



*Qirjako G, Qosja A, Draçini X, Çomo N, Hyska J, Fico A, Bukli M, Burazeri G. Infection prevention and control in healthcare facilities in Albania (Original research). SEEJPH 2021; posted: 20 August 2021. DOI: 10.11576/seejph-4702*

## ORIGINAL RESEARCH

# INFECTION PREVENTION AND CONTROL IN HEALTHCARE FACILITIES IN ALBANIA

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## ABSTRACT

**Aim:** The objective of this study was to assess the current status regarding Infection Prevention and Control (IPC) in selected healthcare facilities in Albania in light of the ongoing COVID-19 pandemic which continues unabated.

**Methods:** A cross-sectional study was conducted in April 2021 including a nationwide representative sample of 505 health professionals working mostly in primary health care centres in Albania (84 men and 421 women; response rate: 95%). A structured questionnaire developed by the World Health Organization was administered online to all participants inquiring about a wide range of measures and practices employed at health facility level for an effective IPC approach. Fisher's exact test was used to assess potential urban-rural differences in the distribution of characteristics regarding IPC aspects reported by survey participants.

**Results:** About 47% of health facilities did not have a designated focal point for IPC issues; the lack of one patient per bed standard was evident in more than one-third of health facilities (37%); and the lack of an adequate distance between patient beds was reported in a quarter of health facilities (which was twice as high among health facilities in urban areas compared to rural areas). Furthermore, water services were always available only in about two-thirds of health facilities (63%), whereas an adequate number of toilets (at least two) was evident in slightly more than half of the health facilities surveyed (53%). Also, one out of four of the health facilities did not have functional hand hygiene stations and/or sufficient energy/power supply. A completely adequate ventilation was evidenced in slightly more than half of the health facilities (51%). Four out of five health facilities had always available materials for cleaning and about half (49%) had always available personal protective equipment. Functional waste collection containers were available in nine out of ten health facilities, of which, four out of five were correctly labelled.

**Conclusion:** This study informs about the existing structures, capacities and available resources regarding IPC situation in different health facilities in Albania. Policymakers and decision-makers in Albania and in other countries should prioritize investments regarding IPC aspects in order to meet the basic requirements and adequate standards in health facilities at all levels of care.

**Keywords:** Albania, epidemiology, healthcare related infections, infection prevention and control.

## Introduction

In response to the COVID-19 situation at a global level, the World Health Organization (WHO) developed a self-assessment monitoring tool about “*Infection prevention and control health-care facility response for COVID-19*” (1). The aim of this instrument is to assess Infection Prevention and Control (IPC) capacities to respond to COVID-19 and other infections in health facilities at all levels of care. This self-assessment tool was developed mainly for acute health-care facilities, but can also be adapted for use in long-term care facilities (1,2). The WHO instrument reflects and considers other useful tools developed by the Centre for Disease Prevention and Control (CDC) in USA (3) and the European Centre for Disease Control and Prevention (ECDC) (4). Regardless of the level of care, the instrument developed by WHO supports health facilities to identify, prioritize and address the gaps in IPC capacities, structures and resources in order to respond adequately to COVID-19 and other infectious diseases (1). Following the WHO guidelines and recent developments, this instrument was recently translated and adapted into the Albanian context. Albania has experienced a considerable demographic change and epidemiologic transition in the past three decades (5,6), following the breakdown of the communist regime in 1990. According to the most recent estimates from the national Institute of Statistics, the proportion of the population aged  $\geq 65$  years was 15% in January 2021 (7), compared with only about 4% in early 1990s. This particularly rapid aging of the population is associated with a significant shift toward non-communicable diseases. According to the most recent estimated provided by the Institute for Health Metrics and Evaluation, the mortality rate from infectious diseases, maternal, neonatal and nutritional diseases in Albania in 2019 was estimated at 27 per 100,000 population comprising only 3% of

the overall mortality, whereas in 1990 it accounted for more than 20% of the all-cause mortality (8). However, there is no specific information about the healthcare-related mortality or burden of infectious diseases in Albania.

