of the 86 HCFs** were **non-teaching, acute care facilities belonging to the private sector**

World Health Organization | Patient Safety — A World Alliance for Safer Health Care | SAVE LIVES Clean Your Hands

## Hand Hygiene Self-Assessment Framework 2010

Introduction and user instructions

| Total Score (range) | Hand Hygiene Level |
|---|---|
| 0 - 125 | Inadequate |
| 126 - 250 | Basic |
| 251 - 375 | Intermediate (or Consolidation) |
| 376 - 500 | Advanced (or Embedding) |

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# WHO - Global hand hygiene improvement progress: two surveys using the WHO Hand Hygiene Self-Assessment Framework

- **2015**
  - Some facilities that achieved the advanced level **did not complete the leadership level indicators**
    - HHSAF be completed by IPC leads, or senior managers fully informed about hand hygiene activities in the institution

**Table 1:** Hand Hygiene Self-Assessment Framework; WHO global surveys 2011 vs. 2015 (86 healthcare facilities, from 31 countries*)

| | 2011 | 2015 |
|---|---|---|
| Overall score (mean±SD, median) (n=86) | 335.1 (±97.5, 351) | 374.4 (±90.5, 392.5) |
| By components (mean±SD, median) | | |
| System change (n=84) | 85.2 (±21.5, 100.0) | 88.2 (±21.3, 100.0) |
| Training and education (n=85) | 71.7 (±21.0, 75.0) | 77.1 (±21.7, 80.0) |
| Evaluation and feedback (n=84) | 59.6 (±24.4, 65.0) | 69.2 (±22.8, 75.0) |
| Reminders in the workplace (n=85) | 68.9 (±24.5, 70.0) | 75.4 (±20.8, 80.0) |
| Institutional safety climate for hand hygiene (n=85) | 54.6 (±25.2, 55.0) | 63.8 (±25.8, 65.0) |
| Hand hygiene level, n (%)(n=86) | | |
| Inadequate | 2 (2.3) | 1 (1.2) |
| Basic | 16 (18.6) | 10 (11.6) |
| Intermediate (or consolidation) | 37 (43.0) | 23 (26.7) |
| Advanced (or embedding) | 31 (36.1) | 52 (60.5) |
| Score for leadership criteria on 31 hospitals (mean±SD, median) | 14.3 (±3.7) | 15.8 (±2.7) |
| Proportion of centers with a leadership score >=12 (%) (n=31) | 28 (90.3) | 30 (96.8) |



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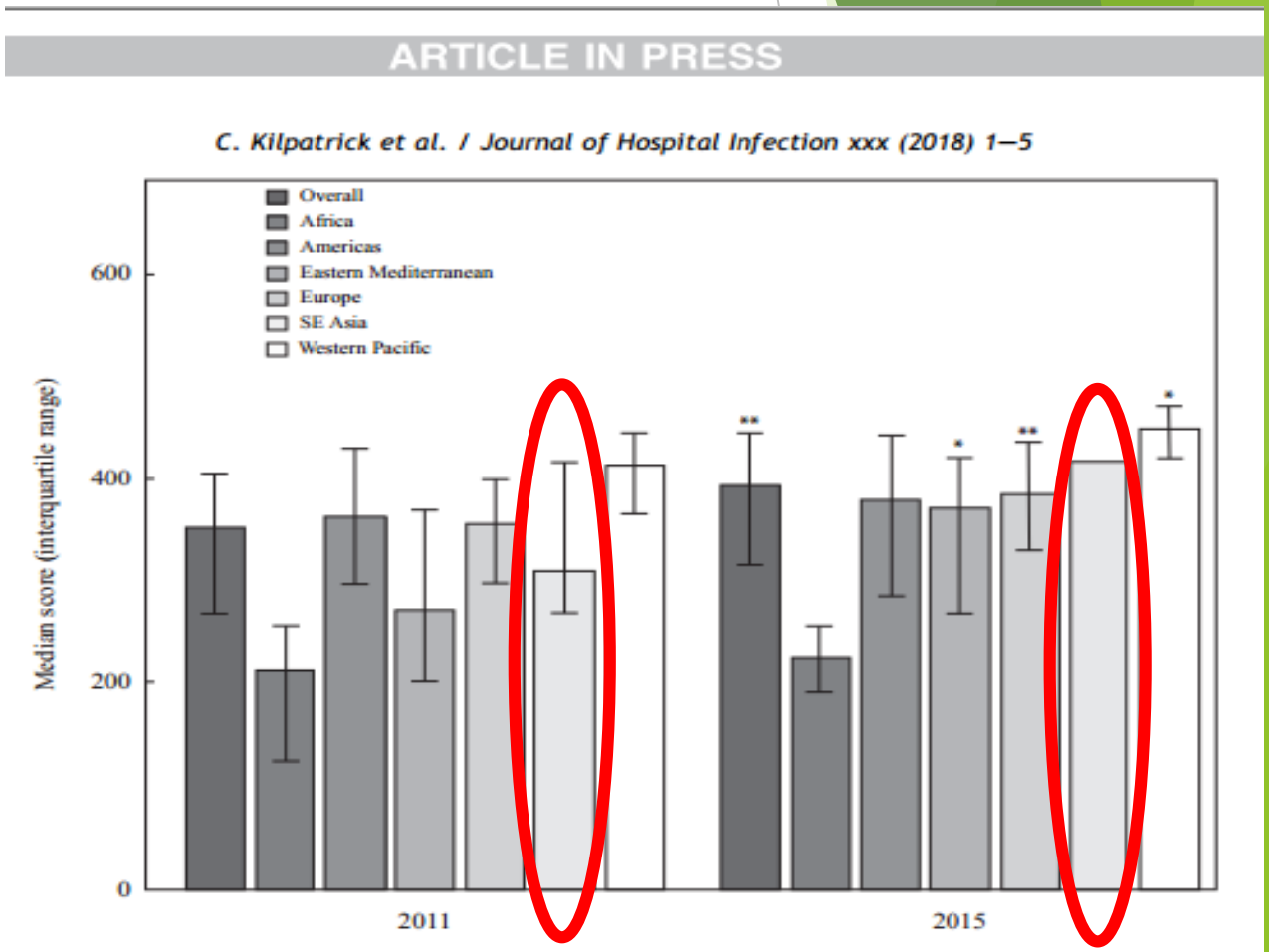
# WHO - Global hand hygiene improvement progress: two surveys using the WHO Hand Hygiene Self-Assessment Framework

