

National Iranian Global-PPS of Antimicrobial Consumption and Resistance

Birth of a Point Prevalence Survey on antimicrobial use in Iran

Point Prevalence Surveys (PPS) in Iran started in 2011 in Sanandaj, Kurdistan, with a pilot project and continued in 2012 as part of the [ARPEC study](#) along with other European countries under the supervision of the University of Antwerp, Belgium. These two studies were dedicated to two large capitals in west and south Iran, namely Sanandaj city in Kurdistan province and Shiraz city in Fars's province. Read the publications in the [Erciyes Medical Journal](#).

Start of the Global-PPS in Iran

In 2015, the Kurdistan University of Medical Sciences joined the Global PPS, which was repeated in 2017, 2018, 2019, and 2020-2021 with a new series of data collected in 4 hospitals in Sanandaj. Results were presented at several international conferences in Iran in [2016](#), [2017](#), [2019](#), [2020](#) and [2021](#) and as a [poster presentation](#) at the 31st [European Congress of Clinical Microbiology & Infectious Diseases](#).



Results

The global-PPS showed an unfavourable situation of prescribing behaviors in Iran compared to EU countries. The main problems include high broad-spectrum antibiotic prescribing with poor results on a set of quality indicators of antibiotic use, such as poor adherence to empirical guidelines and lack of diagnostic capacity.

The Iranian national network on antibiotic consumption and resistance

There is an urgent need to develop and disseminate a National Antibiotic Stewardship Action plan and we hope that Iranian health policy makers will consider it.

For that reason, a national workshop, moderated by Dr. Jafar Soltani, was conducted during the 13th International Alborzi Congress of Clinical Microbiology in Shiraz, October 2019. Pediatric infectious subspecialists, adult infectious diseases specialists and microbiologists from all over Iran participated in the workshop.



During the workshop, an initial plan for an Iranian national network was laid down to study antibiotic consumption and resistance in Iran using the standardized methodology of the [Global-PPS](#). Participants from several parts of the country were determined to act as provincial focal points whereby it was decided that all data would be gathered in a subset called “National Iranian Point prevalence study”.



Unfortunately, the pandemic outbreak of Covid-19 infection and Iran's serious involvement in the morbidity and mortality consequences of Covid-19 infection delayed the project in several cities by one year. We now know that the indiscriminate use of antibiotics in patients with Covid-19 disease doubled the need to implement a Stewardship antibiotics programme. It was only after the introduction of vaccines and personal protective equipment that the project revived and, depending on the city, the Global-PPS is currently being implemented for the first time.

Overview of project partners in different cities which expressed the project's progress.

Kurdistan University of Medical Sciences

Kurdistan University of Medical Sciences as the primary host of National Iranian Point Prevalence in capital Sanandaj first approved the national project on 12/9/2019. The project was conducted with one year delay in 2021. Three phases of the project were completed in 4 hospitals, i.e., three teaching hospitals, including Besat, Kowsar, and Tohid, and a secondary Social Security hospital. These hospitals cover about 550,000 population of the capital city and also are the leading referral hospitals for 1,800,000 of the Kurdistan province population. Phase one and two of the project were uploaded to the Global PPS website, and phase 3 are going to be uploaded to the website. Our team includes a pediatric infectious subspecialist (Jafar Soltani), a pediatric resident (Mehrnaz Aligholipour), a pharmacist (Kani Javedan), and an infection control nurse (Soraya Mollaei).



