Joint Action
Antimicrobial Resistance and
Healthcare-Associated Infections

MS30

Results of Survey B

WP6 | Policies for Prevention of Healthcare Associated Infections and their implementation

Leader acronym | HCDCP

Authors | Flora Kontopidou, Mariana Tsana

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LEADER

COUNTRY	NAME
GREECE	HCDCP

WP6.1 PARTICIPATING PARTNERS

COUNTRY	NAME
AUSTRIA	GOG
FRANCE	MoH-FR
	SPF
GREECE	7HC
ITALY	UNIFG
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PORTUGAL	DGS
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ACRONYMS

ABC	Antimicrobial Consumption
AMR	Antimicrobial Resistance
ASP	Antimicrobial Stewardship Program
CDH	Clinical Department Heads
ECDC	European Centre for Disease Prevention & Control
HA	Hospital Administrators
HAI	Healthcare Associated Infection
HH	Hand Hygiene
HCW	Healthcare Worker
IC	Infection Control
ICC	Infection Control Committee
ICP	Infection Control Programs
MDROs	Multi-Drug-Resistant Organisms
PH	Public Health
PHA	Public Health Authorities
WHO	World Health Organization
AT	Austria
FR	France
EL	Greece
IT	Italy
PT	Portugal
ES	Spain

1 BACKGROUND

The implementation of a national strategy for the control of AMR and HAI prevention faces a lot of limitations related to the health system structure, its organization culture, and the available human & financial resources. Prevention is of great significance, not only for patient's safety, but also as it saves resources channelled into improving the performance of the health system. The key for an effective ICP implementation is to change the organizational culture, yet time is required for such transformation, even in advanced healthcare systems.

2 PURPOSE OF SURVEY B

The aim of this survey is to examine and analyse the facilitators and barriers (attitudes, level of training, lack of awareness, etc.) to an effective implementation of an infection control program in clinical reality, which are mainly linked to the institutional policy and organizational behaviour.

More particularly, this survey aims to determine:

1. The factors that activate the hospital administrators to establish an Infection Control (IC) policy and their commitment to its implementation.
2. The factors that guide the role and the work of Infection Control Committees.
3. The factors that influence health professionals to implement IC measures during routine practice and are related to the organization culture.

3 METHODOLOGY OF SURVEY B

3.1 THEORETICAL CONCEPTUAL FRAMEWORK OF SURVEY B

The theoretical framework used for the formulation of the questionnaires is based on Health Belief Model (HBM). The HBM is used to identify perceived barriers and facilitators related to ICP implementation as determinants of a certain health-seeking behaviour. Health Belief Model is a psychological model that attempts to explain and predict health behaviours based on perceived susceptibility, perceived benefits, perceived barriers, perceived severity and cues to action.

HBM has been used in many health care settings in order to examine many and different health care behaviours and it has also been previously tested and found as an appropriate theoretical model to use for measuring attitudes of nurses and

other health care workers towards implementing certain aspects of universal precautions from occupational exposure to pathogen.

3.2 QUESTIONNAIRE FOR SURVEY B

The study employed a qualitative research design with focus groups. Focus groups can be used to elicit answers on a specific issue from many individuals in a short period of time. Through focused discussions, researchers attempt to study a topic of interest in depth by creating teams in which participants share a common aspect (for example, common workplace) and discuss similar experiences. These discussions intent to encourage the participants to express themselves. Initially, a panel of experts formulated a pool of questions based on the review of factors that influence the health professionals' compliance to infection control measures.

Afterwards, two groups of health professionals participated in the final formulation of the questionnaires. The first focus group comprised of 12 infection control nurses working in the biggest hospitals in Athens. The second focus group comprised of 15 health professionals, including nurses and physicians working in various hospital wards. A pool of open-ended questions has been used to facilitate the process. The audience was asked to comment these questions. Additionally, they were welcomed to add their comments in a very open way. This discussion was based on the HBM axons. To guarantee the inter-rater validity and reliability, an observer was taking notes and documented the reflection of the audience. Then, a content analysis of the interviews of focus groups was performed in an effort to code and fit emerged themes into factors influencing compliance within the constructs of HBM. The questions were formulated based on the topics and the key words and phrases of the participants. A pool of 45 questions has been formulated for each of the questionnaires distributed among the 5 thematic categories of the HBM.

According to the above procedure, the leading team proposed to the partners the following:

1. To apply the above-mentioned methodology and evaluate the initial questionnaires using a panel of experts of their country. Then, to comment on whether each question fits each factor and whether the questions are suitable for their country.

2. After receiving partners' comments, leading team formulated the second draft of the questionnaires which would be translated to national languages and then back to English.
3. Finally, a pilot testing of the questionnaires targeted to specific health professionals' groups followed. It is highly important that questionnaires were absolutely comprehensible by all the health providers to respond. The final questionnaires were formulated after the completion of the pilot testing.

Finally, the questionnaire of Survey B examined the following common factors:

1. **Susceptibility**: personal perception of the risk of acquiring a certain disease or condition
2. **Severity**: personal perception of the seriousness of a certain disease, behaviour or condition
3. **Benefits**: personal perceptions of the effectiveness and positive consequences when adopting a new behaviour
4. **Barriers**: personal perception of the obstacles that may prevent him/her to adopt a new behaviour
5. **"Cues to action"** factors that trigger a behaviour

Survey B was addressed to Public Health Authorities, Infection Control Committees (ICCs), and Hospital Administrators (HA).

Draft questionnaires were prepared in English by the Hellenic Centre of Disease Control and Prevention (HCDCP) leading team of WP6.1 and then each participating country sent a version translated in its native language which was uploaded in a specially developed database in http://www.eujamrai-icpsurveys.eu/survey/ in 7 European languages (English, Greek, French, Italian, Spanish, Portuguese and German). The database was open to the participants until 06/07/2018. At the same time healthcare professionals could participate also in survey A which is focused on IC capacity within healthcare settings and raising institutional awareness using identified key components and specific interventions which could be adapted to the real needs, resources and priorities of the national healthcare systems.

Data analysis was completed using SPSS, both for all countries overall and for each country separately (only for countries with more than 10 completed questionnaires

by HAs). Regarding the data from Public Health Authorities, all responses regardless of the number of the completed questionnaires were analysed.

Furthermore, statistical analysis was also conducted using a variety of tools, as not only Chi square test of independence with contingence tables, but also the Kolmogorov–Smirnov for normality test and the nonparametric Kruskal-Wallis test for k independent groups were used. To examine whether or not there is a statistical significant association between the variables, p-value should be less than 0.05. More particularly, statistical analysis focused on whether possible differences could exist on different types of hospitals (University, Tertiary hospitals), whether hospitals have at least one specialized hospital units (ICU, Hematology Unit, Oncology Unit), on whether the participant was Doctor or Nurse, the age of the participant which is also related to the years of experience (Older HCW= >45y.o., younger HCW= <45y.o.) and the sex of the participant.

For reasons of convenience, in this Survey, in the answer “Agree” both answers “Strongly Agree” & “Somewhat Agree” are included, unless it is otherwise stated. The same also applies for the answer “Disagree”.

3.3 RESPONSE FROM EU COUNTRIES

The questionnaires of Survey A and B were sent to the partners of WP6.1 and to other stakeholders of EUJAMRAI. Overall, 2131 questionnaires were completed by healthcare professionals from 6 countries (Austria, Italy, France, Greece, Portugal & Spain). As it was expected the majority of the questionnaires were completed by Healthcare Personnel (n=1573), but there was also a significant response by ICCs’ members (n=411) and also by HAs (n=147) of all the participating countries (Figure 1).

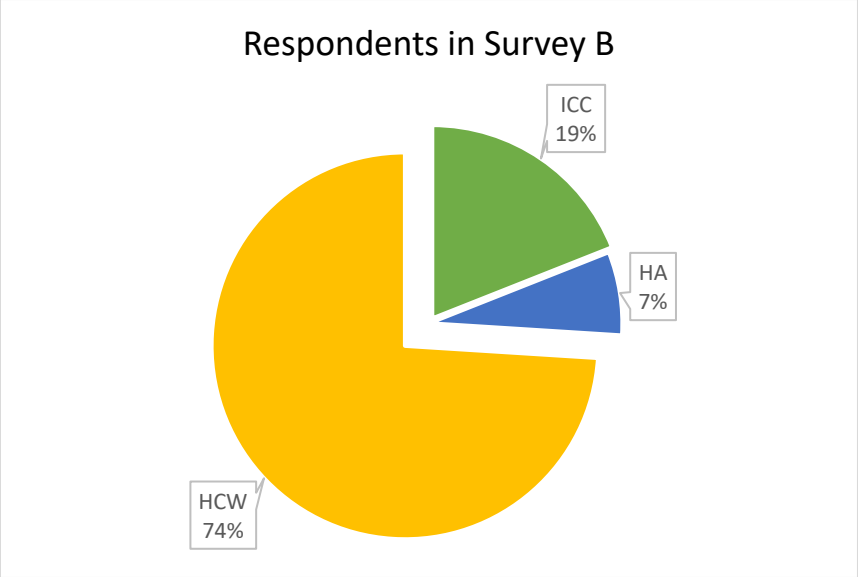

Figure 1: Proportion of participants in Survey B per target group (n=2131)

Portugal, Greece, Spain, and Italy were the counties with the most respondents, while Austria, and France had the lowest numbers of completed questionnaires. The participation to Survey B per country and per target group is shown in Table 1.

Table 1. Total Number of Completed Questionnaires by Country
(only countries with ≥10 completed questionnaires are included)

	FR	EL	IT	PT	ES
ICC	31	112	19	202	43
HA	5	19	18	93	10
HCW	46	406	82	699	334

The specific characteristics of the healthcare settings which participated in survey B and participants' speciality are indicated in Tables 2, 3 & 4.

Table 2. Total Number & Proportion of Type of hospitals
(Answers by HCW, n=1573, multiple answers possible)

	Frequency	Percent
Acute Care	1283	82%
Long Term Facility	241	15%
Public	769	49%
Private	212	14%
University hospital	376	24%
Tertiary hospital	236	15%

Table 3. Total Number & Proportion of Specialised Units
(Answers by HCW, n=1573, multiple answers possible)

	Frequency	Percent
Intensive Care Unit	954	61%
Hematology Unit	622	40%
Oncology Unit	729	46%
None of the above	545	35%

Table 4. Proportion of Specialized IC Personnel in hospitals
(Answers by HCW, n=1573, multiple answers possible)

Specialised IC Personnel (Clinical Microbiologist, Infectious Diseases physicians, IC specialist)	**Percent**
At least 1 SICP	51%
All 3 SICP	28%
No SICP	35%

Among the respondents who completed the questionnaire regarding the HCWs, more than half were nurses (64%), followed by doctors (29%). The mean duration of professional experience overall was 20.8 years, while the mean duration of professional experience in the current position was 10.9 years.

4 PERCEIVED BARRIERS TO TAKING ACTIONS

4.1 Aim of the survey

A key research point in international bibliography is the barriers which limit an effective ICP implementation in healthcare facilities. These factors are numerous as ICP implementation demands a multidisciplinary approach.

The aim of this section of Survey B focused on investigating the confining factors for an ICP implementation, both from the perspective of the ICCs and the healthcare professionals. Two crucial HAIs control & prevention measures were chosen to be investigated: HH compliance and usage of personal protective equipment, as well as one of the most complicate procedure, the audit of care bundles for HAIs' prevention.

Key words: authorities and their role, dedicated personnel, training, skills, knowledge, assessment of ICP, recourses, cooperation with HA, ward supervisors, lack of time, HAIS care bundles, training, guidelines access, feedback, awareness, active participation, surveillance, active role, accordance with ICC recommendations, ward supervisors, hospital administration commitment, older stuff, audit

Responders: Infection Control Committees, Healthcare Professionals

4.2 Results

4.2.1 Infection Control Committees

Only half of the ICC respondents (55%) reported that the **roles & authorities** of the ICCs are well defined. The same applies also for the importance of the role of the ICCs which is not highly recognized by health professionals (56%).

Almost half of them (49%) reported that are not **working full time** on IC so there is not enough time to participate in ICP implementation, as shown in Figure 2.

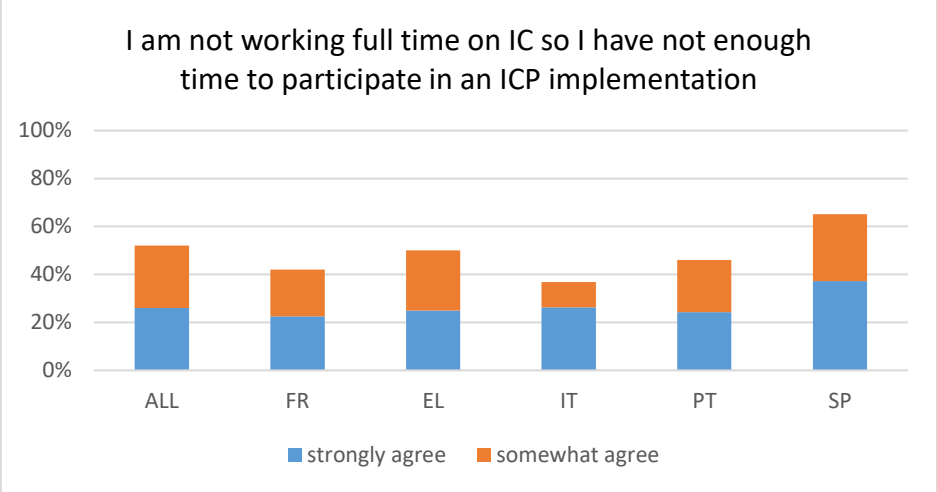

Figure 2: I am not working full time on IC so I have not enough time to participate in an ICP implementation (Answers by ICCs, % Agreement overall & by country, n= 411)

Only 48% of the members of the ICCs have received **certified training** on IC (Figure 3), while 70% believe that they have the necessary skills for training the hospital's personnel on IC implementation. The majority (71%) feel that their knowledge regarding the IC & AMR is updated.

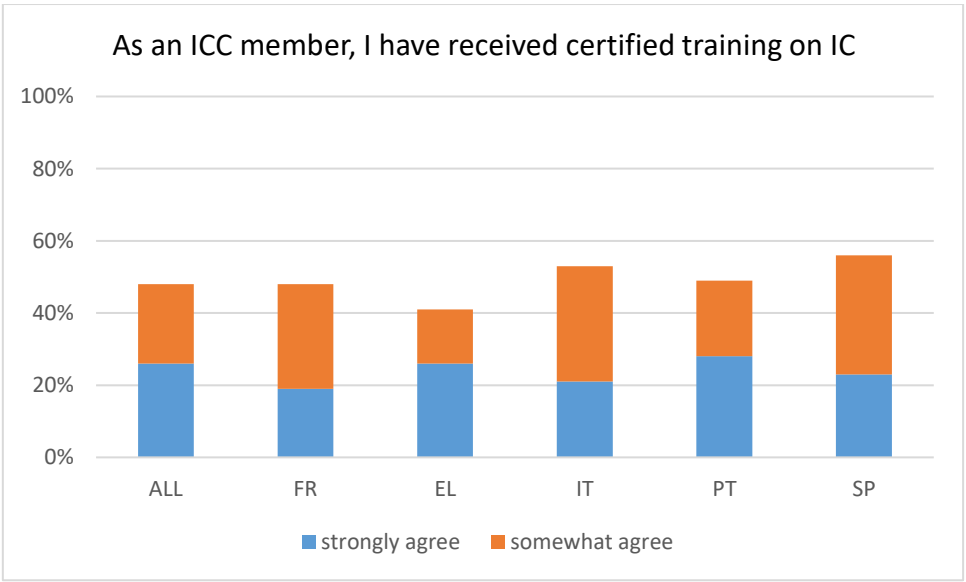

Figure 3: As an ICC member, I have received certified training on IC (Answers by ICCs, % Agreement, overall & by country, n= 411)

A proportion of 53% claim that there is **an assessment** of the ICC work plan in their hospitals.

Regarding the factors that prevent an effective ICP implementation, 54% reported that it's due to **limited resources**, 59% due to insufficiency of **ward staffing** and

38% due to the fact that staff is not **adequately aware.** The results are shown in Table 5.

Table 5. Factors preventing an effective ICP implementation (Answers by ICCs, n=411)

	Strongly Agree	Somewhat Agree
Limited resources	23%	31%
Insufficiency of ward staffing	25%	34%
Staff inadequately aware	9%	29%

Only a proportion of 9% of the ICCs strongly disagree and believe that hospital administration could not be more **supportive of the ICC activities,** despite of a 68% who agree, while half of them (53%) reported that cooperation with HA occurs usually when there is an outbreak.

Almost all of them (93%) believe that the behavior of the **ward supervisors** has a primary role on health professionals' compliance with the hygiene measures, while 75% disagree with not being able to implement hand hygiene adequately due to lack of time (only 5% strongly agree).

Finally, the **audit of HAIs care bundles** while absolutely necessary, it's very difficult to be performed in clinical practice for 60% of the respondents (10% strongly disagree), as depicted in Figure 4.

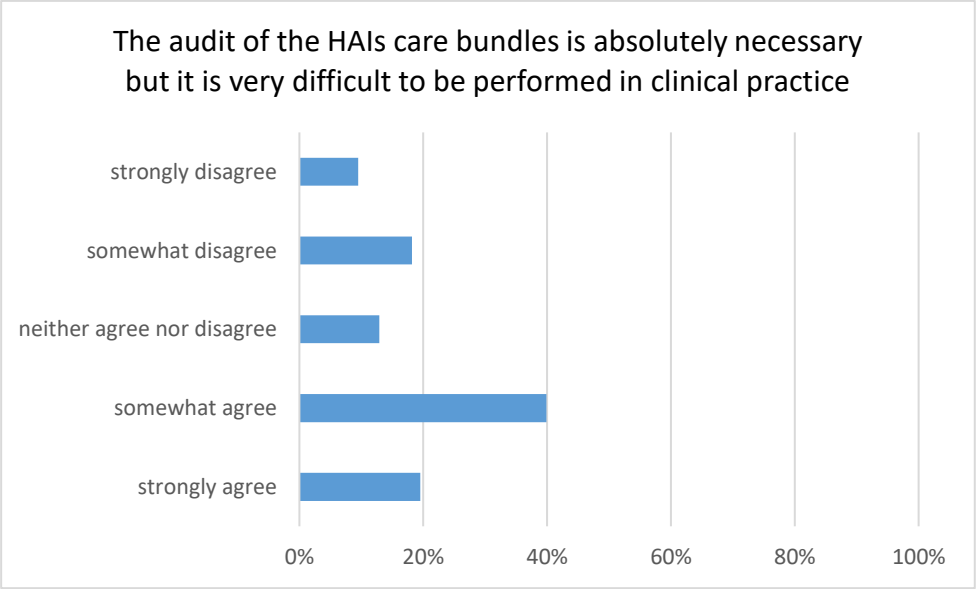

Figure 4: The audit of the HAIs care bundles is absolutely necessary but it is very difficult to be performed in clinical practice (Answers by ICCs, n= 411)

4.2.2 Healthcare professionals

A proportion of 66% of the healthcare workers believe that are **properly trained** on the implementation of the precautions, while only 29% of them strongly disagree. The majority of them (67%) reported that they are not unsure whether their practice on IC measures is adequate. The results are shown in the following Figures 5 & 6.