- WHO Hand Hygiene Self-Assessment Framework median overall score in 2011 and 2015 surveys and by region (n=86 facilities)
- The median overall HHSAF score improved significantly (P< 0.001) between 2011 and 2015
- In selected facilities in selected countries across all six WHO regions, reaching statistical significance for:
  - Eastern Mediterranean (P<0.01)
  - Europe (P<0.001) and
  - Western Pacific (P<0.01) regions

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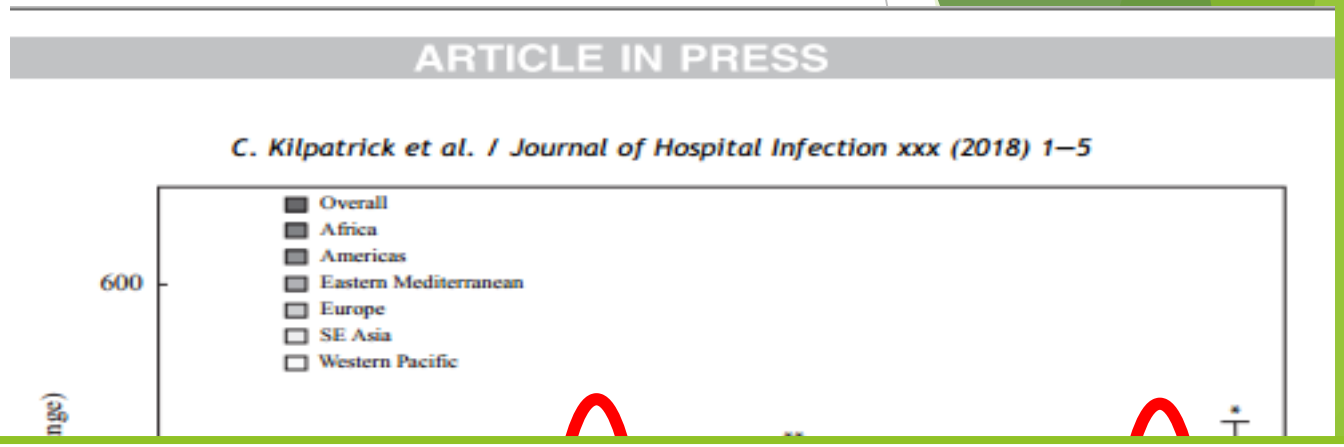
# WHO - Global hand hygiene improvement progress: two surveys using the WHO Hand Hygiene Self-Assessment Framework

- **? Global snapshot of the current position of hand hygiene implementation efforts in selected facilities in countries across all WHO regions**




Countries (number of facilities) were: Algeria (n=3), Argentina (n=3), Australia(n=11), Austria (n=1), Bahrain (n=1), Belgium (n=1), Burundi (n=1), Canada (n=3), China (n=1),Columbia (n=1), Costa Rica (n=1), Estonia (n=1), France (n=5), Hungary (n=1), Italy (n=6), Kuwait (n=1), Malta (n=1), New Zealand (n=2), Philippines (n=1), Portugal (n=4), SaudiArabia (n=7), Singapore (n=1), Spain (n=7), Sudan (n=5), Switzerland (n=2), Thailand (n=1), Tunisia (n=1), United Arab Emirates (n=1), UK (n=3), USA (n=8) and Vietnam (n=1)