In April 2021, following the translation and adoption into the Albanian context of the WHO self-assessment instrument regarding IPC aspects at health facility level (9), many health professionals (both physicians and nurses) were trained about an array of issues and dimensions pertinent to effective and adequate implementation of safety measures related to IPC. The training was carried out online with technical support from the University of Medicine in Tirana and technical and financial support from UNICEF, Office in Albania. In this framework, the aim of this study was to assess the current status regarding IPC aspects in selected healthcare facilities in Albania in light of the ongoing COVID-19 pandemic. We hypothesized that many health facilities in Albania would meet the basic IPC standards, based on the grey literature and reports mainly available from the Albanian Ministry of Health and Social Protection website (<https://shendetesia.gov.al/>).

## Methods

A cross-sectional study was conducted in Albania in April 2021 including a nationwide representative sample of health professionals in Albania who were trained online during the period March-April 2021 about different aspects regarding healthcare-related IPC.

### *Study population*

In the framework of the partnership of the University of Medicine with UNICEF Office in Albania, thorough March-April 2021, there were trained online 1593 health professionals from all districts of Albania (585 physicians and 1008 nurses) operating

mainly in primary health care centres (n=1411, of whom 550 physicians and 861 nurses), or in maternity services (n=182, of whom 35 physicians and 147 nurses). The survey conducted in April 2021 included a representative sample of 505 health professionals (84 men and 421 women) working in primary health care centres (n=453, or 32% of the overall trained personnel), or maternity services (n=52, or 29% of the overall trained personnel) in different districts of Albania. The survey form was sent to one-third of training participants (n=531). Of these, only 505 survey forms were returned back and provided valid information. Therefore, the response rate was:  $505/531=95\%$ .

#### *Data collection*

An adopted version of the Infection Prevention and Control Assessment Framework (IPCAF) developed by the WHO (9) was employed. The data collection consisted of a structured questionnaire administered online (through the platform JotForm: <https://www.jotform.com/>) inquiring about the environment, materials and equipment available at the health facility level for healthcare-related IPC. More specifically, the online questionnaire included the following dimensions: IPC focal points at health facility level; presence of microbiological laboratory at health facility; IPC training; IPC funding; water availability; hand hygiene and sanitation facilities; power supply, ventilation and cleaning; patient placement and personal protective equipment; medical waste management and sewage; and decontamination and sterilization (9).

A full version of the questionnaire administered to all study participants is presented in Annex 1. The survey was approved by the Scientific Committee of the

national Institute of Public Health, Tirana, Albania.

#### *Statistical analysis*

Measures of central tendency and dispersion were calculated and reported for the numerical variables (age, and work experience of study participants). On the other hand, frequency distributions (absolute numbers and respective proportions) were reported for categorical variables (gender, workplace, type of health facility, job profile, and work position of study participants).

Fisher's exact test was used to assess potential urban-rural differences in the distribution of a wide range of characteristics regarding IPC aspects reported by survey participants (focal points, microbiological laboratory, IPC training, IPC funding, water, hand hygiene and sanitation facilities, power supply, ventilation, cleaning, patient placement, personal protective equipment, medical waste management, as well as decontamination and sterilization). Statistical Package for Social Sciences (SPSS, version 22) was used for all the statistical analyses.

## **Results**

Table 1 presents the distribution of socio-demographic characteristics among study participants. Overall, 421 (about 83%) of survey participants were women and 84 (17%) were men. Mean age in the whole sample was  $40\pm 11$  years. About 70% worked in urban health care facilities. Almost 90% of interviewees worked in primary health care centres and the remaining 10% in maternities (paediatric services). Two-thirds were nurses, whereas one-third were physicians. On average, participants had a working experience of about 15 years. Almost one in four participants was the manager/director of the health facility (Table 1).