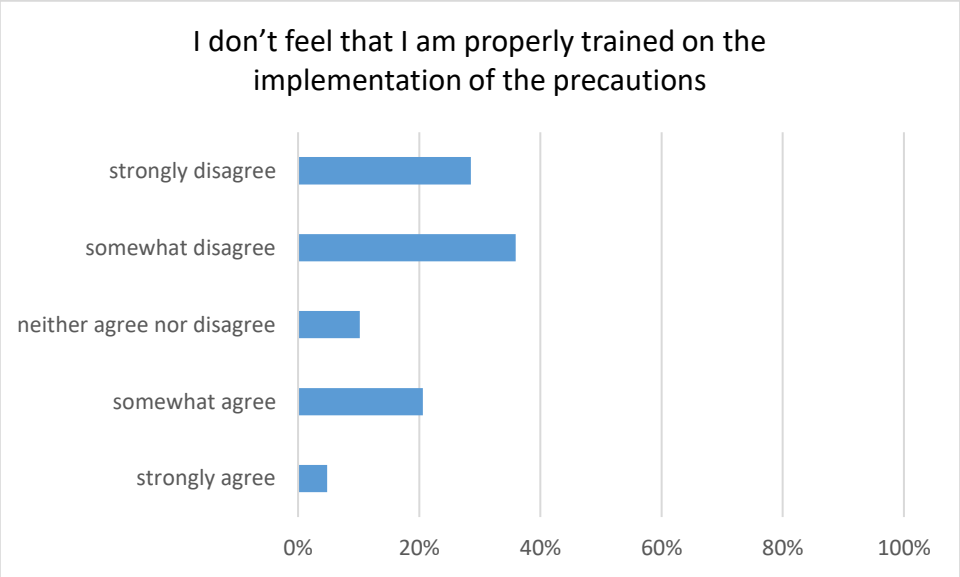

Figure 5: I don't feel that I am properly trained on the implementation of the precautions (Answers by HCWs, n= 1573)

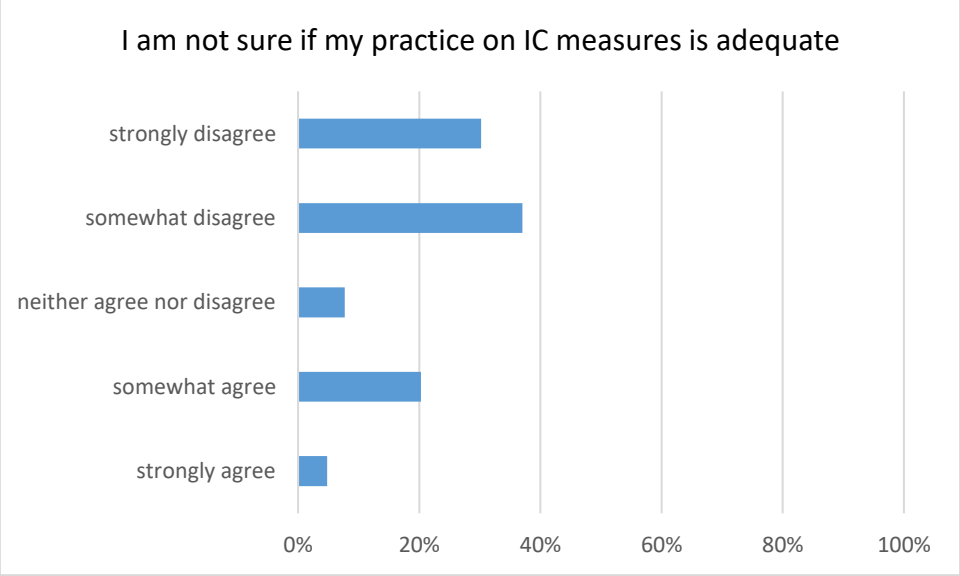

Figure 6: I am not sure if my practice on IC measures is adequate (Answers by HCWs, n= 1573)

Only a proportion of 7% strongly agree that while there **are guidelines** in their hospitals, when needed, is difficult to find them, in contrast with a proportion of 60% who disagree.

More than half of the respondents (61%) disagree with not having the adequate **information about the surveillance data** of their wards, while half of them (49%) believe that the **clinical impact of the surveillance data** is not fully taken in by healthcare professionals, as shown in following Figure 7.

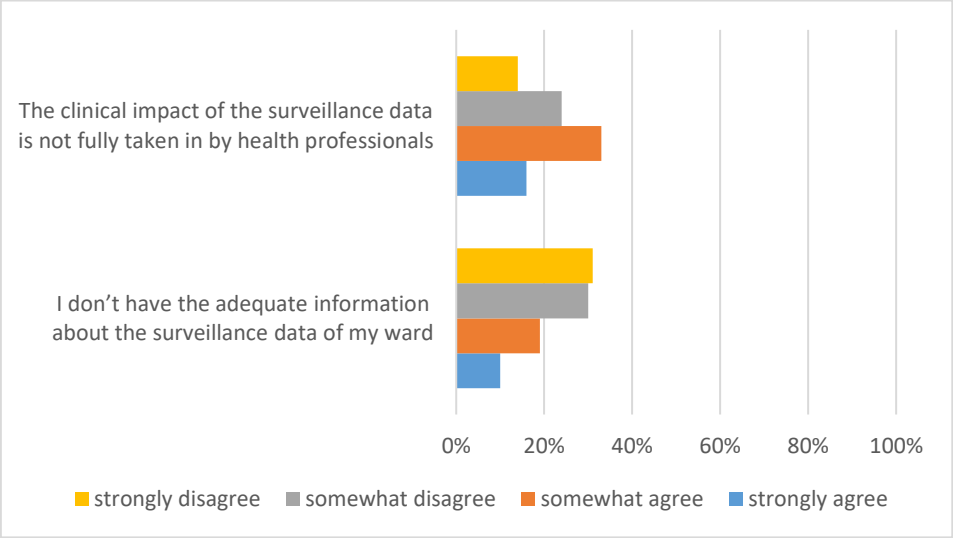

Figure 7: Surveillance data (Answers by HCWs, % agreement & disagreement, n= 1573)

Moreover, more than half (63%) reported that have an **active role** in IC implementation in their wards, while a higher proportion (70%) are informed on the implemented IC policy in their hospital.

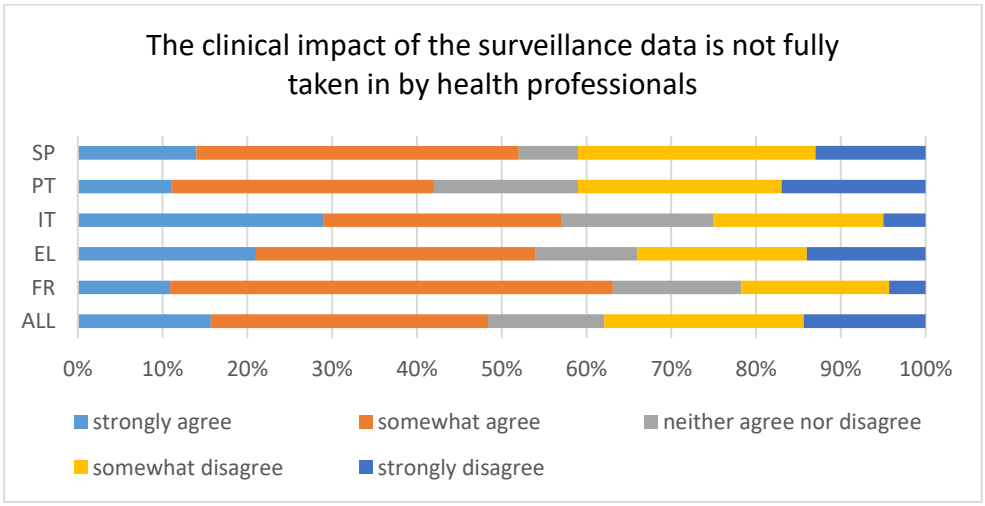

Figure 8: The clinical impact of the surveillance data is not fully taken in by health professionals (Answers by HCWs, overall & by country, n= 1573)

Regarding HH Compliance, HCWs disagree with not performing HH **due to lack of time** (85%), **or using gloves** instead of performing HH due to convenience (77%), while the **unavailability of the appropriate materials** is not a confining factor for not using the protective equipment due to (84%). The results are depicted in the following Table 6.

Table 6. *Reasons for not performing HH Compliance (Answers by HCWs, % disagreement, n= 1573)*

	Strongly Disagree	Somewhat Disagree
Lack of time	61%	24%
Using gloves due to convenience	56%	21%
Unavailability of the appropriate materials	58%	26%

Only more than half of the respondents (58%) reported that are not confused as there are no differences between the **ICCs' recommendations** and the practice in their wards (28% disagree).

Also, 60% of HCW argue that are not reluctant to correct their **supervisors** when not apply the IC measures properly. Nevertheless, there were differences between countries as Figure 9 depicts.

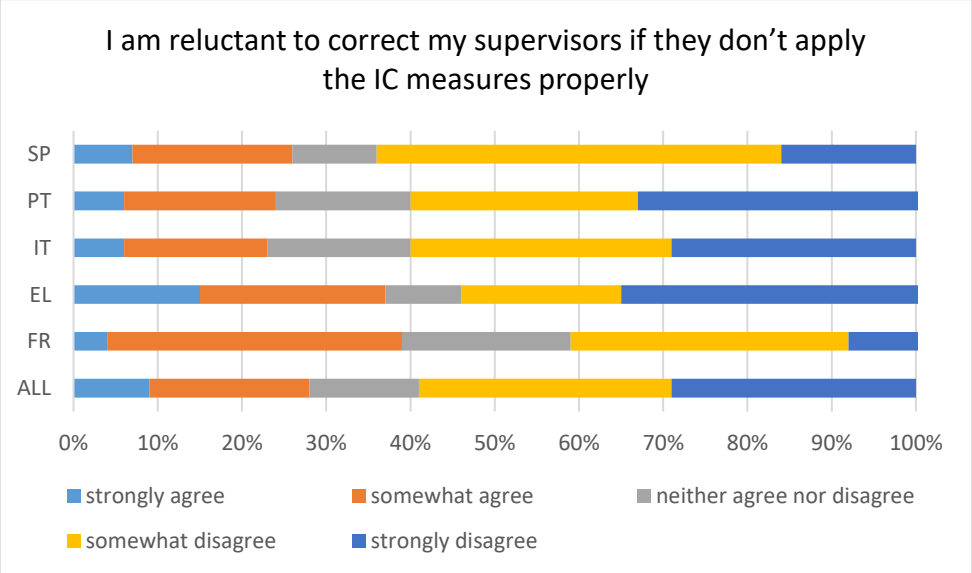

Figure 9: I am reluctant to correct my supervisors if they don't apply the IC measures properly (Answers by HCWs, overall & by country, n= 1573)

Only 24% of the HCW strongly believe that HA are strongly **committed in HAIs** and AMR prevention (Figure 10).

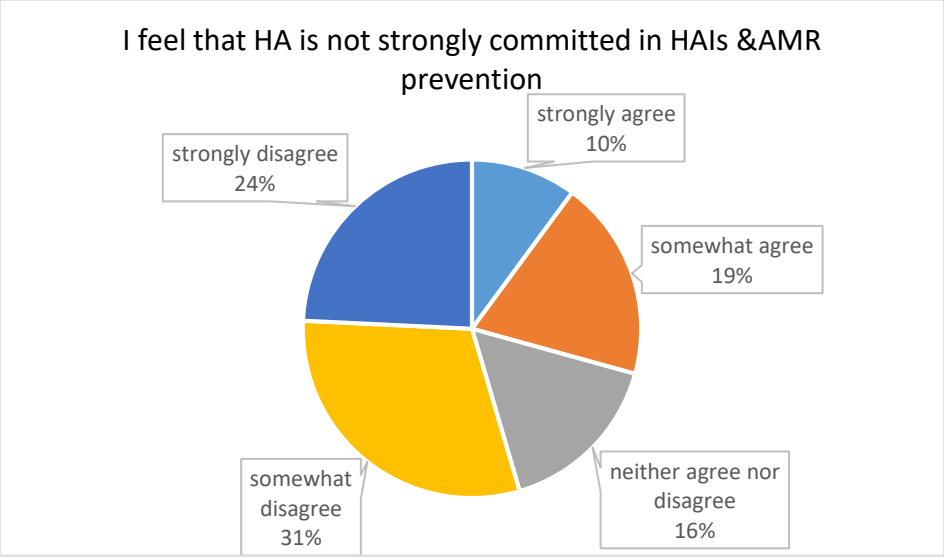

Figure 10: I feel that HA is not strongly committed in HAIs &AMR prevention (Answers by HCWs, n= 1573)

Half of the respondents (50%) do not believe that the unchanging attitudes of **older healthcare professionals** is one of the most important limitation of IC implementation, in contrast of 33% who agree. Looking at each country's results separately in Figure 11, differences were noted.

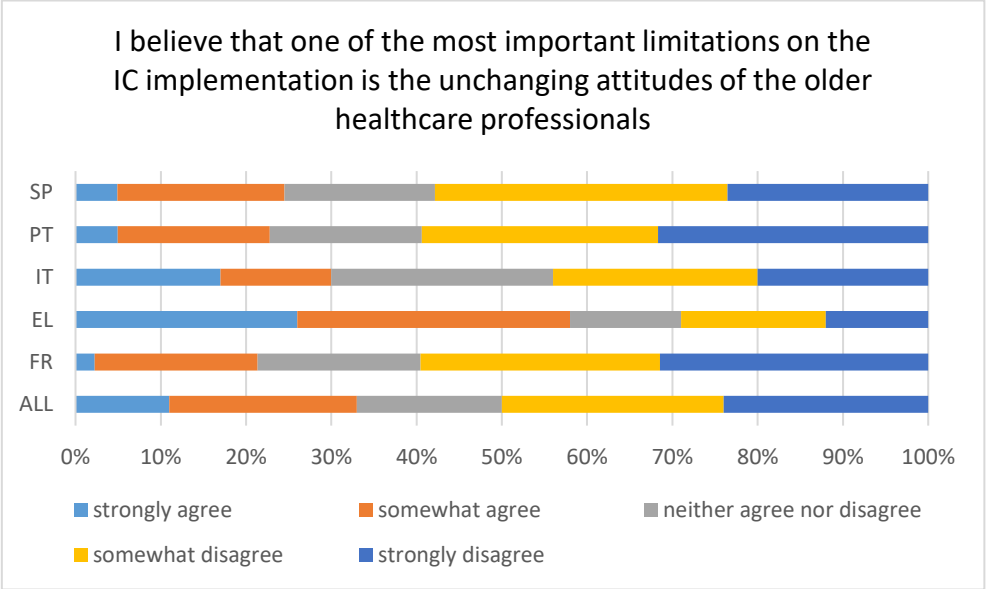

Figure 11: I believe that one of the most important limitations on the IC implementation is the unchanging attitudes of the older healthcare professionals (Answers by HCWs overall & by country, n= 1573)

Audit implementation, as it was also concluded from Survey A, is not implemented adequately in healthcare facilities. Even though half of the HCW report that it could be implemented effectively, a proportion of 22% neither agree nor disagree, possibly because in clinical reality many contributing factors are involved, as Figure 12 shows.

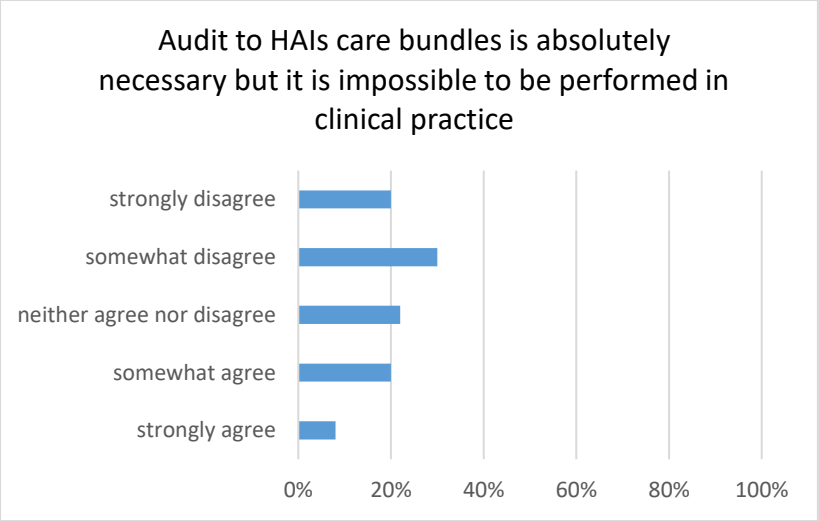

Figure 12: Audit to HAIs care bundles is absolutely necessary but it is impossible to be performed in clinical practice (Answers by HCWs, n= 1573)

5 PERCEIVED SUSCEPTIBILITY

5.1 Aim of the survey

The sense of vulnerability and risk in workplace affects healthcare personnel significantly in implementing an ICP, thus compliance to precautions differs among healthcare personnel and specialties in clinical wards.

The aim of this section of Survey B was to investigate the knowledge of healthcare personnel in risk factors for HAIs for their and also for themselves.

Survey focused on HCWs' knowledge on HAIs risk and the nosocomial pathogens transmission to patients, themselves and their environment, in addition to how these affect their daily routine to clinical practice.

Key words: work safety, patient safety, HAI risk, surveillance, new and old stuff, responsibility of ICP, pathogens transmission, precautions, safe practices, guidelines, risk of HAIs, new stuff.

Responders: Infection Control Committees, Healthcare professional

5.2 Results

5.2.1 Infection Control Committees

Almost all of the ICC respondents (84%) reported **that they feel safe** to work in their hospitals and their patients are also safe (less than 2% strongly disagree).

The majority of the respondents (77%) believe that patients in ICU are **more likely to be infected with HAIs** than patients in other wards.

A proportion of 76% reported that some of the staff cannot fully understand the **clinical impact of the surveillance** data resulting in inability to perform the appropriate measures, as next Figure 13 depicts.

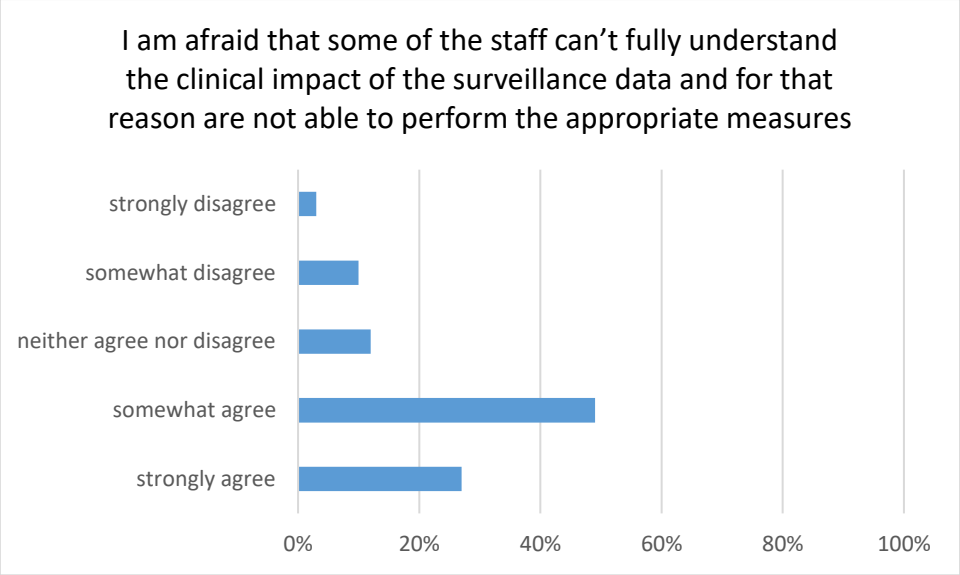

Figure 13: I am afraid that some of the staff can't fully understand the clinical impact of the surveillance data and for that reason are not able to perform the appropriate measures (Answers by ICCs, n= 411)

Half of the respondents do not feel that IC implementation's **responsibility** is only up to the ICC.