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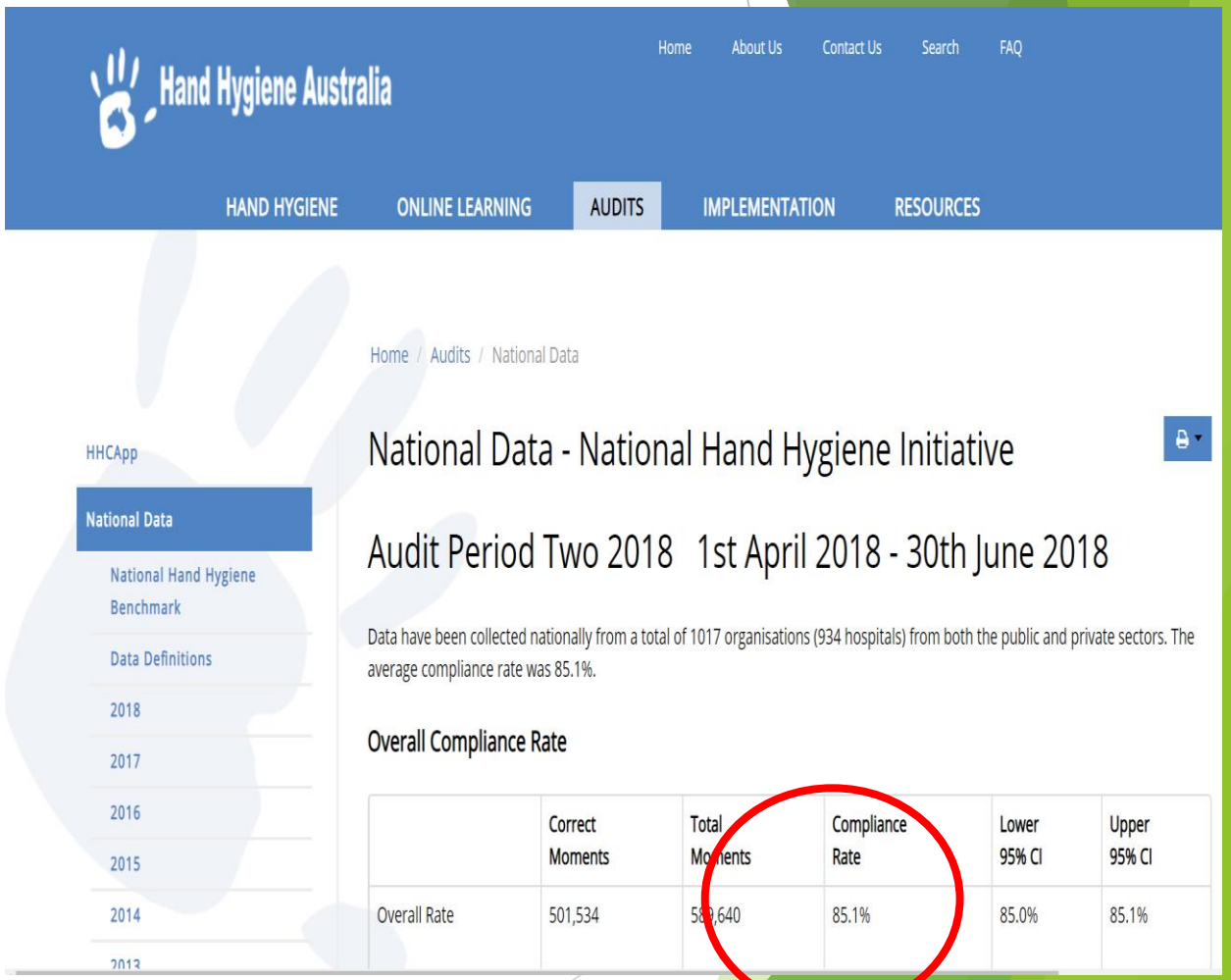
# Australia -National Data
# National Hand Hygiene Initiative

- **National Hand Hygiene Initiative**
  - Audit Period Two 2018
    - 1st April 2018 - 30th June 2018
  - 1017 organisations (934 hospitals)
  - Both the public and private sectors
- **The average compliance rate was 85.1%**



# Hand Hygiene Compliance - there are serious validity problems

- **Australia**
  - University tertiary teaching hospital in Sydney, NSW
  - December 2014 –June 2015
  - HHA rates (Hand Hygiene Australia human audits)
    - June 2014 were 85% and 87% on the medical and surgical wards, respectively
  - Covert automation (electronic surveillance) rates
    - **June 2014 on the medical and surgical ward at 30% and 49%, respectively**

American Journal of Infection Control 44 (2016) 1475-80

Contents lists available at ScienceDirect

American Journal of Infection Control

journal homepage: www.ajicjournal.org

Major Article

Automated hand hygiene auditing with and without an intervention

Yen Lee Angela Kwok MBBS, MPH, MHM, PhD [a], Craig P. Juergens MBBS, DMedSc, FRACP [b], Mary-Louise McLaws DipTropPubHlth, MPHlth, PhDMed [a,*]

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[b] Southwestern Sydney Clinical School, UNSW Medicine, UNSW Australia, Sydney, NSW, Australia

**Human hand hygiene audits makes patients, the public and clinicians believe that habitual compliance is actually high**

**Cost of automation is 'expensive' but so is using nursing staff to collect highly biased rates that are inflated by 30-65 percentage points**

*Australia - Yen Lee Angela Kwok et al. Automated hand hygiene auditing with and without an intervention. American Journal of Infection Control 44 (2016) 1475-80*

# Australia – Cost effectiveness of a national Hand Hygiene initiative

- Hand Hygiene Australia program in 6 Australian states/territories indicated the following:
  - In 2/6 states there was a 1% chance it was cost effective