MUK Team: from Left to right;

Standing: Dr. Jafar Soltani, Dr. Borhan Moradvaeisi (Besat Hospital Head), Dr. Ghafari (Pediatric Resident),

Sitting: Dr. Borna (Pediatric Resident), Dr. Mehrnaz Aligholipour, Dr. Kani Javedan, Ms. Soraya Mollaei

*Dr. Leila Rashidzadeh
pediatric resident
Global PPS partner,
2015*

*Dr. Parin Yazdanifard
pediatric resident
Global PPS partner,
2017*

*Dr. Shirin Behzadi
pediatric resident
Global PPS partner,
2019*

*Dr. Mehrnaz
Aligholipour
pediatric resident
Global PPS partner,
2021*

*Dr. Jafar Soltani
National Iranian Focal
point of Global PPS,
2011-2021*



Shiraz University of Medical Sciences

Professor Alborzi, Clinical Microbiology Research Center (PACMRC), as Excellence Center of Clinical Microbiology in Iran affiliated with Shiraz University of Medical Sciences, started point prevalence surveillance (PPS) using the validated and standardized method retrieved from a web-based ARPEC-web PPS since 2011. We contributed with Antwerp University in PPS in 2012, 2015, and 2021. In 2011, 2012, and 2015, PPS was done in Nemazee teaching hospital, a tertiary referral hospital in Shiraz, southern Iran. In 2021, we add two other hospitals, Abu Ali Sina Hospital, Iran's largest transplant hospital, and Amir hospital, the only specialized oncology medical facility in Shiraz and Fars Province, southern Iran.



Professor Alborzi Clinical Microbiology Research Center (PACMRC)

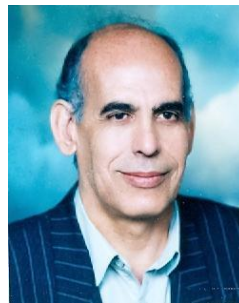
*Focal point
Dr. Gholamreza Pouladfar
Head of PACMRC*



*Dr. Zahra Jafarpour
Researcher at PACMRC*



*Our Grand Teacher
Dr. Abdolvahab Alborzi
Professor of pediatric
infectious diseases*



*Dr. Ali Amanati
Assistant Professor of
pediatric infectious
diseases*



Shahid Beheshti University of Medical Sciences

Mofid Children Center in Tehran is a teaching hospital with 300 active beds. This center is a referral center for children, especially in the fields of infection, neurology, and surgery in Tehran. Familiarity with the PPS program dates back to many years ago, and two dissertations in professional doctorate and specialist assistantship have been done in the form of PPS in this center. The PPS team of Mofid Hospital consists of Dr. Shahnaz Armin, a pediatric infectious disease specialist; Dr. Seyed Bahador Mirrahimi, a clinical pharmacist; Dr. Fatemeh Fallah, a clinical microbiologist, and Ms. Razmara, an infection control nurse. During this time, two workshops were held for pediatric and clinical pharmacy assistants on the importance of performing PPS. The committee is currently suspended due to the Corona epidemic. Due to the vaccination coverage, it is expected that the activity in the center will resume soon.

Dr. Seyed Bahador Mirrahimi
Associate Professor of
Clinical Pharmacy



Focal point:
Dr. Shahnaz Armin
Associate Professor of
Pediatric Infectious Disease



Focal point:
Dr. Fatemeh Fallah
Professor of Medical
Microbiolog



Our Grand Teacher
Dr. Abdollah Karimi
Professor of pediatric
infectious diseases



Ahvaz University of Medical Sciences

The first phase of data collection and registration took place in January and February 2021. The second phase of data collection was done in July and August 2021 and we are entering the data of the second phase. Information on the number of beds and the number of patients admitted to the three hospitals under study is as follows: 1- Golestan Hospital: 460 beds 2- Imam Khomeini Hospital: 323 beds 3- Abuzar Children's Hospital: 227 beds. This study is being conducted in Khuzestan province with a population of about 4,700,000 and Ahvaz city with a population of about 1,800,000.

Focal point:
Dr. Ahmad Shamsizad
Professor of Pediatric Infectious Disease



Dr. Fereshteh Shakurnia
pediatric resident
Ahvaz University of Medical
Sciences



Mashhad University of Medical Sciences

Mashhad is the second largest city in Iran after Tehran and is located in northeastern Iran and is the capital of Khorasan Razavi province. It has a population of more than 3,001,184. Mashhad is a pilgrimage and tourist city and annually receives more than 27 million pilgrims from inside and two million pilgrims from abroad.