**Table 1. Distribution of socio-demographic characteristics in a nationwide sample of health professionals in selected healthcare facilities in Albania (N=505)**

CHARACTERISTIC	NUMBER	PERCENTAGE
<b>Gender:</b>		
Men	84	16.6
Women	421	83.4
<b>Workplace (residence):</b>		
Urban areas	352	69.7
Rural areas	153	30.3
<b>Type of health facility:</b>		
Primary health care centre	453	89.7
Maternity	52	10.3
<b>Job profile:</b>		
Physician	168	33.3
Nurse	337	66.7
<b>Manager/director of facility:</b>		
No	385	76.2
Yes	120	23.8
<b>CHARACTERISTIC</b>	<b>MEAN (SD)</b>	<b>MEDIAN (IQR)</b>
Age (years)	40.0±10.6	38.0 (31.0-49.0)
Work experience (years)	14.5±10.8	11.0 (5.0-25.0)

Table 2 presents the distribution of individual profile regarding IPC aspects, as well as health facility characteristics pertinent to selected IPC issues. Overall, about half of the health facilities included in this survey (47%) did not have a designated focal point (either part-time, or full-time) regarding IPC aspects, and only a third of them (33%) reported to have a dedicated focal point about these issues. There were no rural-urban differences. Surprisingly, one out of five interviewees did not know whether there was a focal point in their respective health facilities in charge of IPC issues. The source of funding for IPC aspects consisted mainly of health facility funds (62%), or a mix of funds that is health facility and donors' funding (about 28%). Less than a quarter of health facilities included in the survey had a functional microbiological laboratory, with a remarkable difference between urban areas and rural areas (around 30% vs. 5%, respectively;  $P < 0.001$ ). On the whole, 60% of

participants had received several training courses on IPC aspects, and further 31% were just trained. There were no urban-rural differences in the trainings received (Table 2). Conversely, the proportion of cleaners pertinent to the respective health facilities was significantly higher in health facilities pertinent to urban areas compared to rural areas (16% vs. 5%, respectively;  $P < 0.001$ ). Of note, a significantly higher proportion of new staff working in rural health facilities were trained about IPC aspects upon recruitment compared with their urban counterparts (49% vs. 35%, respectively;  $P < 0.001$ ). Almost two-thirds of the interviewees considered sufficient the number of staff working at their respective health facilities, with a borderline statistically significant difference by place of residence ( $P = 0.08$ ). Remarkably, more than one-third (37%) of the overall health facilities did not meet the standard of one patient per bed, with no evidence of significant urban-rural

differences (Table 2). On the other hand, an adequate distance of at least 1 meter between patient beds was respected significantly more

among health facilities (with beds) in rural areas than those in urban areas (70% vs. 56%, respectively; P=0.01).

**Table 2. Distribution of individual profile and health facility characteristics regarding Infection Prevention and Control (IPC) according to survey participants' perspective**

CHARACTERISTIC	TOTAL	URBAN	RURAL	P†
<b>Focal point for Infection Prevention and Control (IPC):</b>				
Yes	166 (32.9)*	120 (34.1)	46 (30.1)	0.576
No	237 (46.9)	160 (45.5)	77 (50.3)	
Don't know	102 (20.2)	72 (20.5)	30 (19.6)	
Total	505 (100.0)	352 (100.0)	153 (100.0)	
<b>Source of funding for IPC:</b>				
Health facility funds	313 (62.0)	215 (61.1)	98 (64.1)	0.118
Donors	11 (2.2)	7 (2.0)	4 (2.6)	
Both	143 (28.3)	97 (27.6)	46 (30.1)	
Don't know	38 (7.5)	33 (9.4)	5 (3.3)	
<b>Microbiological laboratory:</b>				
Yes	113 (22.4)	105 (29.8)	8 (5.2)	<0.001
No	392 (77.6)	247 (70.2)	145 (94.8)	
<b>Personal training regarding IPC:</b>				
Several courses	286 (60.1)	202 (61.4)	84 (57.1)	0.624
Once upon recruitment	16 (3.4)	12 (3.6)	4 (2.7)	
Once long after recruitment	28 (5.9)	20 (6.1)	8 (5.4)	
Just trained	146 (30.7)	95 (28.9)	51 (34.7)	
<b>IPC training received by the cleaners at the health facility:</b>				
Yes	65 (12.9)	57 (16.2)	8 (5.3)	<0.001
No	97 (19.3)	84 (23.9)	13 (8.6)	
No cleaners at health facility	183 (36.4)	74 (21.1)	109 (71.7)	
Don't know	158 (31.4)	136 (38.7)	22 (14.5)	
<b>Training of new staff about IPC:</b>				
Yes, all new staff	198 (39.4)	124 (35.4)	74 (48.7)	<0.001
Yes, but only some of the new staff	57 (11.4)	50 (14.3)	7 (4.6)	
No	140 (27.9)	89 (25.4)	51 (33.6)	
Don't know	107 (21.3)	87 (24.9)	20 (13.2)	
<b>Is the number of staff sufficient at your health facility?</b>				
Yes	328 (65.7)	225 (64.7)	103 (68.2)	0.079
No	118 (23.6)	79 (22.7)	39 (25.8)	
Don't know	53 (10.6)	44 (12.6)	9 (6.0)	
<b>One patient per bed at facility:</b>				
Yes, always	188 (38.4)	131 (38.5)	57 (38.3)	0.307
Yes, but not always	121 (24.7)	78 (22.9)	43 (28.9)	