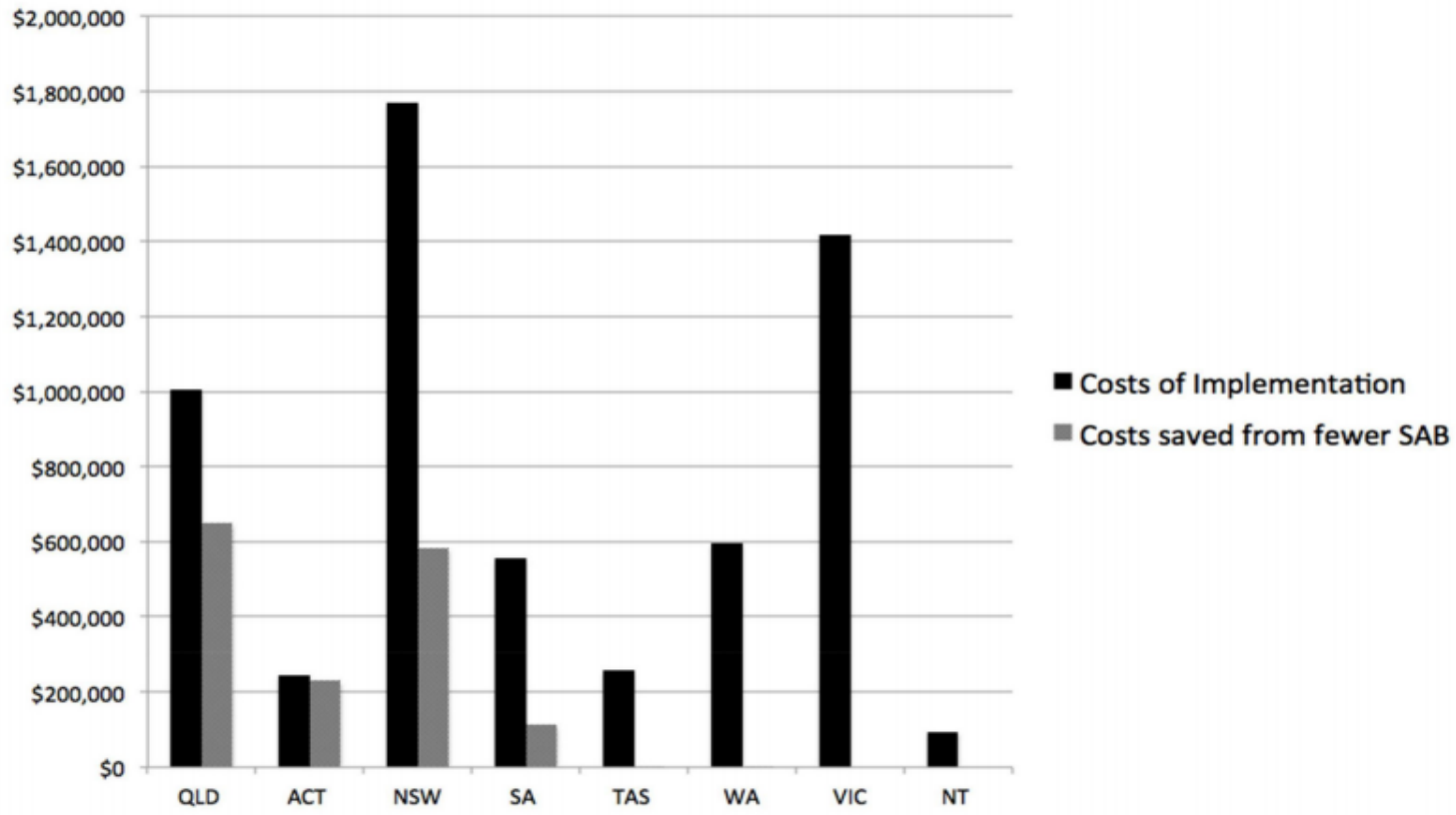



**Fig 2. Cost increases and cost savings by state and territory for the National Hand Hygiene Initiative.**

PLOS ONE

RESEARCH ARTICLE

## Cost-Effectiveness of a National Initiative to Improve Hand Hygiene Compliance Using the Outcome of Healthcare Associated *Staphylococcus aureus* Bacteraemia


**Nicholas Graves[1]*, Katie Page[1], Elizabeth Martin[1], David Brain[1], Lisa Hall[1], Megan Campbell[1], Naomi Fulop[2], Nerina Jimmeison[3], Katherine White[1], David Paterson[4], Adrian G. Barnett[1]**