Moreover, 75% of the ICCs argue that the **new staff** members run the highest risk of making errors, thus, their training on IC should be a priority, in addition to a proportion of 57% who believe that the **oldest staff** members have a low compliance to the IC measures because they cannot change their attitudes. The results are depicted in Table 7.

Table 7. Age of Healthcare personnel & ICP effectiveness **(**Answers by ICCs, % of agreement, n= 411)

	Strongly Agree	**Somewhat Agree**
New staff members run the highest risk of making errors	43%	33%
Oldest staff members cannot change their attitudes	18%	39%

5.2.2 Healthcare professionals

Almost 70% of the healthcare professionals do not feel insecure about their knowledge of **nosocomial pathogens transmissions**, in contrast with a percentage of a 23% who disagree, while the vast majority (79%) reported that are neither

insecure about their knowledge of when and **how IC precautions** should be taken, therefore not afraid for a possible infection by a nosocomial pathogen.

72% of the respondents **feel safe to work** in their hospital, (15% disagree), while a percentage of 31% are afraid of a possible nosocomial pathogen transmission to their families. Figures 14 &15 show the results.

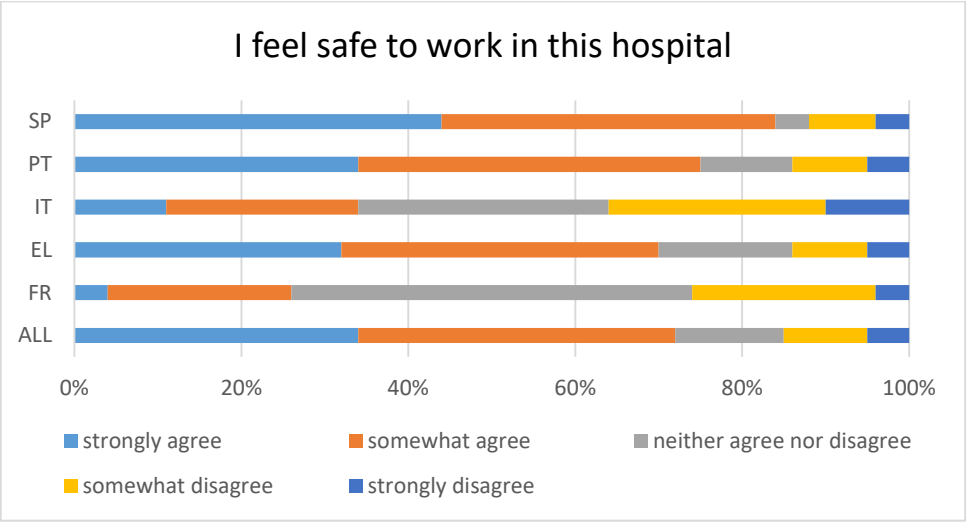

Figure 14: I feel safe to work in this hospital (Answers by HCWs, overall & by country, n= 1573)

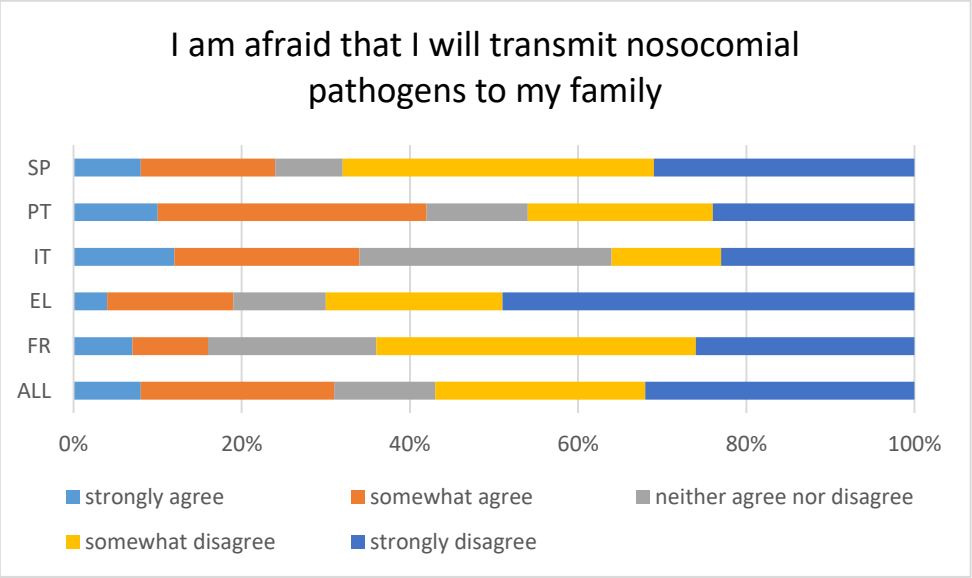

Figure 15: I am afraid that I will transmit nosocomial pathogens to my family (Answers by HCWs, overall & by country, n= 1573)

Moreover, 61% of the respondents do not feel often insecure about **their practices** and how **IC guidelines** could be implemented in their ward, as shown in the following Figure 16.

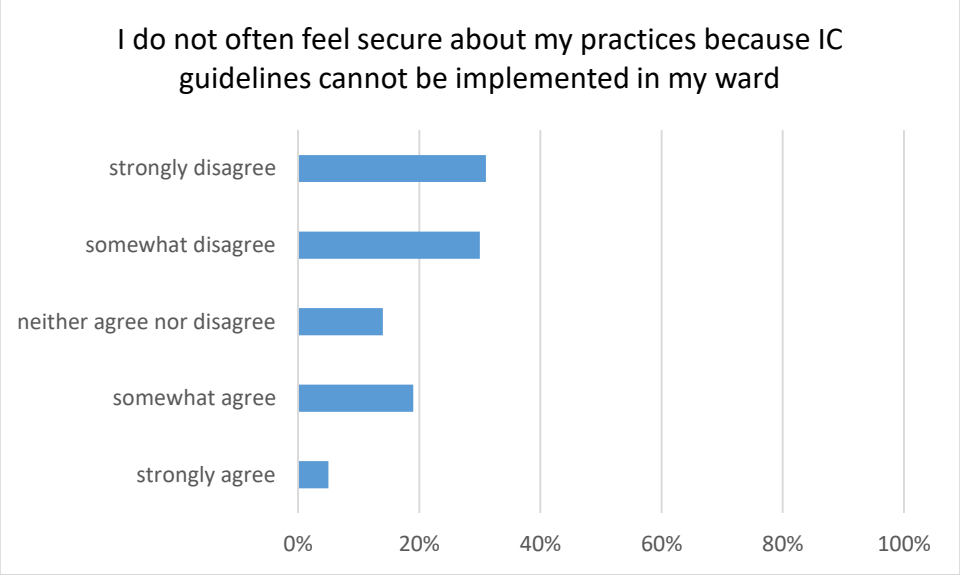

Figure 16: I do not often feel secure about my practices because IC guidelines cannot be implemented in my ward (Answers by HCWs, n= 1573)

More than half of the respondents reported that patients in their hospitals are at high risk of HAIs, as shown in Figure 17, while the majority (64%) reported that ICU patients are more likely to be infected from HAIs than in other wards.

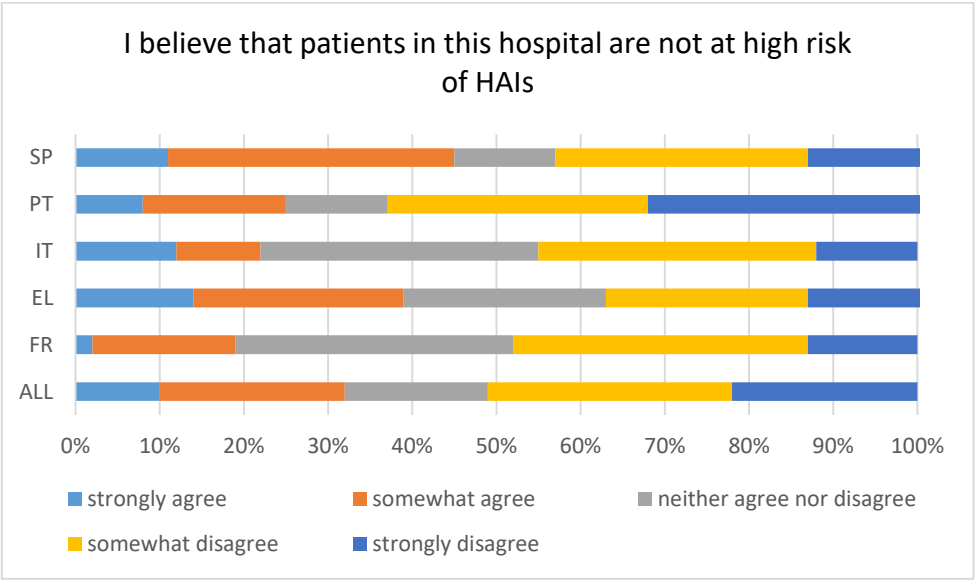

Figure 17: I believe that patients in this hospital are not at high risk of HAIs (Answers by HCWs, overall & by country, n= 1573)

Furthermore, 42% of healthcare professionals believe **that new staff** runs the highest risk due to lack of experience and support, as depicted in Figure 18.

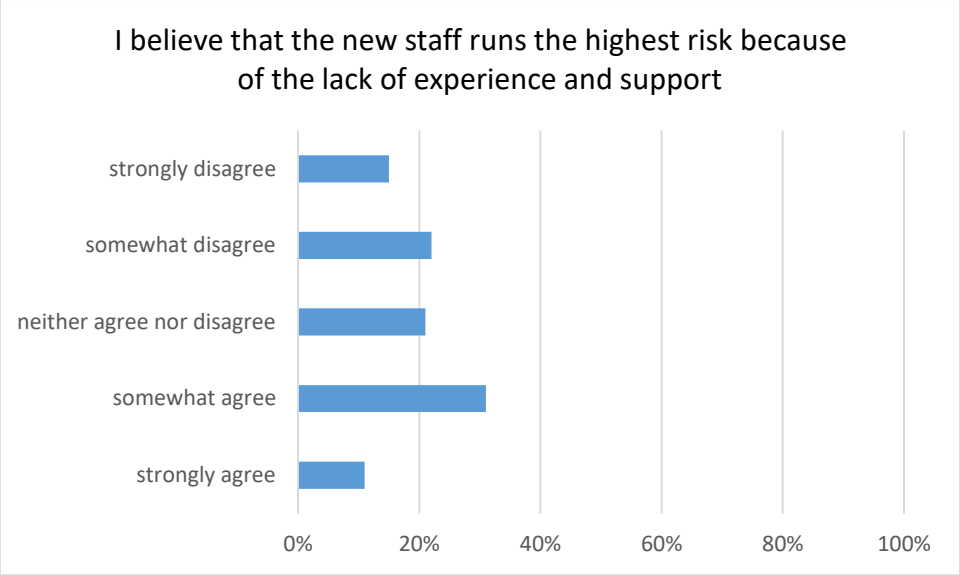

Figure 18: I believe that the new staff runs the highest risk because of the lack of experience and support (Answers by HCWs, n= 1573)

6 CUES TO ACTION

6.1 Aim of the survey

Healthcare personnel's compliance to protective measures is highly related to organization's culture regarding Infection Control and expressed through the policies and priorities of each administration and government.

The aim of this section of Survey B was to investigate whether contributing factors to organization culture such as safe working environment, teamwork and cooperation are also essential factors by organizations and healthcare personnel for an effective ICP implementation and how their clinical reality is affected.

Survey focused on cooperation among all interested parts in IC (HA, ICC, ward supervisors, HCW, PHA), on promoting teamwork and a safe working environment.

Key words: support, policy priority, training, team working, supervisors, medical errors, cooperation, IC program, role model, work field, hospital policy, staff meetings, safe work environment, good IC practices.

Responders: Infection Control Committees, Healthcare professional

6.2 Results

6.2.1 Members of Infection Control Committees

While the majority of ICC (80%) reported that they have the appropriate **support** from the other members of the ICC, only half of them (52%) have the required support from the administrations due to ICP being a **hospital policy priority**, while 33% disagree with this, as depicted in Figure 19.

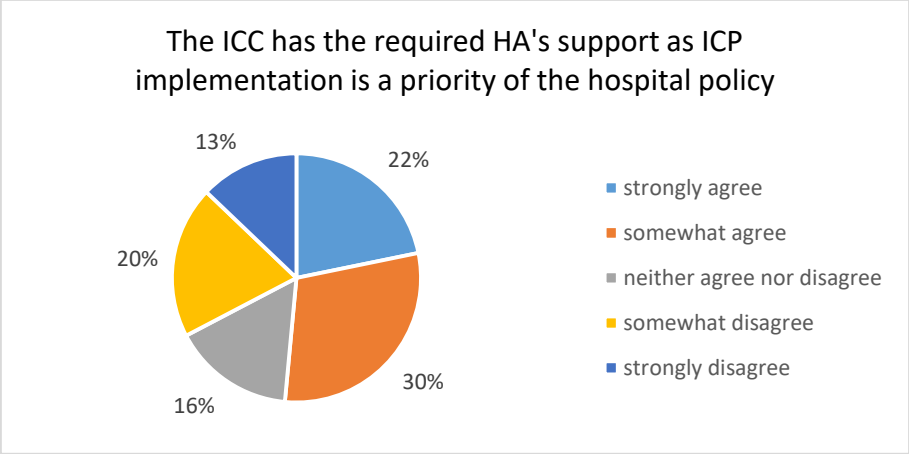

Figure 19: The ICC has the required HA's support as ICP implementation is a priority of the hospital policy (Answers by ICCs, n=411)

According to ICCs, increased HH compliance from healthcare workers can be achieved either by continuous **reminder of the necessity** to perform IC measures (90%) or by training the clinical wards **supervisors** (97%).

Moreover, even though ICCs (84%) discuss with the ward staff about their considerations or problems facing in clinical practice in the context of being in the **same team with the same goals**, 21% of them reported that hospital culture does not promote **staff expression on errors**/ limitations regarding IC implementation in daily practice. The results are shown in Figure 20.

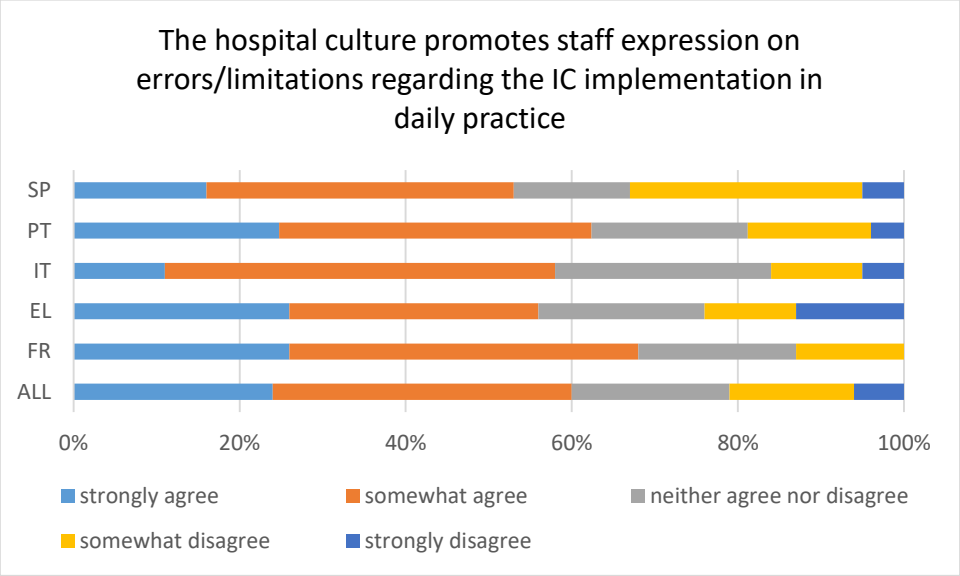

Figure 20: The hospital culture promotes staff expression on errors/limitations regarding IC implementation in daily practice (Answers by ICCs, overall & by country, n=411)

Furthermore, ICCs believe in a proportion of 71% that **close cooperation with PHA** is very supportive when facing a crisis (20% neither agree nor disagree), as depicts Figure 21.

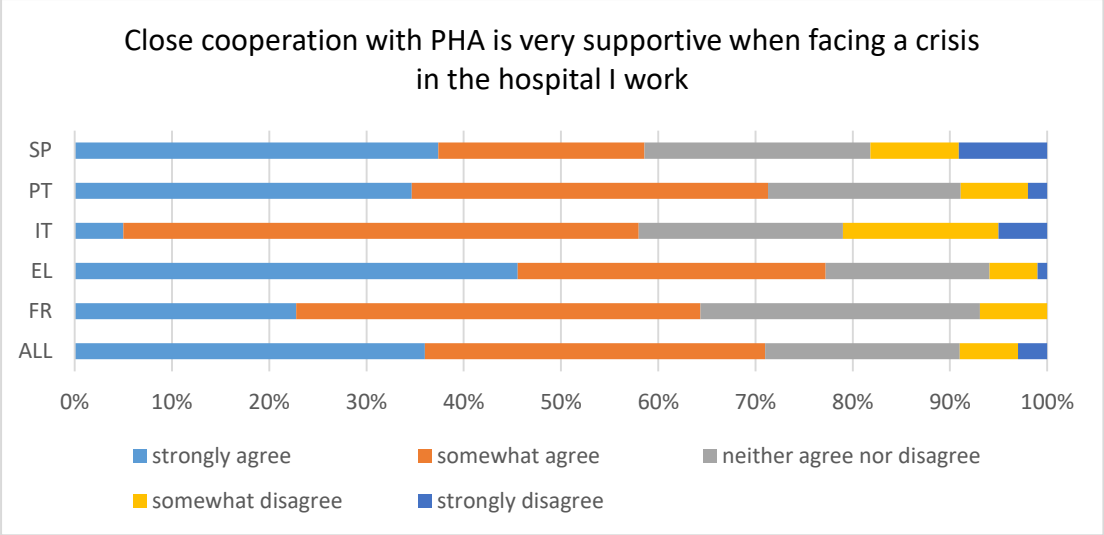

Figure 21: Close cooperation with PHA is very supportive when facing a crisis in the hospital I work (Answers by ICCs, overall & by country, n=411)

Additionally, it is reported that human staffing and **material resources** increase the effectiveness of their work (96%).

Finally, almost all of them (93%) actively participate in **formulating the ICP** as it is perceived their responsibility (67% strongly agree).

6.2.2 Healthcare professionals

92% of the respondents believe that when trained on their **field of work** results in a better understanding of their false practices.

More than half of HCW (56%) reported that regard their supervisor as the **best role model** among the staff regarding IC implementation.

Having HAIs prevention as a priority of the hospital's **IC policy** results in raising awareness for HAIs prevention for both at national and hospital level for half the respondents (48%). Having IC implementation always in **the agenda of staff meetings** in their ward is a fact only for 44% of the HCW, as Figure 22 shows.