The two main and major general hospitals in Mashhad, Imam Reza and Ghaem hospitals, and two specialized pediatric hospitals, Akbar and Dr. Sheikh hospitals, have entered the microbial resistance monitoring plan. Imam Reza Hospital has 843 active beds and is the largest general hospital in Mashhad. Ghaem Hospital is the second largest hospital in Mashhad and has 836 active beds. Akbar Hospital with 250 active beds and Dr. Sheikh Hospital with 155 active beds are pediatric subspecialty hospitals. Microbial resistance monitoring of Imam Reza, Akbar and Dr. Sheikh hospitals has been done and Ghaem hospital will be done in the same month.

Dr. Mohammad Hassan Aalami, Pediatric Infectious Diseases Subspecialist and Associate Professor, Mashhad University of Medical Sciences, is in charge of leading the microbial resistance monitoring team in Mashhad hospitals. The Student Research Committee headed by Dr. Sajjad Sahab and the Infection Prevention and Control Center of Imam Reza Hospital are the executive team of the project.



*Focal point:
Dr. Mohamad Hasan Alami
Associate Professor of
Pediatric Infectious Disease*



*Dr. A. Nahousian
Resident of Pediatrics
Mashhad University of
Medical Sciences*

Kerman University of Medical Sciences

THE global PPS project at Kerman University of Medical Sciences will be accomplished by Dr. Ali Hosseini Nasab (focal point) and Dr. Foruzan Barshan, Pediatric Resident. We established the National Iranian PPS in three hospitals, namely Afzalipour, including 18 wards (364 beds), Bahonar Hospital, including 14 wards (227 beds), and Shafa Hospital, including ten wards (188 beds). The project is underway, and data collection has progressed by 40%.

*Focal point:
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Professor of Pediatric
Infectious Disease*



*Dr. Foruzan Barshan
Resident of Pediatrics
Kerman University of
Medical Sciences*



Isfahan University of Medical Sciences

Isfahan is a historical and tourist city in central Iran with approximately 3,000,000. In this city, Al-Zahra (PBUH) and Imam Hussein (AS) teaching hospitals are partners of the Global-PPS project. Al-Zahra Hospital is a reference subspecialty hospital with 700 beds. This hospital has various departments including internal departments (gastrointestinal, infectious, lung, neurology, nephrology), surgery (gynecology, orthopedics, neurology, arteries), transplantation, and intensive care (surgery, internal medicine, Nerves, infants). Data collection at the hospital began in October. The collaborators of this project in this hospital are as follows:



*Focal point:
Dr. Behrooz Ataee
Professor of Infectious
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*Dr. Soodabeh Rostami
Assistant Professor of
Pediatric Infectious
Disease*



*Dr. Saeed Naji
Pharmacist*

Imam Hossein Hospital (Isfahan)

Imam Hossein Hospital is a pediatric hospital with 130 beds. This hospital has subspecialty and pediatric surgery departments and PICU and NICU beds. Two rounds of information have been collected for the Global-PPS project in this hospital. In January, in coordination with the University of Antwerp, the last round of data will be organized. The collaborators of this project in this hospital are as follows:

*Focal point:
Dr. Saied Naseradin Mostafavi
Associate Professor of Pediatric
Infectious Disease*



*Dr. Mehdi Minaeeian
Pediatric Resident
Isfahan University of Medical
Sciences*



Lorestan University of Medical Sciences

Khorramabad is the capital of Lorestan province. Its population is 373416 people. A point Prevalence study was conducted in Shahid Madani and Shahid Rahimi hospitals in Khorramabad in the second and third phases of 2020. A total of 3200 patients' data were analyzed in these two phases.



*Focal point:
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*Dr. Zahra Mehrsa
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Other colleagues from Iran



*Focal point:
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