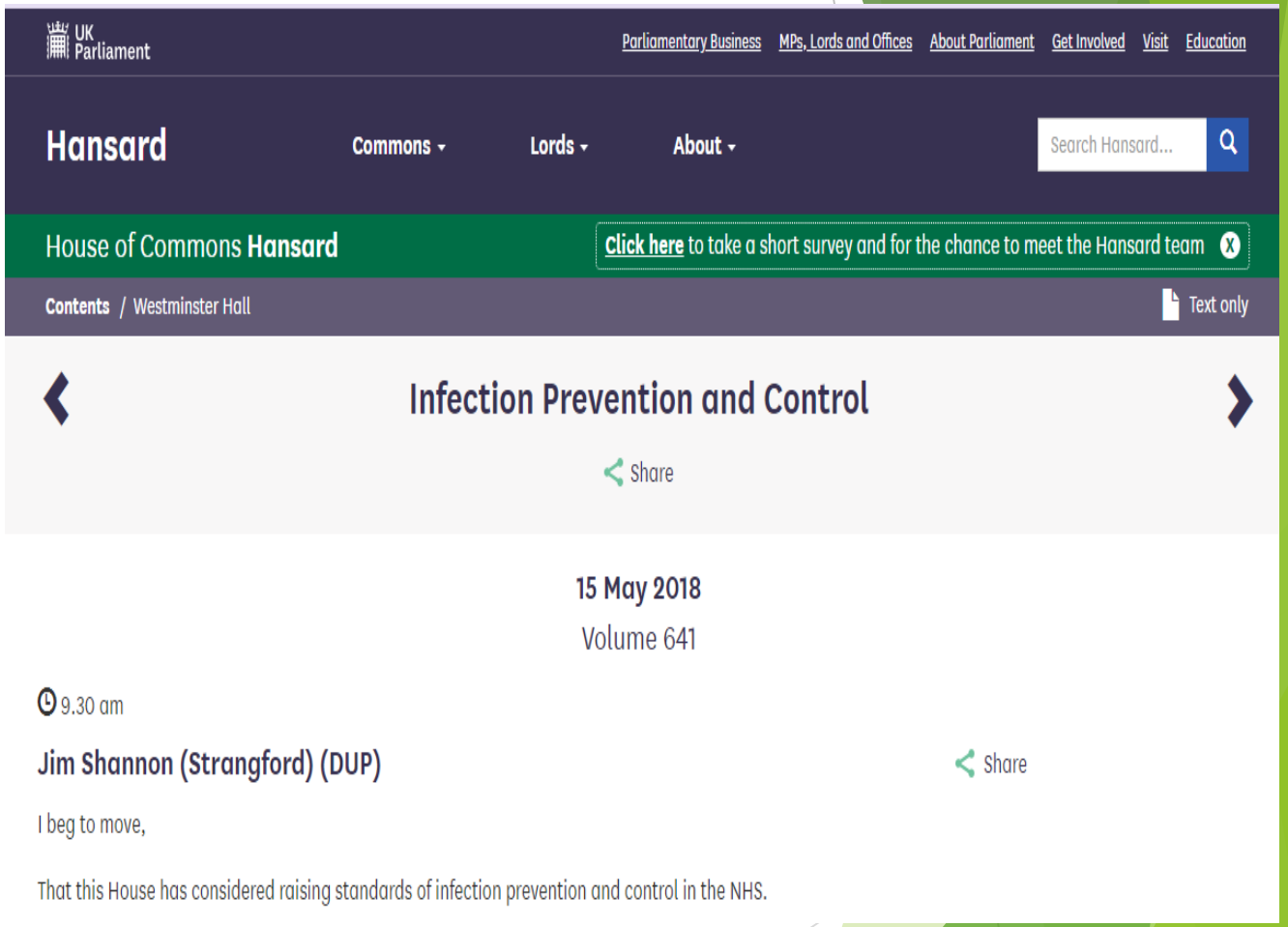
1 Institute of Health & Biomedical Innovation, Queensland University of Technology, Brisbane, Queensland,



*Graves N, Page K, Martin E, Brain D, Hall L, Campbell M, et al. (2016) Cost-Effectiveness of a National Initiative to Improve Hand Hygiene Compliance Using the Outcome of Healthcare Associated Staphylococcus aureus Bacteraemia. PLoS ONE 11(2): e0148190. doi:10.1371/journal. pone.0148190*

# UK - Infection Prevention and Control parliamentary debate

- **15/5/2018** - UK parliamentary debate, Westminster Hall
- **Actual hand hygiene compliance is only 18% - 44% in the UK**
- Direct observation is <u>grossly overestimating HH compliance rates</u> (Hawthorn effect)




*https://goo.gl/7D4zTD*

# Switzerland

- Switzerland
  - Haematology transplant ward at a tertiary care centre -UniversityHospital Basel, Switzerland
    - 1st March 2012 - 28th February 2013
    - Calculated compliance was inversely associated with nurses' workload
      - **Hand-rub activities/patient-day**, **observer-determined compliance** and **amount of disinfectant dispensed did not correlate with actual compliance** and thus should be used with caution


**Electronic determined compliance 24% - 66% the higher the workload the lower the compliance**

Observational compliance 90%

*Scheithauer S et al. Workload even affects hand hygiene in a highly trained and well-staffed setting: a prospective 365/7/24 observational study. Journal of Hospital Infection 97 (2017) 11-16*

# USA - Joint Commission

- **2004**
  - Surveyors have been surveying an institution's hand hygiene program to National Patient Safety Goal (NPSG) which requires healthcare organizations to:
    - Implement a hand hygiene program
    - Set goals for improving compliance with the program
    - Monitor the success of those plans
    - Improve the results through appropriate actions
  - A healthcare organization can implement hand hygiene guidelines established by either the Centers for Disease Control and Prevention (CDC) or the World Health Organization (WHO)