No	180 (36.8)	131 (38.5)	49 (32.9)	
<b>&gt;1 meter between patient beds:</b>				
Yes, always	284 (60.2)	183 (56.0)	101 (69.7)	0.006
Yes, but not always	73 (15.5)	51 (15.6)	22 (15.2)	
No	115 (24.4)	93 (28.4)	22 (15.2)	
<b>Water services at health facility:</b>				
Yes, always	309 (62.7)	232 (67.6)	77 (51.3)	<0.001
Yes, partially	138 (28.0)	90 (26.2)	48 (32.0)	
No	46 (9.3)	21 (6.1)	25 (16.7)	
<b>Number of toilets at facility:</b>				
None	7 (1.4)	4 (1.2)	3 (2.0)	<0.001
1	225 (45.3)	137 (39.5)	88 (58.7)	
2	152 (30.6)	104 (30.0)	48 (32.0)	
≥3	113 (22.7)	102 (29.4)	11 (7.3)	
<b>Functioning hand hygiene stations at health facility:</b>				
Yes, fully equipped	175 (35.6)	113 (32.9)	62 (41.6)	0.109
Yes, but partially equipped	193 (39.2)	136 (39.7)	57 (38.3)	
No	124 (25.2)	94 (27.4)	30 (20.1)	
<b>Sufficient energy/power supply at health facility:</b>				
Yes, adequate voltage	371 (75.3)	256 (74.4)	115 (77.2)	0.696
Yes, but low voltage	104 (21.1)	76 (22.1)	28 (18.8)	
No	18 (3.7)	12 (3.5)	6 (4.0)	
<b>Ventilation at health facility:</b>				
Yes, completely adequate	251 (51.2)	170 (50.1)	81 (53.6)	0.665
Yes, but only partially adequate	170 (34.7)	122 (36.0)	48 (31.8)	
No	69 (14.1)	47 (13.9)	22 (14.6)	
<b>Materials for cleaning:</b>				
Always available	399 (80.4)	284 (81.6)	115 (77.7)	0.563
Partially available	84 (16.9)	56 (16.1)	28 (18.9)	
No	13 (2.6)	8 (2.3)	5 (3.4)	
<b>Personal protective equipment:</b>				
Always available	241 (48.7)	176 (50.6)	65 (44.2)	0.432
Partially available	213 (43.0)	144 (41.4)	69 (46.9)	
No	41 (8.3)	28 (8.0)	13 (8.8)	
<b>Sterile equipment at facility:</b>				
Always	199 (40.4)	138 (40.1)	61 (40.9)	0.002
Partially	179 (36.3)	111 (32.3)	68 (45.6)	
No	90 (18.3)	73 (21.2)	17 (11.4)	
Don't know	25 (5.1)	22 (6.4)	3 (2.0)	
<b>Functional waste collection containers at health facility:</b>				
Yes	452 (91.7)	318 (92.7)	134 (89.3)	0.289
No	33 (6.7)	19 (5.5)	14 (9.3)	

Don't know	8 (1.6)	6 (1.7)	2 (1.3)	
<b>Waste collection containers labelled:</b>				
Yes	396 (80.5)	279 (81.3)	117 (78.5)	0.754
No	80 (16.3)	53 (15.5)	27 (18.1)	
Don't know	16 (3.3)	11 (3.2)	5 (3.4)	

\* Number and column percentages (in parentheses). Discrepancies in the totals are due to missing covariate values.

† P-values from Fisher's exact test.