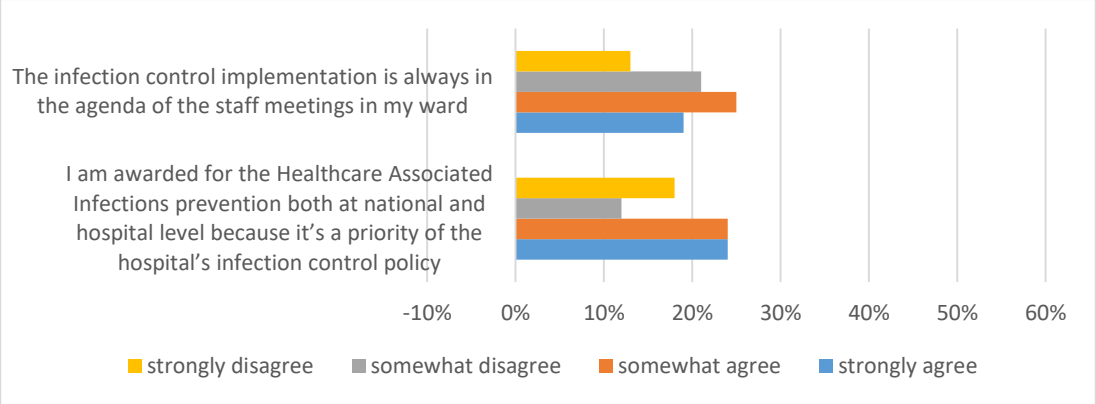

Figure 22: ICP implementation as a priority Answers by HCWs, n=1573)

Moreover, a proportion of 72% claim that discussing all their considerations with dedicated professionals, results in a **safer work environment**.

Furthermore, the vast majority of the respondents (85%) put all their efforts in keeping healthcare quality in their ward at a high level as they recognise it is a **team work**, while 70% of them strongly believe that patients' safety is their responsibility therefore being **an example of good IC practices** to their colleagues matter.

Finally, a percentage of 60% of healthcare respondents reported that they cooperate with ICCs due to their highly significant intervention.

7 PERCEIVED SEVERITY

7.1 Aim of the survey

Knowledge of the impact of protective measures implementation on patient's safety and on AMR at international level, is a crucial source of mobilization and IC promotion as a policy priority of each healthcare facility.

The aim of this section of Survey B was to investigate whether all interested parties are aware and convinced regarding the benefits of IC & AMR prevention.

Survey focused on the impact of HAI and AMR on patient's safety.

Key words: patient safety, healthcare services quality, public health crisis, global mobilization, and training.

Responders: Infection Control Committees, Healthcare professionals

7.2 Results

All of the responders of the ICCs strongly agree with the fact that the impact of AMR & HAIS in **patient's safety** is a matter of crucial importance and also agree that IC and prevention should be a criterion in assessing **the quality of healthcare services.**

Moreover, almost all of ICC responders (91%) argue that students should be **educated to IC,** while only 71% of them reported that they are fully trained on IC implementation, as it is also depicted in Figure 23.

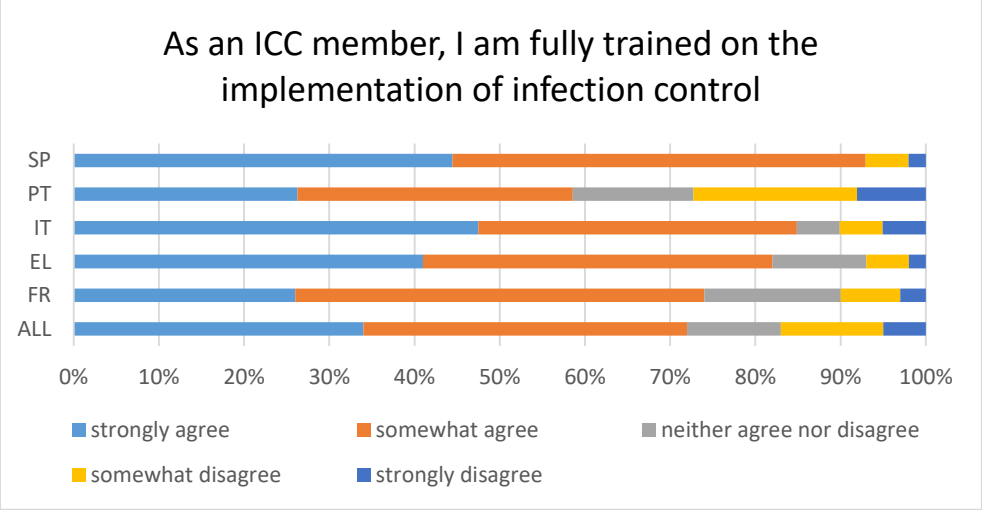

Figure 23: As an ICC member, I am fully trained on the implementation of infection control (Answers by ICCs, overall & by country, n=411)

Almost all of the ICC (91%) strongly agree to the fact that HA's commitment to IC implementation should be strong and active (98% agreement).

Furthermore, almost all (95%) argue that AMR is a **global public health problem**, while a lower percentage (79%) of the respondents reported that HAIs acquisition is a potential medical error for which everyone is responsible.

Finally, the vast majority (95%) are strongly committed in HH implementation, while as Figure 24 depicts, 76% of HCWs believes that **global mobilization** for AMR combat is not excessive.

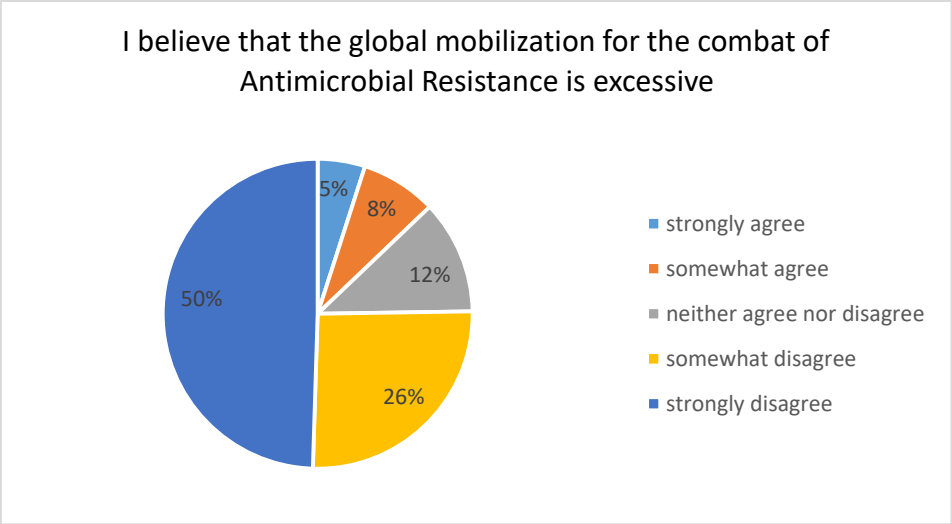

Figure 24: I believe that the global mobilization for the combat of Antimicrobial Resistance is excessive (Answers by HCWs, n=1573)

8 PERCEIVED BENEFITS ON TAKING ACTIONS

8.1 Aim of the survey

Healthcare personnel compliance on protective measures results in the benefits of their implementation. It is essential through continuous training and mobilization to be aware and convinced about the related benefits of an effective ICP implementation.

The aim of this section of Survey B was to investigate whether the importance of ICP implementation to their clinical practice is understood.

Survey focused on implantation of protective measures, HH compliance, isolation & precaution measures for MDROs and infection control plan.

Key words: patient and healthcare professional safety, medical errors, save lives, save money, antimicrobials, HAI risk, workload, ward function, safer routine practice, guidelines, CV.

Responders: Infection Control Committees, Healthcare professional

8.2 Results

The majority of the staff have been persuaded that the **precaution measures** are beneficial for both the patients and healthcare professionals' safety, according to 87% of the ICCs.

Almost 70% of the ICCs reported that being able to discuss **their mistakes** in meetings in their wards results in improving their performance.

Almost all ICCs and HCWs reported that **HH is the most IC effective measure** and it should be the core of the IC program as it is also shown in Table 8.

Table 8. HH as an IC measure, (Answers by HCWs n=1573 & ICCs n= 411, % agreement)

	Strongly Agree	Somewhat Agree
ICC	80%	18%
HCW	77%	20%

The majority of the ICCs (74%) agree with the statement "The implementation of an IC program **saves lives & money"**, while HCWs agree in a higher proportion (88%).

86% of ICCs perform the **isolation precaution** for infected patients due to MDROs as it is a priority of hospital's policy. The overall results and for each country separately are shown in the following Figure 25.

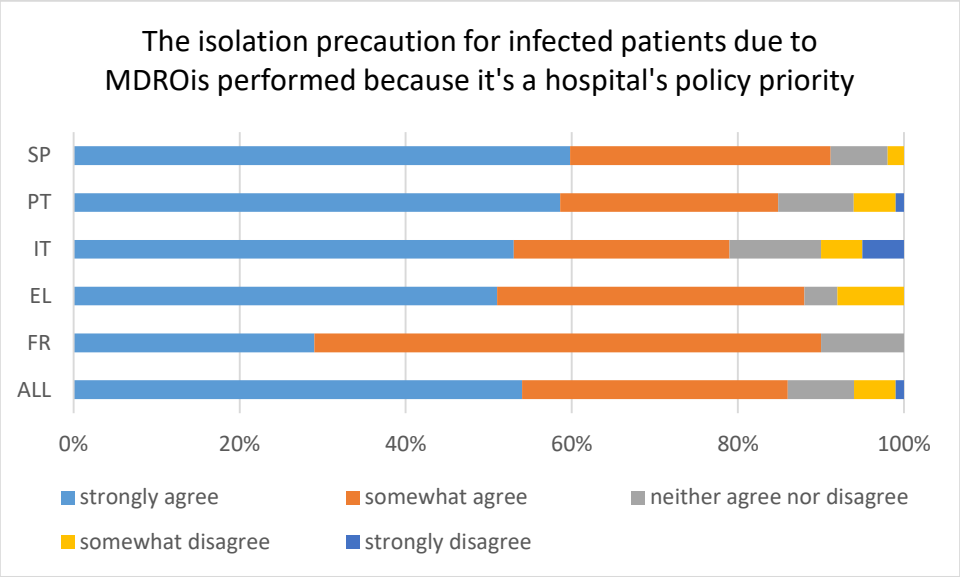

Figure 25: The isolation precaution for infected patients due to MDROs is performed because it's a hospital's policy priority (Answers by ICCs, overall & by country, n=411)

Both ICCs and HCWs agree that high staff compliance with IC measures results in less patients with the risk of a HAI (97%). Furthermore, the majority of ICCs strongly agree that having low AMR rates results in having more **effective antimicrobials** available for HAIs' treatments (74%), likewise for the HCWs (89%).The vast majority of HCWs (86%), reported that low incidence of HAIs due to MDROs results in **less workload** & **better function** of the ward. Furthermore, according to ICCs, low HAIs rates results in having less occupied and more functional wards (90%), while a percentage of 94% of them argue that IC measures' implementation results in an **easier & safer routine practice.**

The results are depicted in Table 9.

Table 9. Benefits of Infection Control (Answers by HCWs n=1573 & ICCs n= 411, % agreement vs. disagreement)

	Agree	Disagree
High staff compliance with the IC measures results in having less patients with HAI risk	98% (ICC) 97% (HCW)	1% (ICC) 2% (HCW)
AMR rates results in having more effective antimicrobials **available**	86% (ICC) 81% (HCW)	8% (ICC) 11% (HCW)
Low incidence of HAIs due to MDROs results in less workload & better function of the ward	86% (HCW)	6% (HCW)
Low HAIs rates results in having less occupied and more functional wards	90% (ICC)	6% (ICC)
IC measures' implementation results in an easier & safer routine practice	94% (ICC)	1% (ICC)

Almost all of HCWs (95%) believe that **adherence to guidelines** is the only way to protect both the patients and themselves.

A percentage of 60% of ICCs disagree with the fact that only ICC members are really **committed to ICP implementation**, as Figure 26 shows.

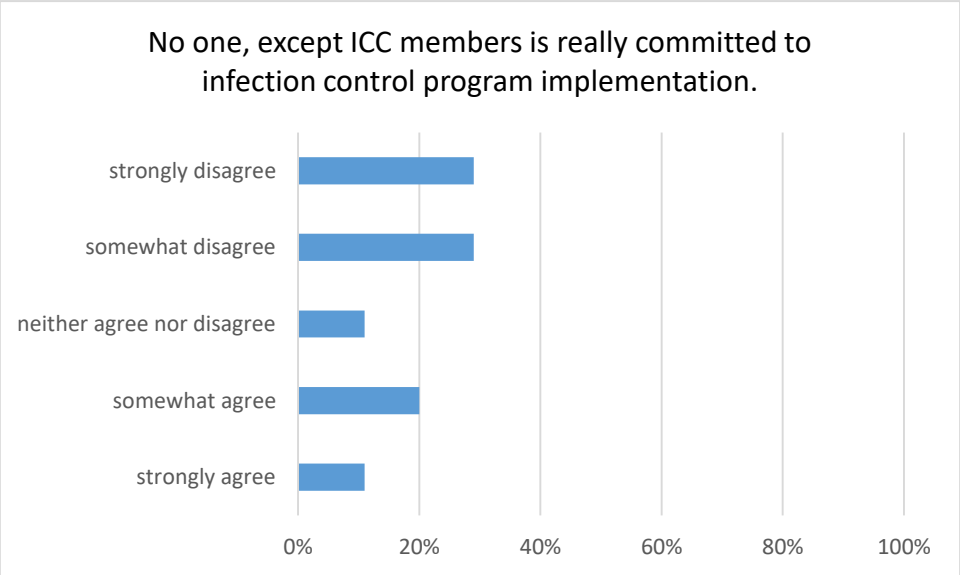

Figure 26: No one, except ICC members is really committed to infection control program implementation (Answers by ICCs, n=411)

Finally, being an ICC member does not seem to be a strong motivation, as only less than half (45%) believe that is an **asset for their CV**, while 30% of the ICCs neither

agree nor disagree (24% disagree). The same applies for the HCW as less than half agree (44%). The overall results are depicted in the Figure 27.

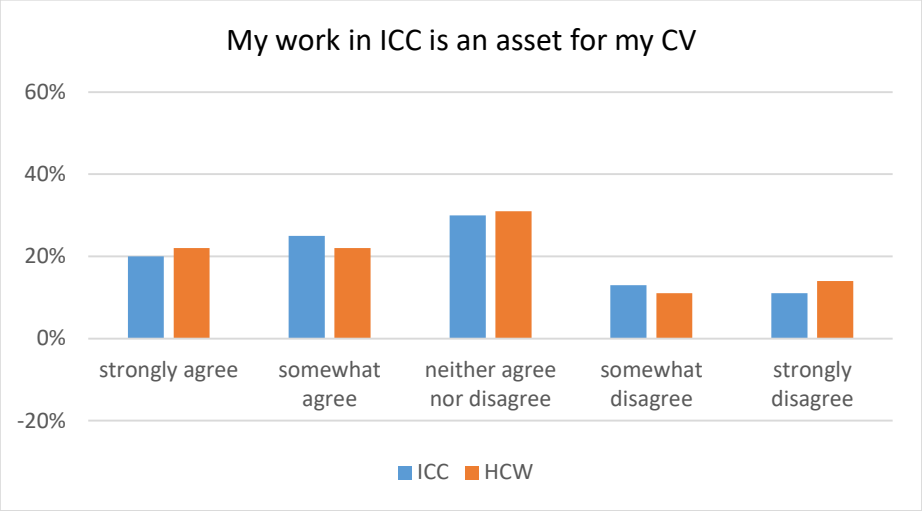

Figure 27: My work in ICC is an asset for my CV (Answers by HCWs n=1573 & ICCs n= 411)

9 Statistical Analysis

Statistical analysis as already mentioned was also conducted to check any differences between different groups

While the majority of the following results were expected, they offer **valuable input** that can be used to design **training modules** and **intervention activities.**

9.1 By respondent's Age

Cooperation with other parties

Older HCWs are less reluctant to correct their supervisors when IC measures are not applied properly in higher proportions (p-value <0.001), while they also believe that clinical impact of surveillance data is not fully taken in by healthcare professionals in higher proportions (p-value= 0.001) than younger HCWs.

Moreover, older HCWs do not agree with the unchanging attitudes of older healthcare professionals being one of the most important limitation when implementing ICP (p-value <0.001). They strongly agree that cooperation with ICCs is important due to their highly significant interventions in a higher proportion than younger HCWs (p-value= 0.001), while they also strongly agree that discussing their considerations with dedicated professionals, increases their feeling of safety (p-value <0.001).

Knowledge and Practice

Older HCWs feel less insecure about their knowledge of nosocomial pathogens transmission (p-value=0.012) and less afraid of a nosocomial pathogen infection as they are more certain about their knowledge of IC precautions (p-value <0.001) than the younger ones. Furthermore, older HCWs feel safer to work in their hospital (p-value <0.001) and are afraid that will transmit nosocomial pathogens to their family in lower percentage than younger HCWs (p-value <0.001). Additionally, they believe that patients are not at high risk of HAIs in their hospital (p-value= 0.036), while they also strongly agree that patients in ICU are more likely to be infected form HAIs than other patients (p-value <0.001).

Moreover, they reported a better knowledge of AMR & HAIs prevention's impact on patients (p-value <0.001) and they reported in higher rates that AMR is a global public health problem (p-value <0.001). Older HCWS are more informed on the

benefits of low incidence of AMR and HAIs due to MDROs (p-value =0.02, p-value <0.001), while in higher rates they also reported that IC measures implementation results in an easier and safer routine practice (p-value= 0.04) in higher percentages than the younger ones.

Older HCWS strongly believe that ICP implementation saves lives & money in higher percentages than younger HCWs (p-value <0.001). Finally, older HCWS strongly believe that HAIs infection is a potential medical error for which all are responsible in higher percentages that younger HCWs (p-value= 0.016).

9.2 By respondent's sex

Cooperation – Knowledge – Practise

Male HCWs reported in lower percentage that are informed about surveillance data of their wards (p-value= 0.040), while female HCWs reported that are more reluctant to correct their supervisors when IC measures are not applied properly than male HCWS (p-value= 0.046).

Furthermore, female HCWs disagree in higher rates regarding not performing HH due to lack of time (p-value=0.02) or that it is easier to use gloves than HH (p-value<0.001).

Finally, female HCWs reported in higher proportion that are informed for HAIs both at national & at local level as it is priority of hospital's IC policy (p-value= 0.042), while they also try harder to set an example of good IC practices to their patients as it is their responsibility (p-value <0.001).

9.3 By respondent's specialty (Doctor vs. Nurse)

Cooperation – Knowledge – Practise

Doctors are more informed regarding ICP implementation benefits (p-value<0.001). Moreover, nurses reported that ICP implementation is more often in their agenda of staff meetings than in doctor's agenda (p-value<0.001), while they also strongly agree that patient's safety is their responsibility thus they try harder to set an example of good IC practices (p-value<0.001). Nurses are afraid a nosocomial pathogen transmission to their families in higher rates than doctors (p-value= 0.003).

Doctors reported in higher percentages than nurses that do not feel being properly trained on implementing precautions (p-value= 0.030) or having an active role on ICP implementation (p-value= 0.015).

Nurses believe that guidelines are not difficult to be found when needed in higher proportion than doctors (p-value<0.001), while they also strongly agree that supervisors are the best role model regarding IC implementation (p-value<0.001). Finally, nurses reported that the unchanging attitudes of older HCWs is not one of the most important limitation of ICP implementation in lower rates that doctors (p-value<0.001).