*https://www.jointcommission.org/topics/hai_hand_hygiene.aspx*

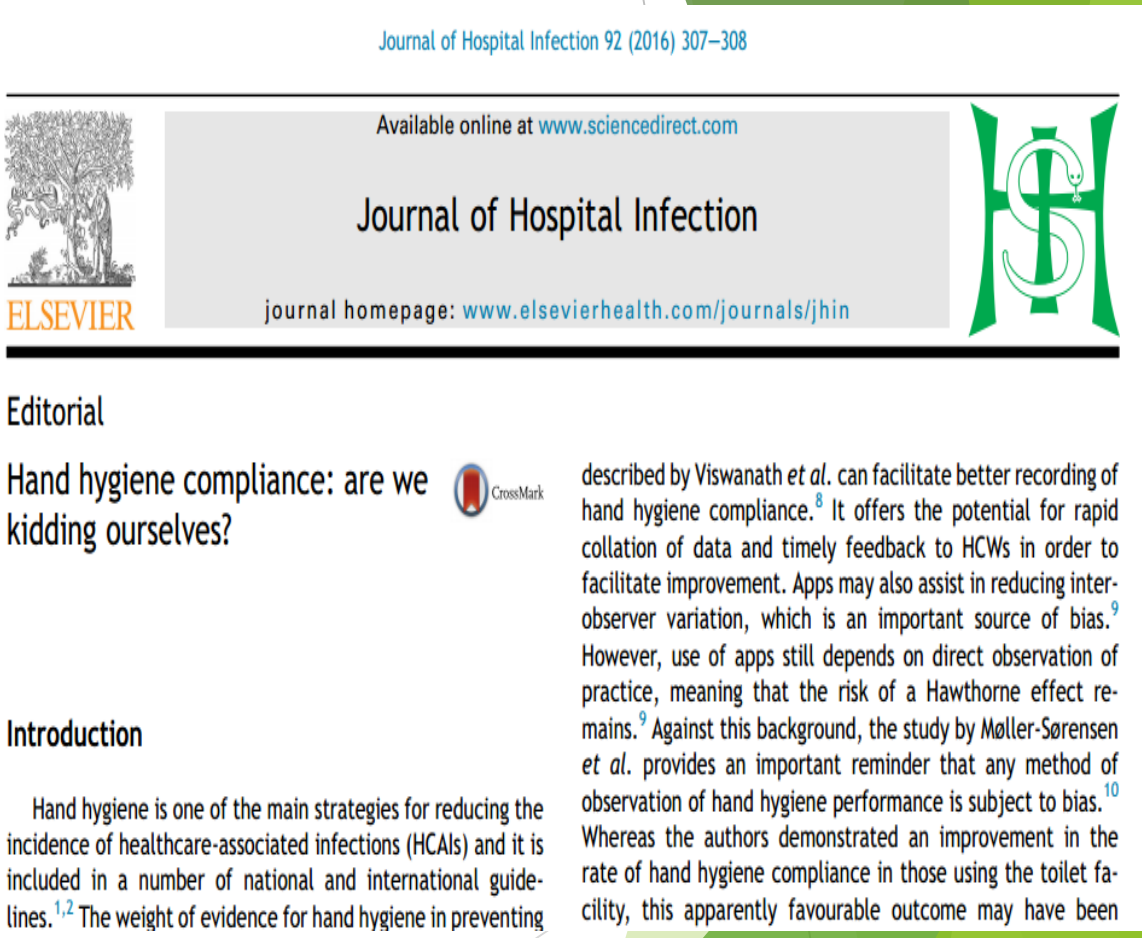
# USA - Joint Commission

- **Jan. 1, 2018**
  - Announced that **any observation by Joint Commission surveyors** of individual failure to perform hand hygiene in the process of direct patient care will be cited as a deficiency
  - **Resulting in a Requirement for Improvement (RFI)** under the Infection Prevention and Control (IC) chapter for all accreditation programs


*Sep 13, 2018, Kelly M. Pyrek. Behavior Modification is Key to Boosting Hand Hygiene Compliance, Avoiding Survey Deficiencies. https://www.infectioncontroltoday.com*

# Journal of Hospital Infection – Editorial
# Hand hygiene compliance: are we kidding ourselves?

- .....**unachievably high local or national targets**, and especially those where underperformance attracts penalties, might provide a perverse incentive to demonstrate high hand hygiene compliance
- **Apps may also assist in reducing interobserver variation**, .....use of apps still depends on direct observation of practice, meaning that **the risk of a Hawthorne effect remains**
- .....**90% -100% compliance is not achievable** as demonstrated in independent studies, but there is little evidence for any specific values below which patients are put at risk of HCAI .....**would it be better to target hand hygiene education and monitoring on the highest-risk practices?**
- Another issue is that the **WHO moments of hand hygiene concept (which itself has a limited evidence base)** gives equal weight to each moment, whereas some moments may have a greater bearing on HCAI compared with others



Journal of Hospital Infection 92 (2016) 307–308

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Editorial

Hand hygiene compliance: are we kidding ourselves?