As expected, water services (for personal hygiene, medical activities, decontamination, cleaning and laundry) were more prevalent in urban health facilities than in rural ones (68% vs. 51%, respectively;  $P < 0.01$ ). Similarly, the number of toilets was significantly higher in health facilities in urban areas compared with those in rural areas ( $P < 0.001$ ). Fully equipped functioning hand hygiene stations were more prevalent in rural areas than in urban areas (42% vs. 33%, respectively), but this difference was not statistically significant ( $P > 0.1$ ). On the whole, about three-quarters of health facilities had sufficient energy/power supply with adequate voltage, a finding which was similar in both urban and rural areas. Slightly more than half of health facilities (51%) had completely adequate ventilation, with no significant urban-rural differences. In addition, about 80% of health facilities had always available materials for cleaning. Personal protective equipment was always available in slightly less than half of health facilities (49%). Also, about 40% of health facilities had always sterile equipment available. Furthermore, about 92% of health facilities had functional waste collection containers and four out of five of such containers were properly labelled (Table 2).

### Discussion

This study included a nationwide representative sample of health professionals informing about the current status, the existing structures, capacities and available resources regarding IPC situation in different health facilities across Albania. Main

findings of this survey include the absence of a designated focal point for IPC issues in almost half of health facilities included in the study (47%); the lack of one patient per bed standard in more than one-third of health facilities (37%); and the lack of an adequate distance between patient beds in a quarter of health facilities (which was twice as high among health facilities in urban areas compared to rural areas). Furthermore, water services were always available only in about two-thirds of health facilities included in the survey (63%), whereas an adequate number of toilets (at least two) was evident in slightly more than half of the health facilities surveyed (53%). Also, one out of four of the health facilities did not have functional hand hygiene stations and/or sufficient energy/power supply. A completely adequate ventilation was evidenced in slightly more than half of the health facilities (51%). Four out of five health facilities had always available materials for cleaning and about half (49%) had always available personal protective equipment. Functional waste collection containers were available in nine out of ten health facilities, of which, four out of five were correctly labelled. This survey conducted fairly recently in Albania was based on the IPCAF instrument which is a structured, closed-ended questionnaire (9), particularly easy and user-friendly to administer. This instrument is mainly meant to be self-administered as a valuable self-assessment tool (9) for health facilities at different levels of care (primary health care,

and hospital care). As such, the tool can be periodically used by the health personnel at facility level. At the same time though, this instrument may also be used for assessment of health facilities by different key stakeholders including central level institutions such the Ministry of Health and its affiliated agencies, WHO, or other relevant actors, also at local level. According to WHO guidelines, the IPCAF instrument is envisioned for acute health care facilities, but it can be also used in other inpatient health care settings (2,9), which was the case of the current study conducted in Albania. The WHO has convincingly demonstrated that several indicators of the IPCAF tool are valid and useful at a global scale for assessment of IPC standards in any country (9). Therefore, the present survey carried out in Albania provides valuable evidence on the situation of primary health care centres and maternity services in different districts of Albania with regard to IPC aspects, in the midst of COVID-19 pandemic. The evidence provided by the current study regarding the IPC activities and resources at health facility level enable prompt identification of strengths and limitations which should inform policy and feed into the future planning of health facilities in all districts of Albania. From this point of view, administration of the IPCAF instrument should be deemed as a pretty valid analytical tool for health facilities at all levels of care in order to identify important issues, drawbacks and bottlenecks which should be adequately addressed in order to prepare regional and facility based IPC action plans and meet the required IPC standards (revised and approved by order of the Albanian Ministry of Health and Social Protection No. 156 on 10.03.2021) (2,9). Findings from this study are also important in light of the ongoing reforms in the Albanian health sector which, among other things, consist of a governance reform of primary and secondary health care

institutions (10). Hence, starting from 2018, a new central institution referred to as the “General Operator of Health Care Services” with four regional branches (“Regional Operators”) has already assumed most of the responsibilities from the Albanian Ministry of Health and Social Protection regarding planning and management of public health services, primary health care services, as well as hospital services (10).