9.4 University Hospitals -Tertiary Hospitals - Hospitals with at least one specialized ward

Commitment – Knowledge - Patient safety

HCWs in University hospitals believe that HAs are not strongly committed in ICP implementation (p-value<0.001). Moreover, they also believe of not having adequate information about surveillance data in higher proportion than their colleagues in non-University hospitals (p-value<0.001), while they also reported that it is difficult to find IC guidelines when needed in higher percentages than those in non-University hospitals (p-value<0.001).

HCWs in non-University hospitals believe that patients in ICU are more likely to be infected with a HAI in higher rates than the ones in University hospitals (p-value= 0.001), while they are more afraid of a possible transmission nosocomial pathogens to their families (p-value= 0.036).

HCWs in tertiary hospitals agree in higher proportion that appropriate materials are usually unavailable thus they don't use protective equipment (p-value= 0.014), in addition to using gloves instead of HH due to convenience (p-value= 0.014).

Moreover, HCWs in tertiary hospitals strongly believe that patients in ICU are more likely to be infected by a HAI (p-value<0.001).HCWs in tertiary hospitals also reported that are awarded in higher percentages at both national & hospital level for HAIs prevention as it is a hospital's priority (p-value<0.001). Finally, HCWs in tertiary hospitals strongly agree that participating in ICC is a motive for a stronger CV in higher rate than the rest HCWs (p-value= 0.001).

When there is specialized ward in hospital, HCWs reported that clinical impact of surveillance data is not fully taken in by healthcare professionals in higher

proportions than in those hospitals with no specialised ward (p-value<0.001), nevertheless they reported that are more informed for HAIs both at national & at local level as it is priority of hospital's IC policy (p-value= 0.01).

Furthermore, HCWs working in hospitals with specialised wards, agree in higher proportion that the unchanging attitudes of older healthcare professionals is one of the most important limitation when implementing ICP (p-value<0.001) and new staff is more likely at high risk due to lack of experience (p-value<0.001).

In hospitals with specialised wards, HCWs believe in lower rates that patients are not at high risk of HAIs in their hospital (p-value= 0.01), while they also believe in higher percentages that patients in ICU are more likely to be infected by a HAI than other patients (p-value<0.001). In addition, in hospitals with no specialised wards, HCWs are more likely to feel afraid of a possible transmission of nosocomial pathogens to their family (p-value<0.001).

10 HOSPITAL ADMINISTRATION

10.1 EDUCATION-AWARENESS

10.1.1 Aim of the survey

Informing and raising the awareness of hospitals' administration regarding Infection Control & Prevention is a crucial factor for the overall organizational culture.

The aim of this section of Survey B was to investigate:

i. Whether HAs are trained and informed by the official related stakeholders

ii. Whether HAs have understood the importance of ICP implementation in healthcare facilities as well as the AMR reduction.

iii. **Key words**: patient's safety, education, AMR, top priorities

10.1.2 Results

Almost all of the HA's (90%) reported that are informed about the importance of HAIS prevention in relation to **patient's safety** by PHA, while a lower proportion of 64% reported that have been **educated on the ICP implementation**. Nevertheless, the differences among countries should be noted, as it is shown in Figure 28.

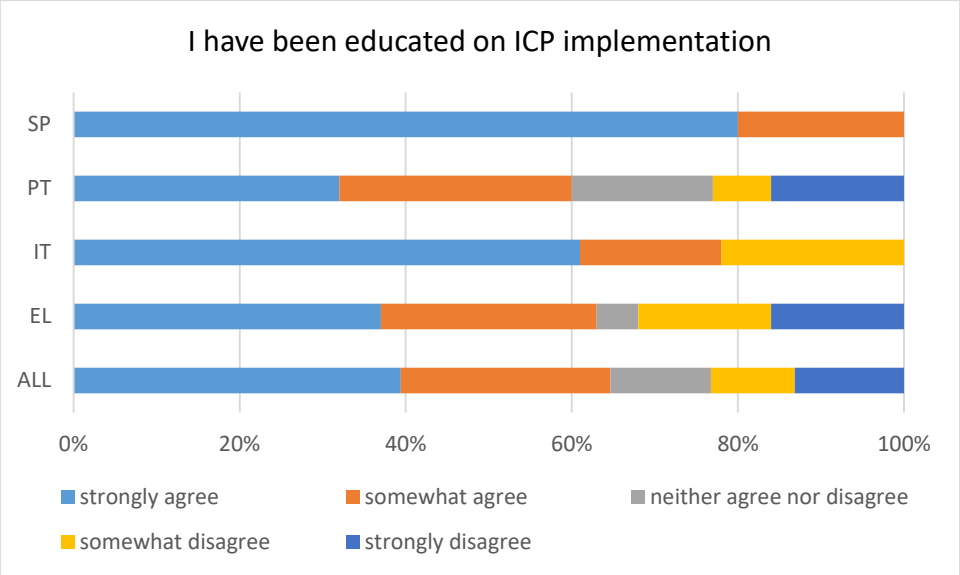

Figure 28: I have been educated on ICP implementation (Answers by HAs, overall & by country, n= 147)

The majority of the respondents (77%) do not agree with addressing **AMR as an exaggeration**, thus HAIs prevention and control are top priorities in almost all hospitals (90%).

10.2 COMMUNICATION-COOPERATION

10.2.1 Aim of the survey

Organizational culture is expressed by the dynamic cooperation and communication between interested parties with aligning goals and specific procedures. More particularly, IC in healthcare facilities requires a multidisciplinary approach, thus the cooperation between HA & ICC as well as among the hierarchy of clinical wards is a crucial factor for an effective ICP implementation.

The aim of this section of Survey B was to investigate:

i. How effectively and systematically HAs cooperate with ICCs

ii. Whether HAs cooperate directly with clinical wards' supervisor regarding IC issues and therefore expressing their commitment to ICP implementation.

iii. Whether HAs seek to contact with the healthcare personnel so as to support the ICC's activities and ICP implementation through training procedures.

Keys words: cooperation, outbreak, at least a month, supportive, ICC, wards' supervisors, training, mandatory attendance.

10.2.2 Results

Almost all HAs cooperate with ICCs when addressing **an outbreak** (94%) or at least a month so as to be updated (73%).

The vast majority (84%) reported that follow the activities of the Antimicrobial Stewardship Team and are **supportive**. 71% of respondents strongly believe that ICC has something important to report when requesting a meeting.

In the vast majority of the hospitals (80%) there is an established **intercommunication system** throughout the hospital wards.

HA consider (86%) that both the directors and the supervisors are responsible for the ICP implementation & prevention measures in clinical departments and

therefore they also cooperate with the wards' supervisors so as to promote the best IC practices (94%).

A proportion of 74% of HAs try to attend educational courses targeted to healthcare workers, even though there were differences among countries, as Figure 29 shows.

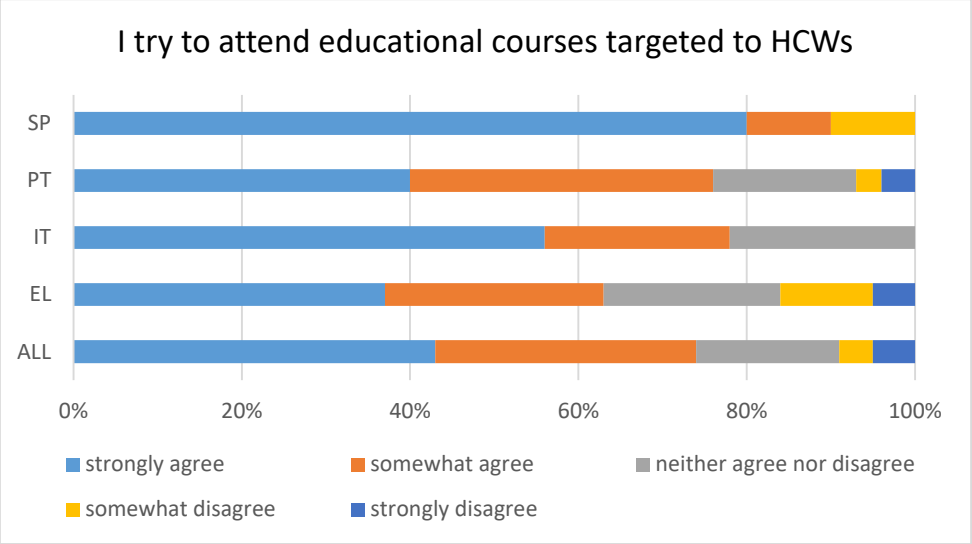

Figure 29: I try to attend educational courses targeted to Health Care Workers (Answers by HAs, overall & by country, n= 147)

The majority of HAs (84%) believe that educating HCWs in IC is their administrations' priority, even though only a low percentage of the respondents strongly agree with this, as Figure 30 depicts.

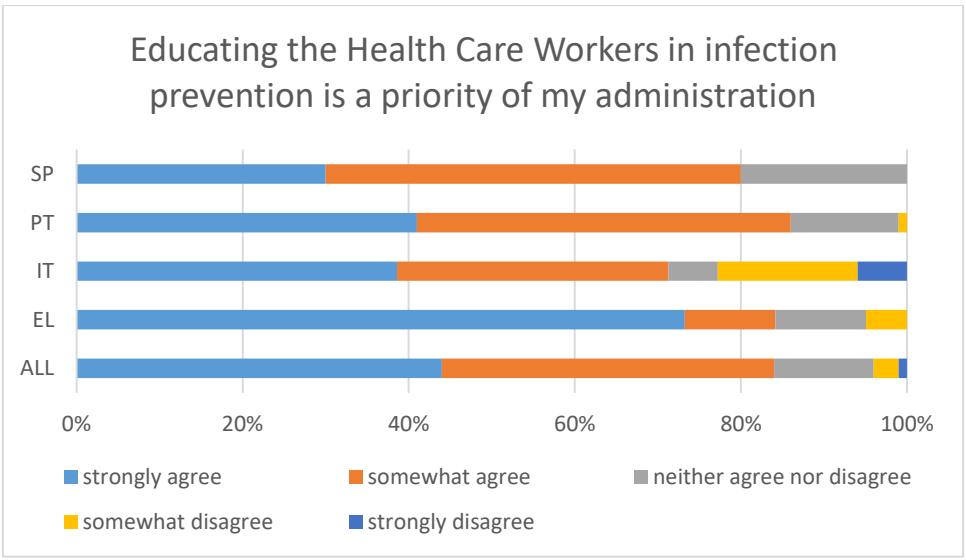

Figure 30: Educating the Health Care Workers in infection prevention is a priority of my administration (Answers by HAs, overall & by country, n= 147)

Finally, a proportion of 82% have an **annual educational program** on IC & AMR prevention stablished in their hospitals, while 41% (strongly agree) of them reported that they have a **mandatory attendance** at the training courses for all their hospitals' personnel (Figure 31).

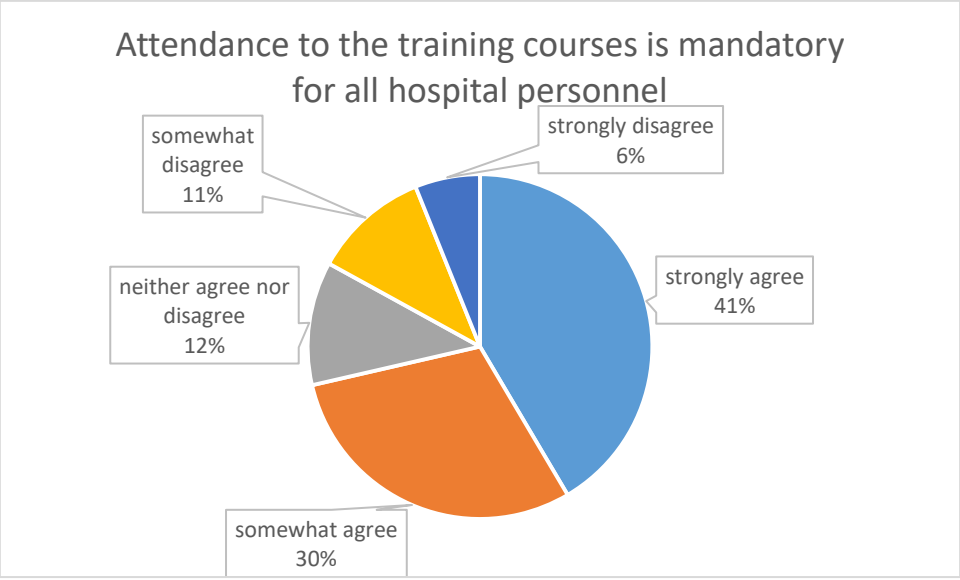

Figure 31: Attendance to the training courses is mandatory for all hospital personnel (Answers by HAs, n= 147)

10.3 SURVEILLANCE-FEEDBACK

10.3.1 Aim of the survey

Surveillance and proper feedback regarding the results is a key component for ICP for healthcare personnel. HAs should be aware of surveillance's importance as it is a crucial factor and is related with resources' allocation, continuous feedback by interested parties and development of improving interventions using the results.

The aim of this section of Survey B was to examine:

i. Whether HAs are aware regarding the epidemiological data both for their hospital and at national level.

ii. Whether HAs are informed in a systematic manner due to ICP monitoring.

iii. Whether a surveillance system is established in their hospital and used by a properly trained personnel.

iv. How basic surveillance principles are assessed, e.g. surveillance indicators and whether they are used accordingly to promote ICP implementation.

Key words: epidemiological data, surveillance system, monitoring, in crisis, wards supervisors, indicators, antimicrobial consumption, hand hygiene

10.3.2 Results

Regarding HA's awareness, only 23% of the respondents strongly agree that are adequately informed about the **epidemiological data** for HAIs & AMR at a national level, in contrast to 41% who are at their hospital, as depicted in the Figures 32 & 33.

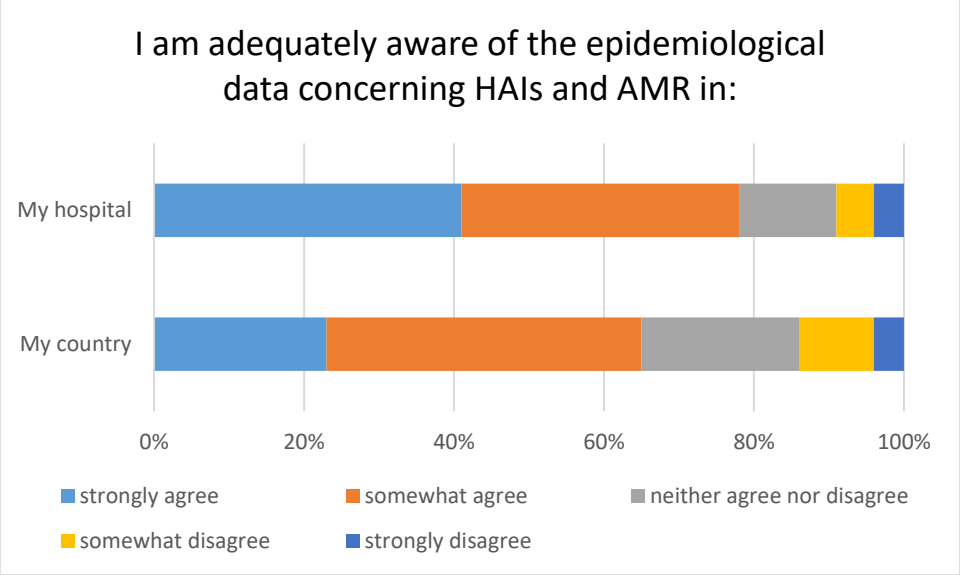

Figure 32: Awareness of the epidemiological data concerning HAIs and AMR at national & hospital level (Answers by HAs, n= 147)

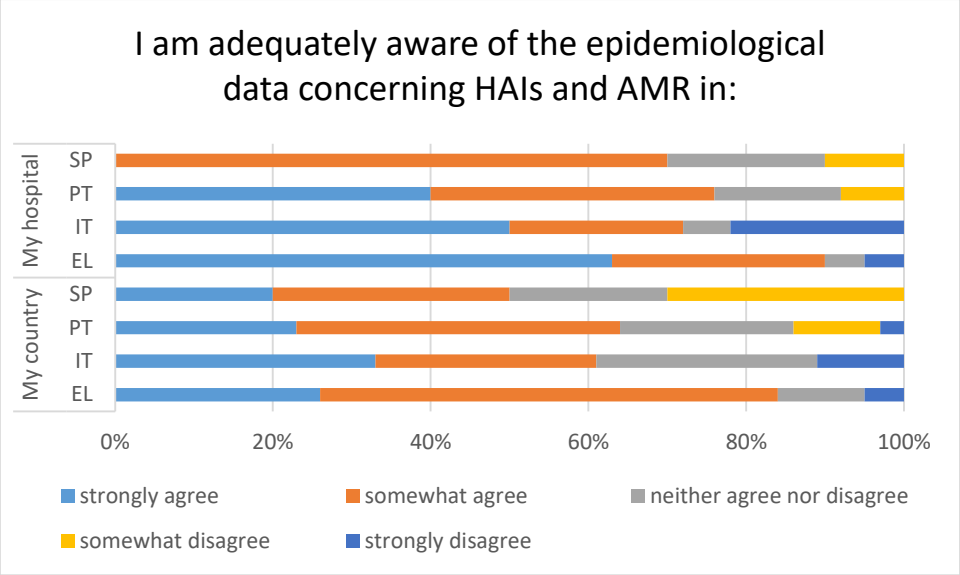

Figure 33: Awareness of the epidemiological data concerning HAIs and AMR at national & hospital level (Answers by HAs, by country, n= 147)

Moreover, the vast majority (88%) are updated on the **epidemiological data in a crisis**, while almost all of them (90%) believe that monitoring the epidemiological data for IC & AMR is an ICC's responsibility as specialized knowledge is required.

A proportion of 81% have established a surveillance system for HAIs, AMR & HH in their hospital.

More than half of the respondents (67%) consider **Antimicrobial Consumption** as the most important indicator, while 80% of them **HH compliance** measurement as the easiest one, as shown in shown in Figure 34.

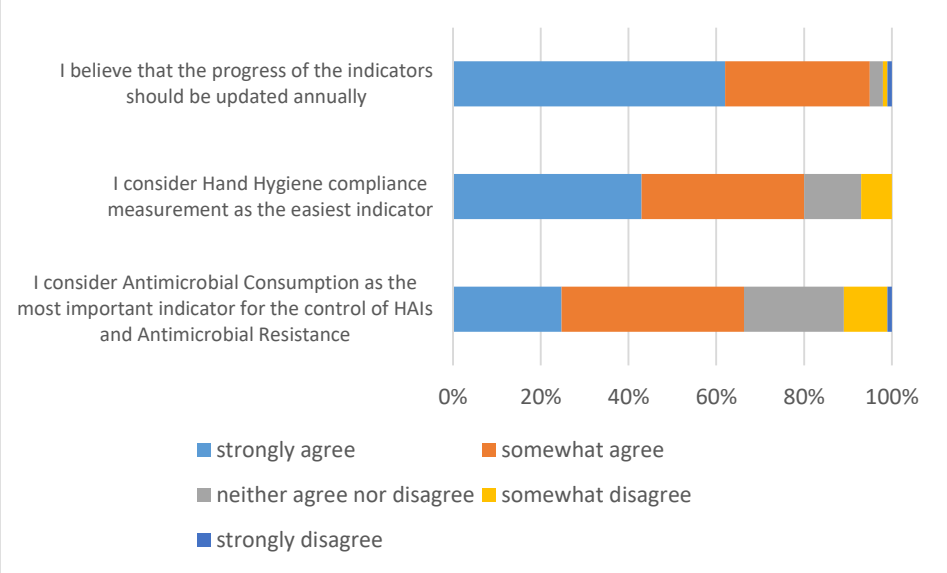

Figure 34: IC indicators (Answers by HAs, n= 147)

The vast majority of the respondents (95%) believe that the **progress of the indicators** should be updated manually and a proportion of 71% inform the wards supervisors about the surveillance result systematically, as Figure 35 depicts.