CrossMark

Introduction

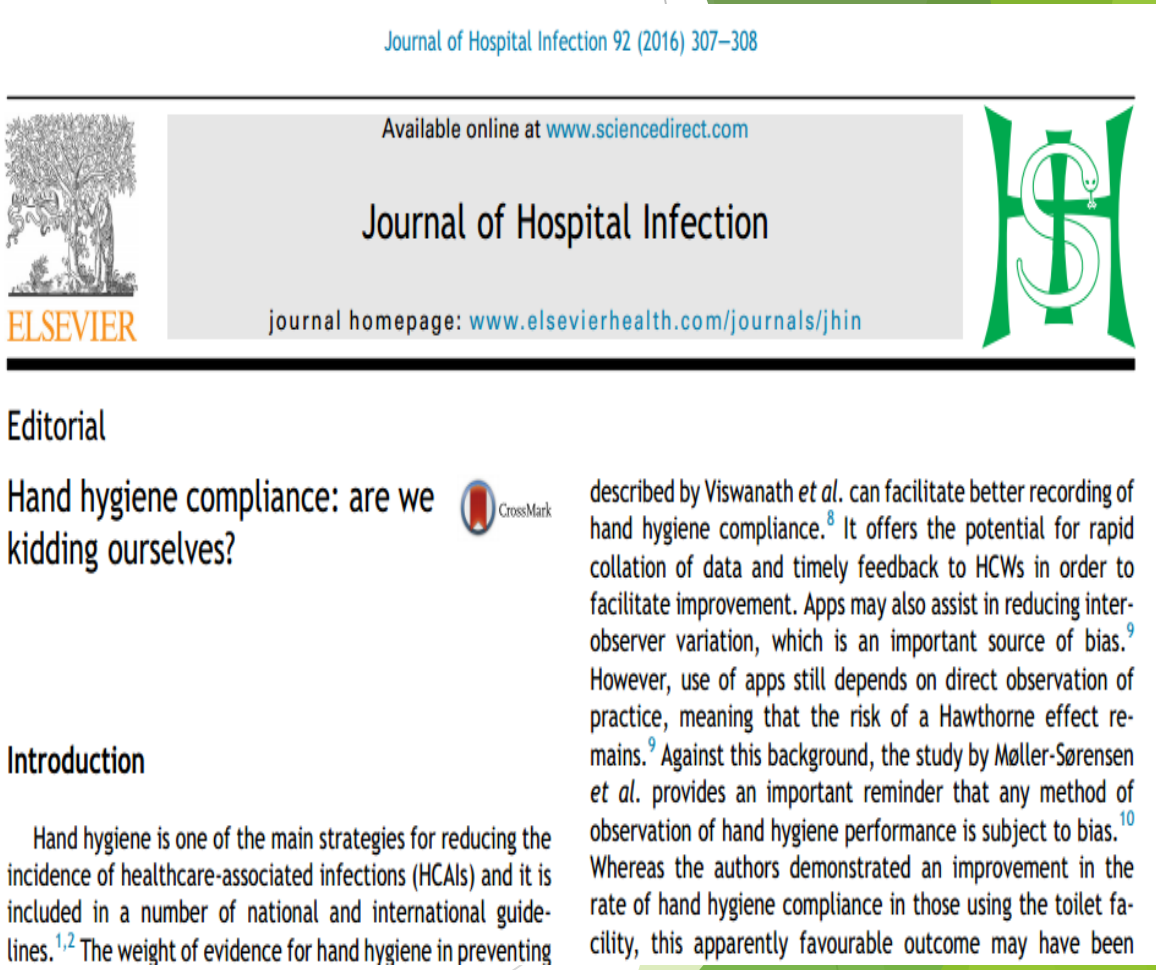
Hand hygiene is one of the main strategies for reducing the incidence of healthcare-associated infections (HCAIs) and it is included in a number of national and international guidelines.[1,2] The weight of evidence for hand hygiene in preventing

described by Viswanath *et al.* can facilitate better recording of hand hygiene compliance.[8] It offers the potential for rapid collation of data and timely feedback to HCWs in order to facilitate improvement. Apps may also assist in reducing inter-observer variation, which is an important source of bias.[9] However, use of apps still depends on direct observation of practice, meaning that the risk of a Hawthorne effect remains.[9] Against this background, the study by Møller-Sørensen *et al.* provides an important reminder that any method of observation of hand hygiene performance is subject to bias.[10] Whereas the authors demonstrated an improvement in the rate of hand hygiene compliance in those using the toilet facility, this apparently favourable outcome may have been

*Hand hygiene compliance: are we kidding ourselves? Editorial, Journal of Hospital Infection 92 (2016) 307-308*

# Journal of Hospital Infection – Editorial
# Hand hygiene compliance: are we kidding ourselves?

- **It is clear that monitoring hand hygiene compliance using direct observation is flawed.....** and that electronic devices/methods in combination with smaller observational audits using appropriately trained staff would enable a better assessment
- .....in an era of multi-resistant Gram-negative bacteria, **it is now time to take stock and consider that we have spent a number of years performing research on hand hygiene with little evidence that any particular strategy works**
- Perhaps **future research should be focused not on campaigns to improve hand hygiene at all costs**, but on understanding when hand hygiene is most beneficial, setting reasonable, achievable targets, and then monitoring using validated, reproducible methods