### ***Study limitations***

Generalization of the findings of the current survey may be limited to some extent due to sample representativeness, potential information biases, as well as its cross-sectional design. This study included a fairly large sample of health professionals (both physicians and nurses) working in primary health care centres and maternity services in different districts of Albania. As such the sample included in this survey is deemed nationwide representative. Yet, extrapolation of the findings to all health professionals and/or the overall health facilities in Albania should be done cautiously. The instrument of data collection consisted of a well-standardized international questionnaire developed by WHO (9). However, the degree of validity depends on the self-perceptions, objectivity and accuracy of responses delivered by interviewees. Also, findings from cross-sectional studies do not infer causality and, therefore, no firm conclusions should be drawn unless future prospective studies are conducted.

### ***Conclusion***

This is one of the very first reports informing about the current status, the existing structures, capacities and available resources regarding IPC situation in a nationwide sample of health facilities in Albania. The administration of self-assessment tools combined with direct monitoring and supervision at facility level may further

contribute to the creation of an enabling environment for the implementation of national IPC standards. Policymakers and decision-makers in Albania and in other countries should prioritize investments regarding IPC aspects in order to meet the basic requirements and adequate standards in health facilities at all levels of care.

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## ANNEX 1. QUESTIONNAIRE ADMINISTERED TO STUDY PARTICIPANTS

- *Socio-demographic characteristics:* gender; age.
- *Position and job profile:* position (physician vs. nurse); years of working experience; head of unit/facility (yes vs. no).
- *Characteristics of health facility:* district and municipality; area (urban vs. rural areas); type (primary health care centre vs. hospital).
- Is there a focal point in your institution in charge (fulltime or part-time) of implementation and monitoring of infection control and prevention programs/measures? (possible answers: yes, no, don't know).
- Have you been trained for infection control and prevention? (possible answers: yes, several times, yes, upon recruitment, yeas, once but a long after being recruited, yes, just trained).
- Have the cleaners in your health facility been trained about infection control and prevention? (possible answers: yes, no, there are cleaners in our health facility, don't know).
- Are the newly appointed staff trained regarding the infection control and prevention? (possible answers: yes, all new staff, yes, some of them, no).
- How have the safety measures applied in your facility been purchased? (possible answers: health facility funds, different donors, both).
- Is there a laboratory in your health facility which is routinely used for microbiological testing? (yes vs. no).
- Does your health facility have informational materials regarding the following topics (circle all that apply): hand hygiene, disinfection and sterilization, antibiotic-resistance, personal safety measures (masks, gloves, etc.), safe injections, waste management.
- Which of the following procedures is monitored in your health facility: (circle all that apply): hand hygiene, wound changes, cleaning, disinfection and sterilization of instruments, use of soap and alcohol-based solutions, waste management.
- Do you consider sufficient the number of personnel in your health facility? (possible answers: yes, no, don't know).
- Is the standard of one patient per bed fulfilled in your health facility? (possible answers: always, sometimes, no, don't know).
- Is adequate spacing of >1 meter between patient beds ensured in your facility? (possible answers: always, sometimes, no, don't know).
- Are water services available at all times and of sufficient quantity for all uses (e.g., hand washing, drinking, personal hygiene, medical activities, sterilization, decontamination, cleaning and laundry? (possible answers: always, partially, no).
- How many toilets are available at your health facility?
- Are functioning hand hygiene stations (that is, alcohol-based handrub solution or soap and water and clean single-use towels) available at all points of care? (possible answers: always, partially, not at all).

- In your health care facility, is sufficient energy/power supply available for all uses? (possible answers: sufficient and with adequate voltage, sufficient but mostly with inadequate voltage, not at all).
- In your health care facility, is adequate ventilation available? (possible answers: adequate ventilation, only partially adequate, not at all).
- Are appropriate and well-maintained materials for cleaning (for example, detergent, mops, buckets, etc.) available at your health facility? (possible answers: always, partially, not at all).
- Is PPE (personal protective equipment) available at all times and in sufficient quantity for all uses for all health care workers? (possible answers: always, partially, not at all).
- Do you reliably have sterile and disinfected equipment ready for use? (possible answers: always, partially, not at all).
- Do you have sufficient functional waste collection containers? (possible answers: yes, no, don't know).
- Are the waste collection containers labelled according to their content, i.e. for non-infectious (general) waste, infectious waste and, sharps waste? (possible answers: yes, no, don't know).

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