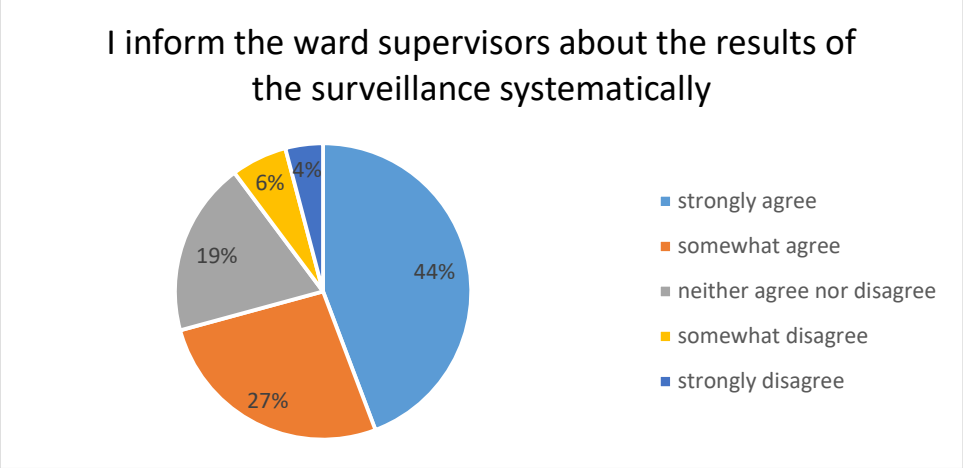

Figure 35: I inform the ward supervisors about the results of the surveillance systematically (Answers by HAs, n= 147)

10.4 PATIENT SAFETY CLIMATE-PROCEDURE IMPLEMENTATION-TEAMWORK

10.4.1 Aim of the survey

A crucial element for the organizational culture is the promotion of a safe working environment which favors the effectiveness and the efficiency of healthcare personnel. Compliance to protective measures, expression & discussion of mistakes, consulting by trained healthcare personnel and teamwork, in other words cooperation among all parties regardless of the hierarchy, are some of the elements to achieve this goal.

The aim of this section of Survey B was to examine:

i. HAs' opinion on how a safe working environment is related to the quality of healthcare services.

ii. HAs' opinion on how safe their hospital is both for the patients and the healthcare personnel.

iii. HAs' opinion on expressing and discussion of mistakes.

iv. Whether HAs feel responsible for an effective ICP implementation.

Key words: patient safety, safe work environment, medical errors, investment, ICP goals, ICC responsibility.

10.4.2 Results

A percentage of 62% of HAs strongly **prefer to be hospitalized** in their hospital, while only half of them strongly believe that the hospital personnel work in a safe environment. It should also be noted, as next Figure 36 shows, the high percentages of "Somewhat Agree". Moreover even though **safety culture** is not ease to cultivate as long term efforts are required (62%), only 55% of the respondents strongly believe that it is a priority of their administration. Only 58% strongly believe that they would feel **safe to work** in their hospital as healthcare workers.

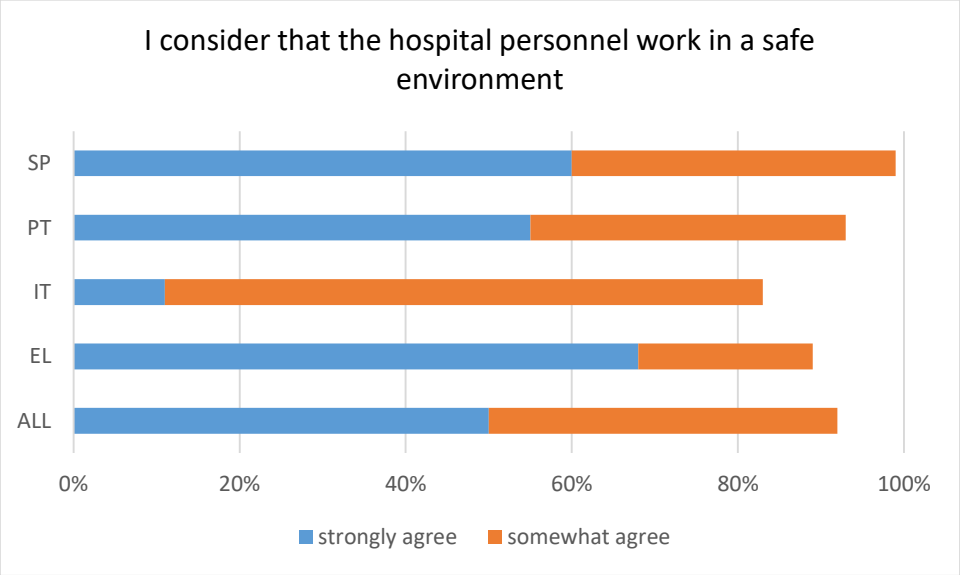

Figure 36: I consider that the hospital personnel work in a safe environment (Answers by HAs, % agreement, overall & by countries, n= 147)

The vast majority of the respondents (79%) do not believe that there are more important issues for a healthcare administration to deal with than IC and even more (90%) that HAIS prevention should be an **evaluation criterion** of the healthcare services' quality.

A proportion of 73% do not agree with ICCs being **exclusively responsible** for the personnel compliance with IC prevention measures and 44% of the HA strongly believe in **promoting interventions** to improve HH compliance as IC implementation measures is one of the main goals of the ICP (Figure 38).

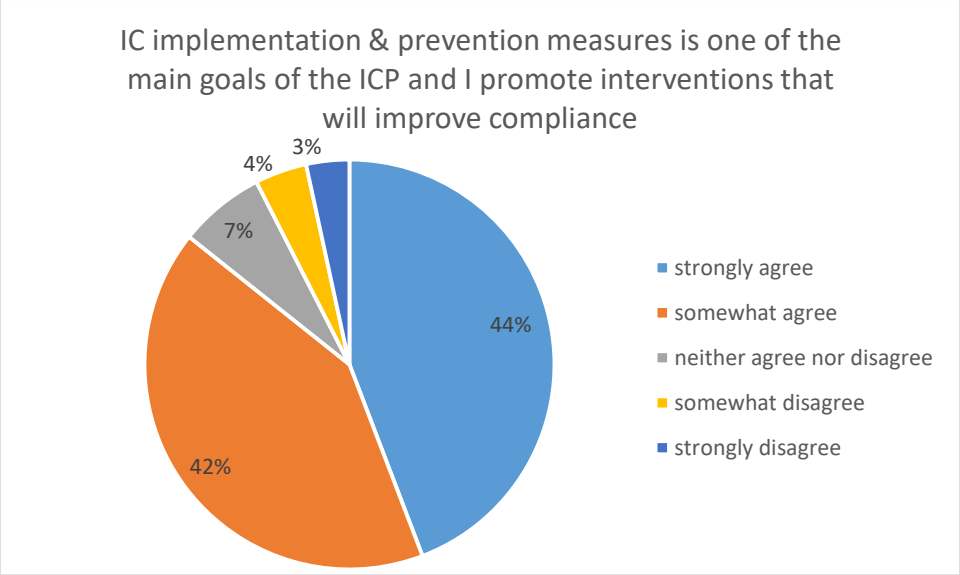

Figure 37: IC implementation & prevention measures is one of the main goals of the ICP and I promote interventions that will improve compliance (Answers by HAs, n= 147)

Finally, according to the vast majority of the HAs (86%), **medical error** reporting aims to caution health professionals against wrong treatment, while 68% believe that **error investigation** reveals pre-existing gaps in system procedures that demand administrative resolution. Results are depicted in Figure 38.

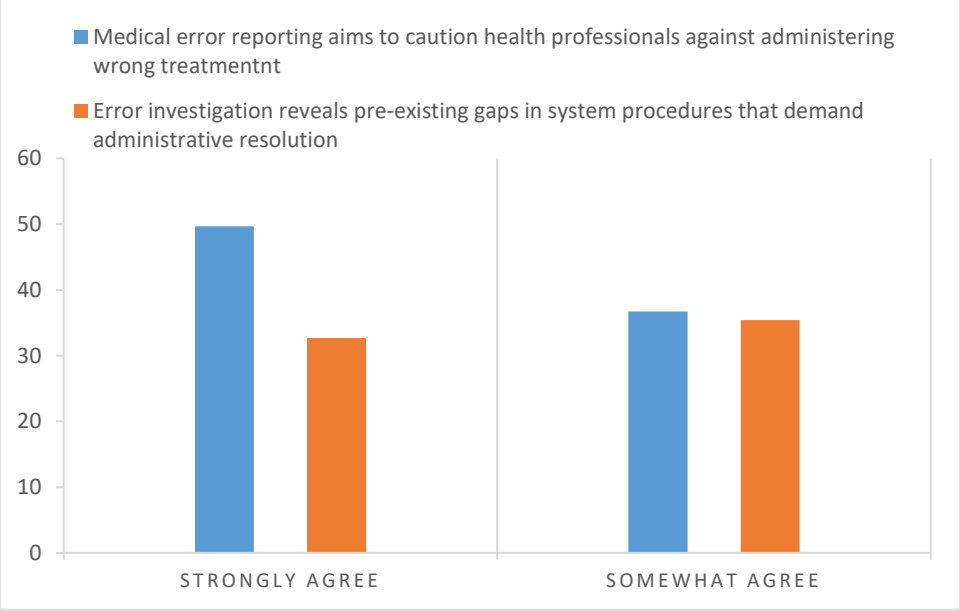

Figure 38: Medical error reporting & investigation (Answers by HAs, % agreement n= 147)

10.5 LEADERSHIP

10.5.1 Aim of the survey

Leadership at all levels is a crucial factor of an effective policy & strategy implementation. Each organization should promote leadership by motivating and choosing the proper individuals so as to inspire and become role models for the rest healthcare personnel. But firstly, HAs should lead and commit in implementing an ICP.

The aim of this section in Survey B was to examine:

i. The active commitment of HAs on ICP implementation

ii. The responsibility for the ICP implementation

Keys words: active participation, responsibility, presence, emergencies, hospital business plan

10.5.2 Results

Almost all of the respondents (88%) strongly agree that establishing an ICP in their hospitals is a direct concern for themselves and have an **active participation**.

Regarding the responsibilities of an ICP implementation, less than half (49%) reported that It is ICC's **responsibility**, instead of the HA, while 36% disagree. As Figure 39 shows, it is unclear who has the responsibility of the ICP implementation, especially regarding the HA role. This also seems to be proven as the majority of the respondent (57%) do not agree in having ICC the **sole responsible** of IC and AMR.

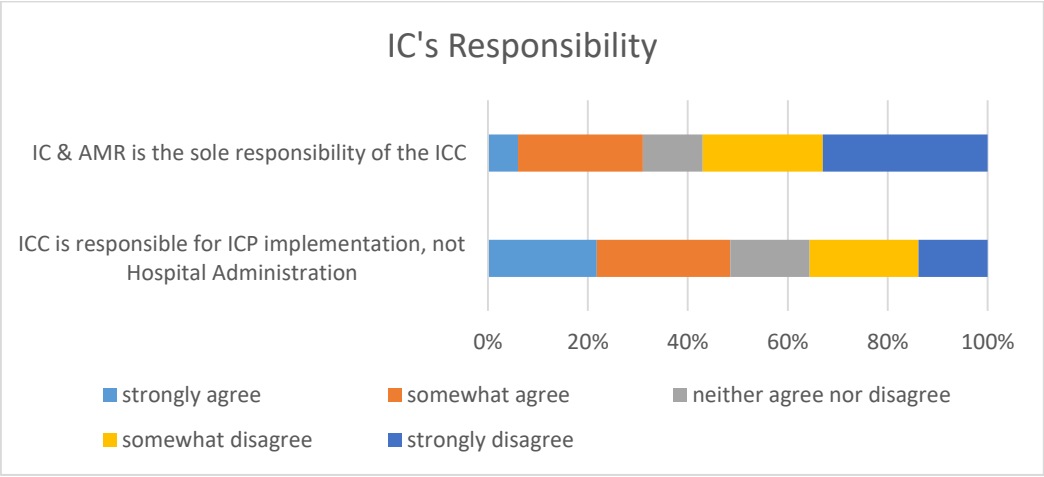

Figure 39: IC's responsibility (Answers by HAs, n= 147)

The vast majority (83%) of the respondents believe that **their presence** in activities coordinated by ICCs is important to healthcare workers.

Moreover, additionally to the above, a proportion of 88% disagree with being **informed only about** emergencies as it is necessary to be fully aware of the progress of ICP implementation in their hospital.

Finally, the vast majority (90%) reported that ICP should be included in hospital's **business plan.**

10.6 PROPER RESOURCE MANAGEMENT-PRIORITIZATION OF NEEDS

10.6.1 Aim of the survey

The cost- benefit of HAIs prevention activities is an area of concern for all healthcare systems, and especially HAs who are responsible for the allocation of financial resources of their facilities. Nevertheless, HAIs' costs is a quite complex issue which usually is not regarded by HAS resulting in misunderstanding the importance and leading to inadequate ICP funding.

The aim of this section of Survey B was to examine:

i. HAs' knowledge on the potential economic benefits of ICP implementation

ii. HAs' knowledge on the ICP implementation cost

iii. Activities implemented in their hospitals

Key words: patient's safety, availability of the healthcare facility, cost of training, new techniques, profitable investment, benefit of an ICP, cost of ICP, substantial resources, Risk Assessment, financial resources

10.6.2 Results

Only half of the respondents (49%) believe that Infection prevention is essential both for patient's safety & survival, but also for the availability of the healthcare facility, in contrast to a proportion of 37% who disagree, as it shown in Figure 40.

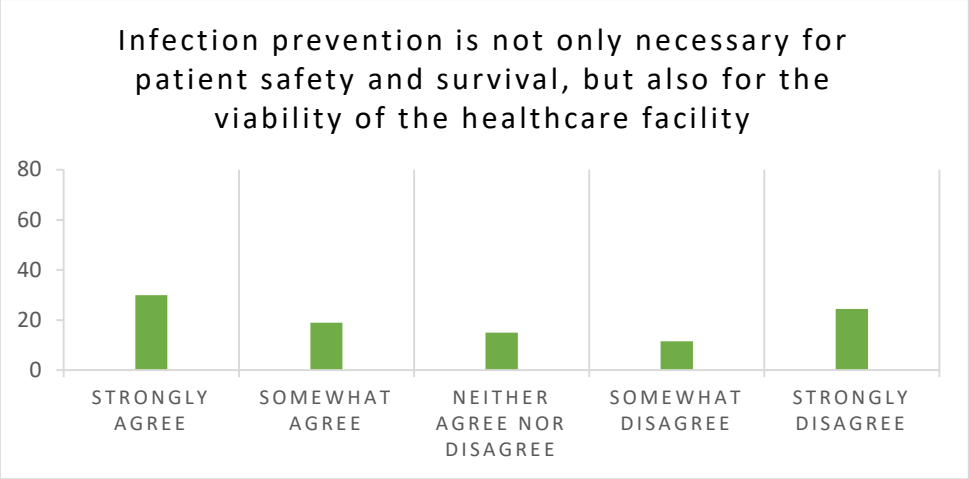

Figure 40: Infection prevention is not only necessary for patient safety and survival, but also for the viability of the healthcare facility (Answers by HAs, n= 147)

Even though 86% of the HA argue that it is imperative that economic decisions are made regarding **IC activities' funding,** only 51% claim that a percentage of hospital's annual budget is allocated to ICP activities (31% neither agree nor disagree), which is depicted in Figure 41.

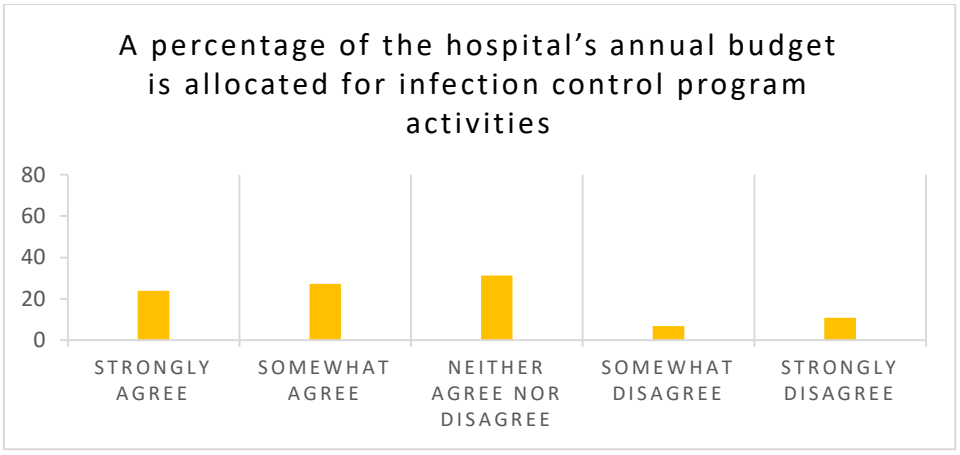

Figure 41: A percentage of the hospital's annual budget is allocated for infection control program activities (Answers by HAs, n= 147)

A proportion of 75% reported that the **cost of training is** part of the ICP. Moreover regarding the resources' management plan, 69% of HAs reported that there is a **close cooperation with ICCs.**

More than half (59%) are constantly updated on **novel techniques** and/or technology and how they can be implemented in a cost-benefit manner, regardless of a proportion of 25% who neither agree nor disagree.

Furthermore, HAs (71%) believe that ICP is a **profitable investment** with output in a short period of time, while a percentage of 38% disagree that ICP should yield

more profit than its funding cost. Even though the vast majority (82%) argue that the **benefit of ICP** can arise from results, damage limitation and cost avoidance, only 38% reported that ICP benefit can arise from saving financial resources from prevention and a different allocation. Results are shown in Figure 42.

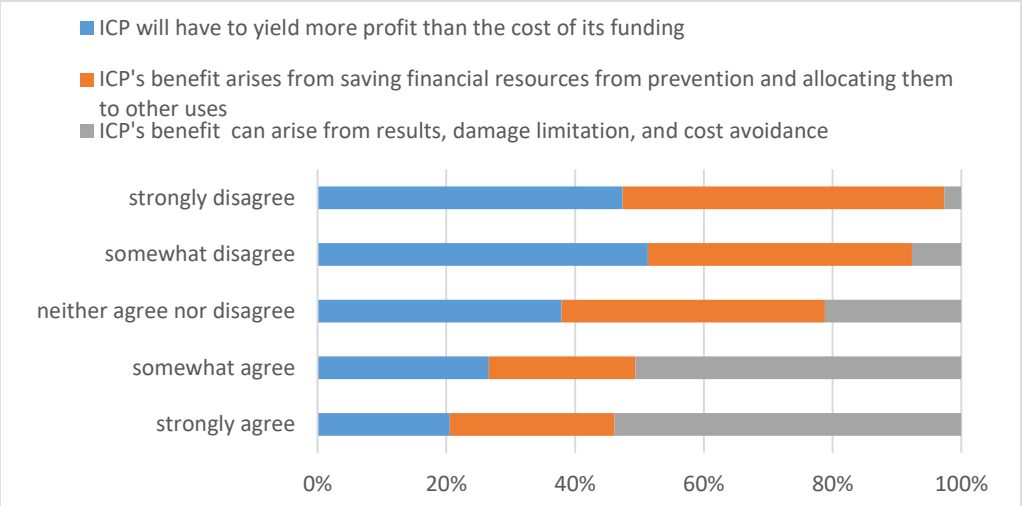

Figure 42: ICP's Profit (Answers by HAs, n= 147)

These results could possibly be explained by the fact that the majority of HAs do not calculate the current ICP cost implementation in their hospitals, as it is depicted in the following Figure 43.