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Editorial

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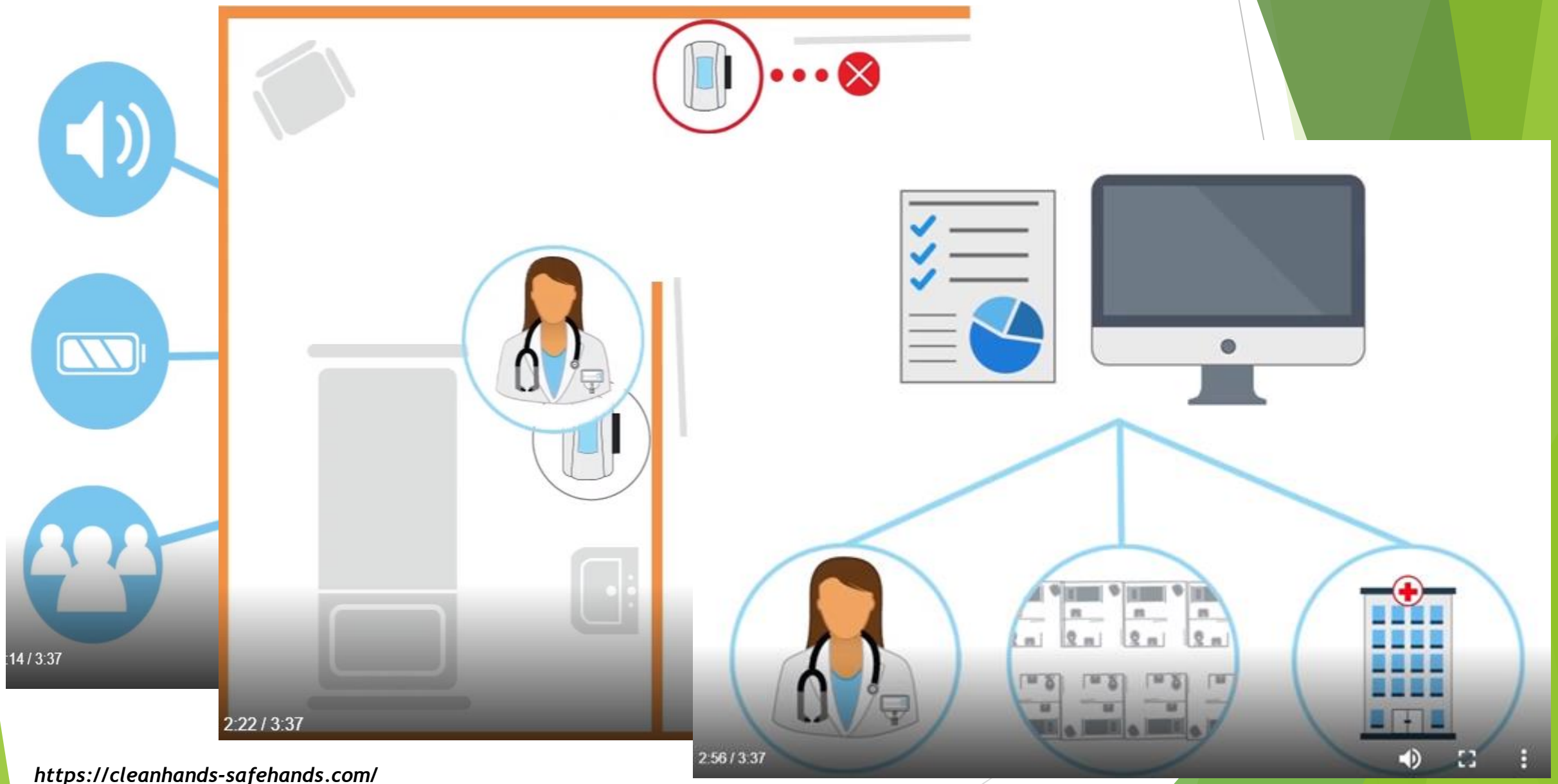
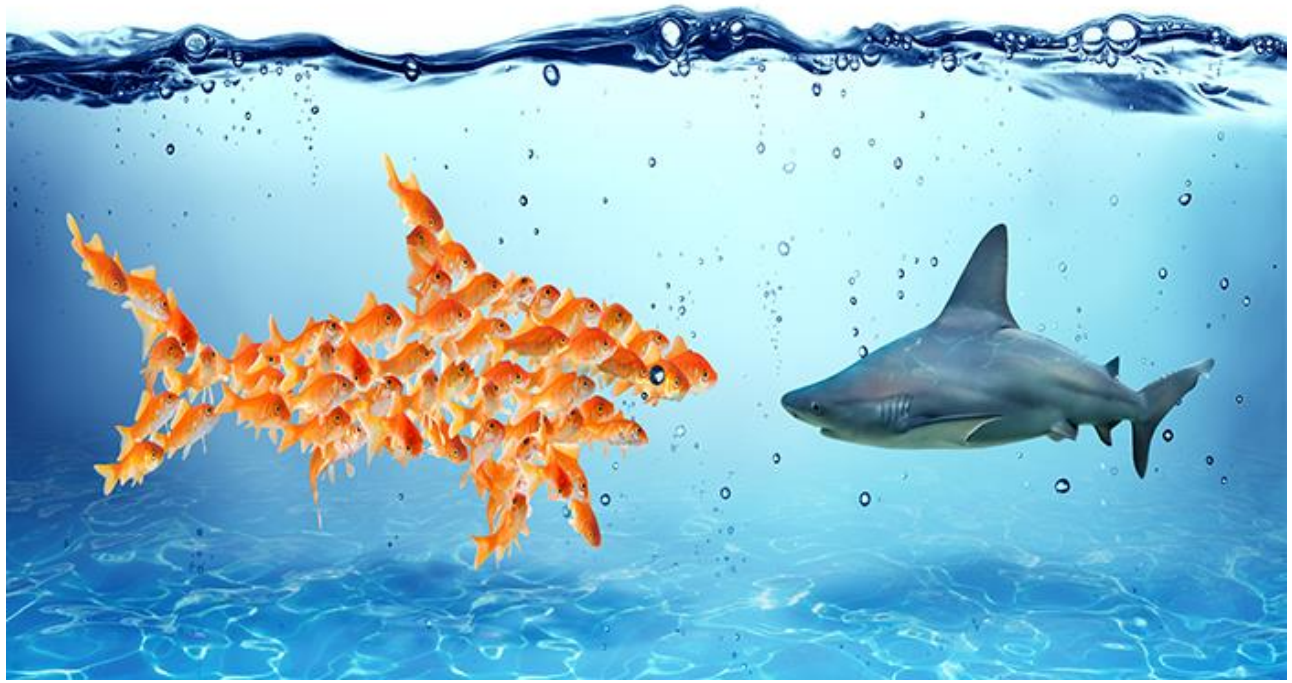
# Hand hygiene monitoring system




*https://cleanhands-safehands.com/*

## TEAMWORK



# Thank you

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