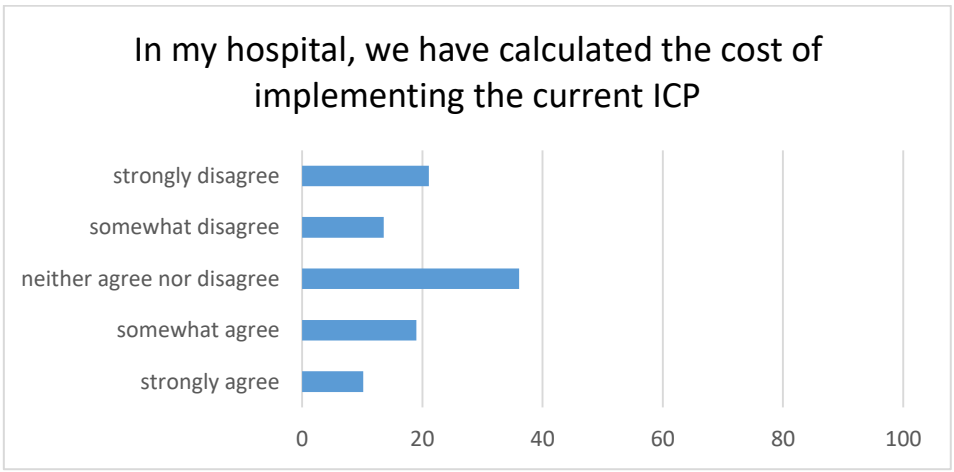

Figure 43: In my hospital, we have calculated the cost of implementing the current ICP (Answers by HAs, n= 147)

Regarding the resources, almost half of the respondents (48%) agree that **substantial resources** are not required for an effective ICP implementation, provided that healthcare workers comply with the appropriate medical practices (37% disagree), while a proportion of 41% reported that **ensuring financial resources** is not the most important factor (27% neither agree nor disagree), as shown in Figure 44.

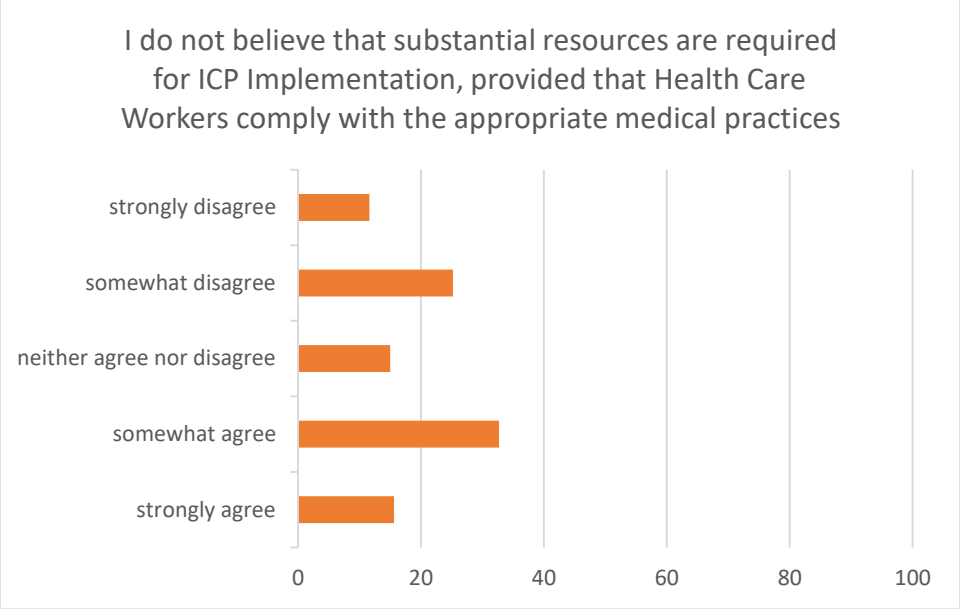

Figure 44: I do not believe that substantial resources are required for ICP Implementation, provided that Health Care Workers comply with the appropriate medical practices (Answers by HAs, n= 147)

Moreover, 78% of HA argue that the **sufficiency and quality of the consumables** are basic components in an ICP, while 62% reported that a **software program** for the systematic surveillance of microorganisms in laboratories is money worth spending (25% neither agree nor disagree).

The majority of the HAs (80%) disagree with the unnecessity of Risk Assessment for HAIs, while 41% of them do not agree or disagree on whether the cost of HAIs can easily calculated using **pricing practices** (Figure 45).

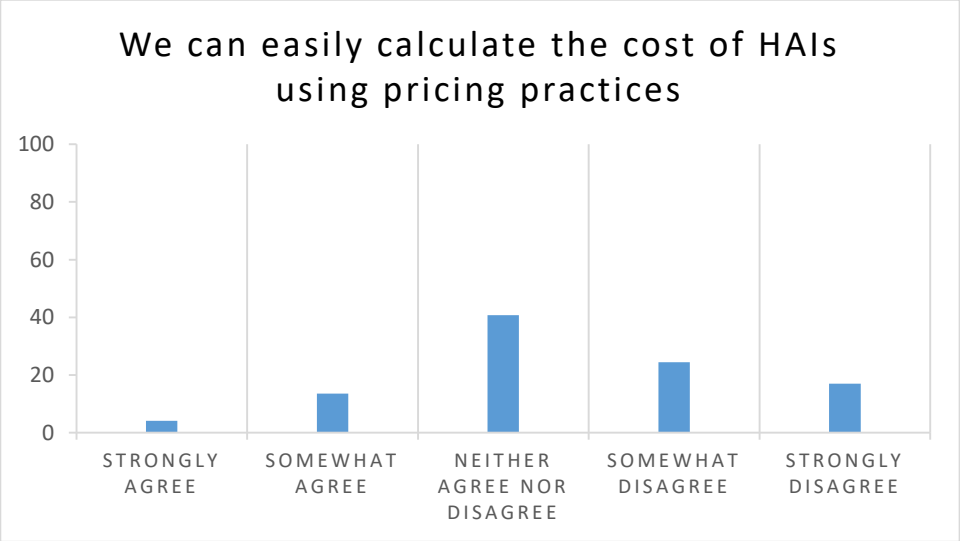

Figure 45: We can easily calculate the cost of HAIs using pricing practices (Answers by HAs, n= 147)

Finally, HAs in a proportion of 81% believe that Infection prevention leads to fewer days of hospitalization and **more liquidity** from the variable cost that was saved.

Table 10. Results related to resources management (Answers by HAs n=147, % agreement)

Objective 1. HAs' knowledge on the potential economic benefits of ICP implementation	
Domains	**Agreement (%)**
Infection prevention is essential both for patient's safety but also for the availability of the healthcare facility	49%
It is imperative that economic decisions are made regarding the funding of the IC activities	86%
ICPs are a profitable investment whose output can be visible in a rather short period of time	72%
An infection control program will have to yield more profit than the cost of its funding	37%
The benefit of an infection control program can arise from results, damage limitation, and cost avoidance	82%
The benefit of ICPs arises from saving financial resources from prevention and allocating them to other uses	38%
Ensuring financial resources is the most important factor for the implementation of an effective program	33%
The sufficiency and quality of the consumables are basic factors in an infection control program	78%
I do not believe that substantial resources are required for ICP Implementation, provided that HCWs comply with the appropriate medical practices	48%
It is well worth spending money on a software program for the	62%

systematic surveillance of microorganisms in laboratories	
Infection prevention leads to fewer days of hospitalization and more liquidity from the variable cost that was saved	80%
We cannot easily calculate the cost of HAIs using pricing practices	42%
Risk Assessment is necessary for HAIs prevention	80%
Objective 2. Activities implemented in their hospitals	
Domains	**Agreement (%)**
In my hospital, we have calculated the cost of current ICP implementation	29%
A percentage of the hospital's annual budget is allocated for ICP activities	51%
The cost of training is part of ICP	75%
The resources management for Infection Prevention is done in close cooperation with the ICC of my hospital	69%
I am constantly updated on novel techniques and/or technology and the cost-benefit of their implementation	59%
An ICP must be addressed as one of the business plans of my hospital	90%

The first part's outcomes of Survey B depict that HAs are adequately aware of the effective ICP implementation's cost benefits, despite most of them not being properly informed regarding ICP on the whole. This is also reported by the second part of Survey B, as while for most of them IC is included in their responsibilities (90%), only half of them include IC in hospital's budget, not to mention that an even lower percentage (29%) has calculated the IC's cost in their hospital. The issue of IC's cost is an essential topic to be managed by HAs, as without a calculated budget and plan, the economic benefits of IC cannot be perceived.

11 CONCLUSIONS & AREAS FOR IMPROVEMENT

11.1 ICCs & Healthcare Personnel

PERCEIVED BARRIERS TO TAKING ACTIONS

Survey B has emphasized the factors linked to structure and policy of the organization, and, to a different degree, each of them has a detrimental effect on the ICC's actions and the compliance of the HCWs.

Duties & Responsibilities: Investigating ICCs' behaviour has highlighted that lack of certainty that their role and responsibilities are well defined and recognized. Despite the fact ICC's duties are heavily dependent on each country's legislative framework, it should be well determined and supported by HA so as to be accepted by the rest of health professionals. Moreover, this Survey has additionally highlighted the problem of non-exclusive employment of ICC members on IC, as already discussed also in Survey A.

Resources' Sufficiency: While ICCs believe that ineffective ICP implementation is mainly due to insufficient resources and less to lack of awareness, HCWs regarding HH implementation and contact precautions do not believe that poor compliance is due to workload, inadequate training or insufficient materials.

The need for resources for ICP implementation is based on the assessment of specialised personnel and is perfectly to the point, while the fact that according to HCWs, their personal responsibility is independent by any external factors, is a crucial point proven by this Survey. These factors have been studied a lot especially regarding HH compliance and usually are the main excuses by HCWs for poor compliance. This conclusion is crucial as it leads to focusing on other factors which will strengthen the daily clinical practise of HCWs.

Training: A significant percentage of ICCs' reported that have no certified training, while a lower proportion of HCWs do not consider themselves trained adequately so as to implement precautions measures which are the most important evidence based IC practice for the protection of patients and HCWs. Therefore the training of HCWs has to be focused on these main measures of IC, which is usually regarded as common knowledge.

Hierarchy's role: Hierarchy's role is a key factor on ICP implementation as it is directly connected to HCWs' daily practice as both ICCs & HCWs agree. Besides this, having an interactive relationship between the responsible ones and HCWs is

also essential, thus HCWs argue that they do correct their supervisors when not apply the IC measures properly, nevertheless, due to cultural differences, contrasts among countries were noted. These differences are an inhibiting factor for the upcoming changes. The adherence of junior practitioners improved under the supervision of adherent role models and supervisors must be an objective of all the awareness and training interventions.

Administration's role: Regarding HAs' support, both ICCs and HCWs believe that they could be more supportive of ICC activities and committed in HAIs and AMR prevention. HAs have a primary role in formulating organization's culture, as described in all guidelines. Their training is not only essential but it should be on multiple levels so as to comprehend the importance of IC and to actively participate and commit to the ICP implementation.

Audit implementation: The difficulty of implementing audit procedures was emerged also in this section, despite HAs' belief regarding their undeniable value in implementing ICP effectively. Using audit tools in daily to prevent HAIs and supporting HCWs by its feedback has been evaluated by several studies (18, 19), therefore half of the respondents agreed that audit is not impossible to be performed in daily practice. Nevertheless, difficulties in its implementation should be further investigated.

PERCEIVED SUSCEPTIBILITY

Raising awareness about possible risks of HAIs transmission is a strong motive for ICP implementation.

Safe clinical practice: While almost all of respondents (ICCs & HCWs) reported that both they and their patients are safe in their hospitals, a significant proportion of them are afraid of a possible nosocomial pathogen transmission to their families, and argued that the IC measures can't be implemented in their wards so they feel insecure for their practices. These statements proved the necessity for a training focused on the primary IC principles and for a safer work environment as it is mentioned next.

The role of the surveillance: The majority of the respondents reported that some of the personnel cannot fully understand the clinical impact of the surveillance data resulting in inability to perform the appropriate measures. This outcome is crucial as it is well known that HCWs' understanding of surveillance data results in raising awareness & improving their practices.

Patient at higher risk: More than half of the respondents reported that patients in their hospitals are at high risk of HAIs. The response of HCWs is in contrast with those of ICCs & HAs. This is an additional component which proves the unsafe environment into HCWS have to practice.

Personnel at higher risk: Less than half of HCWs believe that new professionals run the highest risk due to lack of experience and support, even though ICCs agree in a higher rate, while more than half reported that oldest staff members have a low compliance to IC measures due to their difficulty in changing their attitudes. Training of new personnel results in increasing compliance of older personnel, whose behaviour change is more challenging.

CUES TO ACTION

According to the recent WHO Guidelines, an effective ICP implementation requires an appropriate working environment. The outcomes of Survey B depict not only the agreement between ICCs & HCWs in factors related to such environment for IC promotion but also areas of improvement.

Teamwork. One of the basic elements of a safe working environment is promoting teamwork both during work and when sharing responsibilities. Especially in ICP implementation, each healthcare personnel constitutes a link of a broaden chain, while teamwork results in promoting the active participation of HCWs in IC activities. The vast majority of the respondents put all their efforts in keeping healthcare quality in their ward at a high level as they recognise it is a team work, while also believing that patients' safety is their responsibility therefore act as an example of good IC practices to their colleagues.

Risk Management. One of the most important features of the organization's culture is the ability to recognize and investigate *healthcare* associated errors. Errors in medicine have to be seen as a dimension of quality of care and organizational performance. Health care-associated infections, or infections acquired in health-care settings are the most frequent adverse event in health-care delivery worldwide which are preventable and directly associate to patient safety.

Wherever patient care is provided, adherence to infection prevention guidelines is needed to ensure that all care is safe care. An effective response to harm must be based on appropriate training of personnel, consulted by specialized personnel & the ability of expression and discussion of their mistakes. The contribution of

supervisor in assessment of HCWs practices is a crucial importance issue therefore they have to be awarded and trained.

The majority of the respondents agree to the above mentioned statements. Nevertheless regarding the procedures into their clinical department less than the half of the HCWs reported that IC implementation is included in the agenda of staff meetings in their ward and only 60% of the respondents answered that staff expression of their mistakes is being promoted in their departments in daily routine.

Cooperation with different parties. Cooperation among all interested parties develops a safer climate to express and improve practices. Commitment to patient's safety by senior staff is important so as to lead the healthcare facility towards achieving patient's safety goals.

- ✓ **Supervisors** More than half of HCWs reported that consider their supervisor as the best role model among the staff regarding IC implementation. ICCs & HCWs believe that due to the significance of their role, they should also be educated to ICP implementation.
- ✓ **Administration:** Having HAIs prevention as a priority of the hospital's IC policy is also crucial for an effective ICP implementation.
- ✓ **PHA:** Close cooperation between PHA and ICCs & HCWs, in particularly when facing a crisis, as well as their participation in national's policy goals, result in creating a safe environment.

PERCEIVED SEVERITY

Recognizing the serious impact of HAIS by the participants of Survey B in patients' outcome and in AMR at national level is essential as it results in active participation and improved compliance. Furthermore, another crucial aspect, was the recognition of the value of guidelines' implementation, regarding theirs and their patients' safety, an issue that training should focused on. Nevertheless, an effective ICP implementation is also heavily dependent on HAs' support and commitment.

Importance of HAIs prevention: Almost all of the respondents believe that IC and prevention should be a criterion in assessing the quality of healthcare services and HA's commitment to IC implementation should be strong and active.

AMR as a global public health issue: Almost all the respondents argue that AMR is a global public health problem and also according to HCWs, global mobilization for AMR combat is not excessive.

Importance of evidence based practices: Almost all of HCWs argue that the adherence with the guidelines is the most effective way to protect their safety as well as their patients'.

PERCEIVED BENEFITS ON TAKING ACTIONS

Understanding the benefits of implementing precautious, could be an essential incentive for the personnel to increase their compliance to them, therefore expanding their value to patients, personnel and hospital. Evidence- based practice has proved that precaution measures can protect both patients and HCWs against an exposure to pathogenic microorganisms, when properly applied. Findings of Survey B showed that these benefits are recognized by all parties.

Impact of HH implementation: Both ICCs and healthcare workers reported that HH is the most effective IC measure and should be the core of an ICP, while high staff compliance with the IC measures results in less patients with the risk of a HAI.

Impact of AMR control: Moreover, they reported that having low AMR rates results in having more effective antimicrobials available for HAIs' treatments and IC measures' implementation results in an easier & safer routine practice.

Impact of ICP implementation: Finally, the majority agrees with the statement "The implementation of an IC program saves lives & money" but does not share the view that only ICC members are really committed to IC program implementation.

11.2 Hospital Administrators

EDUCATION-AWARENESS

Almost all of HAs, despite being informed about the importance of HAIs prevention in relation to patient's safety by PHA resulting in having HAIs prevention and control top priorities in almost all hospitals. It is important to be noted that nonetheless, only some of them have been educated on the ICP implementation. A holistic approach is required so as HAs understand the concept of ICP implementation, since hospital's policy and resources management are their responsibility, therefore, being properly informed should not be their own initiative.

COMMUNICATION-COOPERATION

Hospital Administrators seem to recognize the importance of Institutional bodies' work and cooperate with clinical department hierarchy considered responsible for the ICP implementation. HAs participating in training & awareness meetings aims to actively promote ICP and to communicate with HCWs. Even though a significant percentage reported that tries to attend these meetings, differences among countries were noted. On the other hand, while almost all regard personnel's training as a priority, only in a small proportion is mandatory in their hospitals.

SURVEILLANCE-FEEDBACK

The majority of HAs are adequately informed about the epidemiological data regarding HAIs & AMR in a higher percentage for their hospital than for their country. More particularly, even though those who strongly believe that are adequately informed about data in their country, the percentage still remains low, depicting the need for reinforcing HAs' information on national epidemiological data and consequently on national's policy goals. Moreover, it should also be noted the transfer of responsibility from HAs to ICCs, as according to them, data monitoring is ICC's responsibility due to specialized knowledge required.

Being inadequately informed regarding epidemiological data is also apparent from classifying consumption of antibiotics as the most important indicator by HAs, perhaps due to being linked to a measured direct hospital's cost, which does not apply for other indicators associated with HAIs' prevention.

Nevertheless, the acceptance of HH compliance as the most easily measured indicator, also concludes in not understanding in depth the complexity of the most important IC measure, which could be avoided if being trained or participating more actively in ICP implementation.

PATIENT's SAFETY CLIMATE-PROCEDURE IMPLEMENTATION-TEAMWORK

HAs' percentages of strongly agreement on questions regarding the safety of personnel and patients was not as high as expected (just above 50%). These outcomes should be taken into serious consideration as they depict doubt or unawareness by HAs for the implemented activities in their hospitals. The same applies for questions regarding errors' investigation & expression related to patients' care, which are factors linked not only to patients' safety, but also to quality of healthcare's service.

LEADERSHIP

Regardless of the fact that HAs responded positively in all activities supporting their leading role in ICP implementation, when choosing who is responsible for the ICP implementation, them or ICCs, the answers were inconclusive. Questions regarding ICP implementation's responsibility is deliberately repeated several times in both Surveys and addressed to all 3 target groups. Leadership is not just a role, but an active contribution that can inspire and promote motivation especially when is addressed by organization's hierarchy. The outcomes by HCWs and ICCs show that HAs' leadership regarding ICP implementation is not sufficient.

PROPER RESOURCE MANAGEMENT-PRIORITIZATION OF NEEDS

Results show that HAs do not realize that IC's costs are so high that in some cases the viability of healthcare settings is threatened, while these resources could be allocated to other underfunded needs. In should also be noted the certain infections categories are considered predictable events in some healthcare systems, thus healthcare settings are not compensated by the insurance institutions. Moreover, currently, in the majority of national healthcare systems there is no direct allocated national budget to hospitals for ICP implementation, even though it is required for the effectiveness of the implementation. This is also confirmed by the vast majority of the respondents who also reported this need.

Contrary to what the majority of HAs reported, ICPs do cost, while the economic benefits require a period of time to be observed, and are the outcomes of positive clinical results, reduction of losses and costs' avoidance.

Moreover, even though ICP cost has not been evaluated in most hospitals, only 37% believe that the benefit from such an investment is higher than the cost of the investment itself. Nevertheless, increased economic benefits arise in each case, and even without taking into account, the opportunity cost, that is, the marginal number of days of hospitalization and a more useful allocation of resources. It should also be mentioned that on average, IC cost is 4.6 times less than the average annual their treatment costs.

More than half of the respondents, reported that IC's costs could be estimated by accounting practices. In reality, however, it is only an estimation of the cost for an average day of hospitalization. Even though it is a fact that ICP programs focused on well-established, evidence- based practices and have positive outcomes for

patients, less than half of HAs believe that securing financial resources is the most important factor for an effective ICP implementation.

HAs reported that decreased budget regarding personnel's' training, staff resources, updated equipment & software programs, risk assessment studies, results in limiting their ability on implementing ICPs. Nevertheless, it is important to mention that the vast majority of HAs recognise that IC requires available and good quality supplies.

Table 11. Findings and Areas of Improvement

DOMAINS	FINDINGS & AREAS FOR IMPROVEMENT
AUTHORITIES & ROLES	HAs' role and responsibility regarding ICP implementation must be determined and assessed by PHA. ICCs' duties have to be determined as also their authorities and their framework. Their work has to be supported and assessed by the organization. Hierarchy's role of clinical departments is essential. It should be more formally defined and involved in the responsibility of ICP implementation. This emerged in all thematic areas of Survey B.
SAFETY-RISK MANAGEMENT	The environment of an ICP implementation should be appropriate, promote collaborations, teamwork, appropriate training and the management of mistakes. Its development should connected with patient's safety. Survey's outcomes show that significant improvements could be achieved in this field.
AWARENESS	HCWs' & ICCs' awareness according to Survey's outcomes is quite substantial and this is a promising message. HAs seem to be sensitized, nevertheless without

	dealing with the same seriousness as a matter of substance.
TRAINING-GUIDELINES	HAs: training on multiple levels and also covering the economic sector ICCs: specialised & certified training of their members Clinic department supervisors: training on their role in protective measures compliance Healthcare Professionals: training on the basic IC, particularly to the new HCWs
LEADERSHIP	ICP's implementation accountability should be of ICCs but as well as HAs, who should take the lead role with an active participation in activities.
RESOURCES	ICP implementation requires the minimum necessary resources to be provided by hospital's budget.
SURVEILLANCE-AUDIT	Surveillance's data should be attributed to the HCWs in a manner of being able to understand their importance in clinical practice. Auditing needs feasible applications and tools in clinical practice

11.3 Hierarchy of Interventions for ICP Implementation's Improvement

Survey B also focused on what each target group separately believe as the most important step in order to improve the ICP implementation. As Table 12 depict, for all 3 parties **Practical National Guidelines** was the top priority, followed **by HCWs Training Improvement** for both HCWs and ICCs. More particularly, when data analysed only by the first choice of each participant, full agreement between HCWs & ICCs is noted, while all 3 parties agreed only on the first choice which is Practical National Guidelines and Resources/Cost Assessment as forth choice, as Table 12 shows.

Table 12. Which of the following measures do you consider as important steps for the improvement of the ICP implementation in your hospital? **(Order by what each participant reported ONLY as priority N°1**, highlighted when at least 2 groups agree, darker shade for agreement of all 3 target groups)

HCW	ICC	HA
Practical National Guidelines	Practical National Guidelines	Practical National Guidelines
HCWs Training Improvement	HCWs Training Improvement	Institutional Framework / Roles And Authorities
Institutional Framework / Roles And Authorities	Institutional Framework / Roles And Authorities	HCWs Training Improvement
Resources/Cost Assessment	Resources/Cost Assessment	Resources/Cost Assessment
Support ICC & IC Nurse Role	Support ICC & IC Nurse Role	Surveillance - Feedback Improvement
Support from PHA	Support from PHA	Evaluation Of Interventions
Evaluation Of Interventions	Evaluation Of Interventions	Support ICC & IC Nurse Role
Surveillance - Feedback Improvement	Surveillance -Feedback Improvement	Support from PHA

The findings from Survey A & B will be evaluated in order to develop the **Universal Infection Control Framework (UICF).**

UICF will include specific roles, priorities, resources and interventions for the implementation of an IC plan in healthcare settings.

It is recommended that all countries could take advantage of these results and the UICFW implementation so as to improve their capability to develop HCAIs prevention policies both at local and national level.

12 APPENDIX

A. Questionnaire for HCWs

- Perceived barriers to taking action

1. I don't feel that I am properly trained on the implementation of the precautions.
2. I am not sure if my practice on infection control measures is adequate.
3. I am reluctant to correct my supervisors if they don't apply the infection control measures properly.
4. Sometimes I am confused because the practice in my ward is different from the Infection Control Committees' (ICCs) recommendations.
5. I don't have the adequate information about the surveillance data of my ward.
6. The clinical impact of the surveillance data is not fully taken in by health professionals.
7. I feel that I do not have an active role on the implementation of the infection control program in my ward.
8. I feel that the hospital administration is not strongly committed in Healthcare Associated Infections and Antimicrobial Resistance prevention.
9. I am not informed of the infection control policy that is being implemented in the hospital.
10. I forget to perform the hand hygiene because of lack of time.
11. I don't use the protective equipment because the appropriate materials are not usually available.
12. It is easier to use gloves than to perform hand hygiene.
13. I believe that one of the most important limitations on the IC implementation is the unchanging attitudes of the older health professionals.
14. The audit to HAIs care bundles is absolutely necessary but it is impossible to be performed in clinical practice.
15. In the hospital I work there are guidelines for all the procedures but I cannot easily find them when I need them.

- Cues to action

16. The best way to understand my false practices is to be trained on my field of work.
17. My supervisor is the best role model among the staff regarding the IC implementation.
18. I am awarded for the Healthcare Associated Infections prevention both at national and hospital level because it's a priority of the hospital's infection control policy.
19. The infection control implementation is always in the agenda of the staff meetings in my ward.
20. I cooperate with the ICC because its interventions are highly significant for the hospital

21. I feel safe to work in my ward because I discuss all my considerations with dedicated professionals
22. I try to do the best I can because all my colleagues try to keep the health care quality in the ward at a high level
23. I try to set an example of good IC practices to my colleagues because patient safety is our responsibility

- Perceived susceptibility

24. I feel unsecure about my knowledge of nosocomial pathogens transmission
25. I am afraid that I will be infected by a nosocomial pathogen because I feel insecure about my knowledge of when and how I should take the infection control precautions
26. I feel safe to work in this hospital
27. I do not often feel secure about my practices because infection control guidelines cannot be implemented in my ward
28. I believe that patients in this hospital are not at high risk of HAIs
29. Patients in the ICU are more likely to be infected from HAIs than patients in other wards
30. I am afraid that I will transmit nosocomial pathogens to my family
31. I believe that the new staff run the highest risk because of the lack of experience and support

- Perceived severity

32. I believe that I have understood the impact of Antimicrobial Resistance and Health Associated Infections prevention on patients' safety.
33. I believe that the Infection control and prevention should be a criterion in assessing the quality of health care services.
34. I believe that the Antimicrobial Resistance is a global public health problem.
35. I am strongly committed to the implementation of hand hygiene.
36. I believe that Healthcare Associated Infection acquisition is a potential medical error for which we are all responsible.
37. I believe that the global mobilization for the combat of Antimicrobial Resistance is excessive.

- Perceived benefits of taking action

38. Hand hygiene is the most important infection control measure for the patient safety.
39. "The implementation of an infection control program saves lives and money" is a fully acceptable statement to our hospital administration.
40. Low incidence of Healthcare Associated Infections due to Multi-Drug Resistant Organisms means less workload and better function of the ward.
41. High staff compliance with the IC measures means that fewer patients run the risk of a Healthcare Associated Infection.

42. Low Antimicrobial Resistance rates mean more effective antimicrobials available for the Healthcare Associated Infection treatment
43. Adherence to the guidelines is the only way to protect the patients and myself
44. The implementation of the infection control measures makes my routine practice easier and safer
45. It is important to be the liaison for the infection control in my ward because the infection control activities make my CV stronger

- Areas of improvement

46. Which of the following measures do you consider as important steps for the improvement of the implementation of the infection control program in your hospital (practical national guidelines, institutional framework / roles and authorities, support from PHA resources – cost assessment, support to ICCs, HCWs training, surveillance - feedback, audit evaluation of interventions)

B. Questionnaire for ICCs

- Perceived barriers to taking action

1. I believe that the role/authorities of the ICC are not well defined
2. I believe that the importance of the role of the ICC is not highly recognized by the health professionals in my hospital
3. I am not working full time on the infection control so I have not enough time to participate to an IC program implementation
4. None assess the work plan of the ICC in my hospital
5. As a member of the Infection Control Committee I have received certificated training on infection control
6. I believe that I haven't got the necessary skills for training the personnel of the hospital on the implementation of infection control
7. I don't feel that my knowledge regarding the infection and Antimicrobial Resistance prevention is updated
8. An infection control program is difficult to be implemented in my hospital because of limited recourses.
9. The available ward staffing is not enough for an effective implementation of the infection control measures.
10. An infection control program is difficult to be implemented in my hospital because the staff is not adequately aware.
11. I believe that hospital administration should be more supportive of ICC activities.
12. The cooperation with the hospital administration occurs usually when there is an outbreak.
13. The behavior of the ward supervisors has a primary role on health professionals' compliance with the hygiene measures.

14. I believe that hand hygiene is not possible to be implemented adequately in the routine clinical practice because of the lack of time.
15. The audit of the Healthcare Associated Infections care bundles is absolutely necessary but it is very difficult to be performed in clinical practice.

- Perceived susceptibility

16. I feel safe to work in this hospital
17. I believe that the patients in this hospital are safe
18. Patients in intensive Care Units are more likely to be infected with Healthcare Associated Infections than patients in other wards.
19. I am afraid that some of the staff can't fully understand the clinical impact of the surveillance data and for that reason are not able to perform the appropriate measures
20. I always feel that the responsibility of the implementation of the infection control is only up to the ICC
21. I believe that the new staff run the highest risk of making errors and because of this, their training on infection control should be a priority of our infection control program.
22. I believe that the oldest staff has a low compliance to the IC measures because they can't change their attitudes

- Cues to action

23. I have the appropriate support from the other members of the ICC because we work like a team
24. The ICC has the required administration support because the implementation of the infection control program is a priority of the hospital policy
25. A continuous reminding on the necessity to perform the infection control measures (printed matter, posted notices) increase the compliance of health professionals
26. The participation of the clinical wards supervisors in the training programs increase the compliance of health professionals
27. My work in ICC is assessed from the Hospital administration and is an asset for my CV.
28. I discuss with the ward staff about their considerations and the problems they are facing in clinical practice because they feel that we are a team with the same goals.
29. The hospital culture promotes staff expression on errors/limitations regarding the implementation of the infection control in daily practice.
30. Close cooperation with the public health authorities is very supportive for facing a crisis in the hospital I work.
31. Appropriate human staffing and material resourcing make the ICC work easier and more effective.

32. As a member of the ICC, I actively participate to the formulation of the infection control program because it is my responsibility.

- Perceived severity

33. The impact of the Antimicrobial Resistance and the Healthcare Associated Infections in patient safety is a matter of crucial importance
34. I believe that the Infection control and prevention should be a criterion in assessing the quality of the health care services
35. Health professionals should be educated on infection control at graduate level
36. The commitment of the hospital administration to the implementation of the infection control program should be strong and active
37. As a member of the Infection Control Committee I am fully trained on the implementation of the infection control

- Perceived benefits of taking action

38. I believe that the majority of the staff has been persuaded that the precaution measures are both for the patients 'and the health professionals 'safety.
39. Hand hygiene is the most important infection control measure and it must be the core of the infection control program.
40. «The implementation of an infection control program saves lives and money», is a fully acceptable statement to our hospital administration.
41. Personnel improve their practices because they have the chance to discuss their mistakes in meetings that take place in their wards.
42. The isolation precaution for infected patients due to Multi-Drug Resistant Organisms is performed because is a priority of the hospital policy.
43. High staff compliance with the IC measures means that fewer patients run the risk of a Healthcare Associated Infection.
44. Low Antimicrobial Resistance rates mean more effective antimicrobials available for the Healthcare Associated Infection treatment.
45. Low rates of Healthcare Associated Infections mean less work and better function for the wards.
46. No one, except ICC members is really committed to infection control program implementation.

- Areas of improvement

47. Which of the following measures do you consider as important steps for the improvement of the implementation of the infection control program in your hospital (practical national guidelines, institutional framework / roles and authorities, support from PHA resources – cost assessment, support to ICCs, HCWs training, surveillance - feedback, audit evaluation of interventions)

C. Questionnaire for HAs

- ¬ Education – Awareness

1. I have been informed by the Health Authorities about the importance of Healthcare Associated Infections prevention in relation to patient safety.
2. I have been educated on the implementation of Infection Control Programs in hospitals.
3. Healthcare Associated Infections prevention and control are top priorities of my hospital policies.
4. I consider that the global mobilization to address Antimicrobial Resistance is an exaggeration.

- ¬ Communication – Cooperation

5. I cooperate with the Infection Control Committee (ICC) so as to be updated on the Infection Control Program at least once a month.
6. I follow the activities of the Antimicrobial Stewardship Team and I support their interventions.
7. I cooperate with the Infection Control Committee every time we need to address an outbreak.
8. I consider that the ICC has something important to report when they ask to meet me.
9. I cooperate with the ward supervisors in promoting the best practices to the Health Care Workers.
10. An intercommunication system is established throughout the hospital wards.
11. I consider that both the Directors and the Supervisors are responsible for the implementation of the infection control and prevention measures in their clinical departments.
12. I try to attend educational courses targeted to Health Care Workers.
13. Educating the Health Care Workers in infection prevention is a priority of my administration.
14. An annual educational program on infection and antimicrobial resistance prevention targeted to Health Care Workers is established in my hospital.
15. Attendance at the training courses is mandatory for all hospital personnel.

- ¬ Surveillance – Feedback

16. I am adequately aware of the epidemiological data concerning Healthcare Associated Infections and Antimicrobial Resistance in my country.
17. I am adequately aware of the epidemiological data concerning infections and antimicrobial resistance in my hospital.
18. I get updated on the epidemiological data when a crisis arises.
19. Monitoring the epidemiological data for infections and antimicrobial resistance is a responsibility of the Infection Control Committee as specialized knowledge is needed.

20. We have established a surveillance system for Healthcare Associated Infections, Antimicrobial Resistance, Antimicrobial Consumption, and Hand Hygiene in my hospital.
21. I consider Antimicrobial Consumption as the most important indicator for the control of Healthcare Associated Infections and Antimicrobial Resistance.
22. I consider Hand Hygiene compliance measurement as the easiest indicator.
23. I believe that the progress of the indicators should be updated annually.
24. I inform the ward supervisors about the results of the surveillance systematically.

- Patient Safety Climate – Procedure Implementation – Teamwork

25. I would prefer to be hospitalized in my hospital.
26. I consider that the hospital personnel works in a safe environment.
27. Safety culture is a priority of my administration.
28. Safety culture is not easy to cultivate; it requires long-term efforts.
29. If I were a Health Care Worker, I would feel safe to work in this hospital.
30. I do not think that infection prevention is a crucial factor for patient safety; there are more important issues that a healthcare facility administrator has to deal with.
31. I do not believe that Healthcare Associated Infection prevention should constitute an evaluation criterion of the quality of the healthcare services.
32. Personnel compliance with infection control and prevention measures is exclusively the responsibility of the Infection Control Committee.
33. The implementation of infection control and prevention measures is one of the main goals of the infection prevention program and I promote interventions that will improve compliance.
34. Medical error reporting aims to caution health professionals against administering wrong treatment.
35. Error investigation reveals preexisting gaps in system procedures that demand administrative resolution.

- Leadership

36. The establishment of an infection control program for my hospital concerns me directly and I actively participate.
37. The Infection Control Committee is responsible for the infection control program implementation, not the Hospital Administration.
38. I participate in the activities coordinated by the Infection Control Committee because I consider that my presence is important to the Health Care Workers.
39. Infection and Antimicrobial Resistance Control is the sole responsibility of the Infection Control Committee.
40. I do not consider it necessary to be fully aware of the progress of the implementation of the infection control program in my hospital; I should only be instantly informed about emergencies.

41. An infection control program must be addressed as one of the business plans of my hospital.

- ¬ Proper Resource Management - Prioritization of Needs

42. Infection prevention is not only necessary for patient safety and survival, but also for the viability of the healthcare facility.
43. It is imperative that economic decisions are made regarding the funding of the infection control activities.
44. The cost of training is a part of the infection control program.
45. A percentage of the hospital's annual budget is allocated for infection control program activities.
46. The resources management for Infection Prevention is done in close cooperation with the Infection Control Committee of my hospital.
47. I am constantly updated on novel techniques and/or technology and the cost-benefit of their implementation.
48. Infection control programs are a profitable investment whose output can be visible in a rather short period of time.
49. An infection control program will have to yield more profit than the cost of its funding.
50. The benefit of infection control programs arises from saving financial resources from prevention and allocating them to other uses.
51. The sufficiency and quality of the consumables are basic factors in an infection control program.
52. The benefit of an infection control program can arise from results, damage limitation, and cost avoidance.
53. In my hospital, we have calculated the cost of implementing the current infection control program.
54. I do not believe that substantial resources are required for the Implementation of an infection control program, provided that Health Care Workers comply with the appropriate medical practices.
55. Ensuring financial resources is the most important factor for the implementation of an effective program.
56. It is well worth spending money on a software program for the systematic surveillance of microorganisms in laboratories.
57. Risk Assessment is not required for Healthcare Associated Infections.
58. We can easily calculate the cost of Healthcare Associated Infections using pricing practices.
59. Infection prevention leads to fewer days of hospitalization and more liquidity from the variable cost that was saved.

- ¬ Areas of improvement

60. Which of the following measures do you consider as important steps for the improvement of the implementation of the infection control program in your hospital (practical national guidelines, institutional framework / roles and authorities, support from PHA resources – cost assessment, support to ICCs, HCWs training, surveillance - feedback, audit evaluation of interventions)

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EU-JAMRAI

Joint Action on Antimicrobial Resistance and Healthcare-Associated Infections

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