



Unusual microorganisms and antimicrobial resistances in a group of Syrian migrants: Sentinel surveillance data from an asylum seekers centre in Italy

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Summary *Background:* Three years of civil war in Syria have caused death and increase of communicable diseases. The suffering population has been forced to migrate creating a fertile condition for epidemic spread of infection within the refugee camps.

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Microbiological surveillance;
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Methods: Forty-eight Syrian migrants, upon their arrival in Italy, were accommodated at the asylum seekers centre of Castelnuovo di Porto. They received a physical examination and were subjected to microbiological surveillance by blood, rectal, pharyngeal and nasal swabs collection and delivering to the Clinical Pathology and Microbiology Laboratory of the University Campus Bio-Medico of Rome.

Results: All refugees resulted negative for HBV, HCV and HIV infections. In swabs a large number of unusual gram-negative bacteria species were isolated, such as *Pseudomonas putida*, *Pseudomonas monteilii*, *Pseudomonas fulva*, *Pseudomonas moselii*, *Aeromonas veronii*, *Aeromonas caviae*, *Aeromonas hydrophila*, *Acinteobacter guilloviae*, *Acinteobacter lowffii*; *Acinetobacter johnsonii*; *Acinteobacter tjernbergae*; *Pantoea agglomerans*; *Pantoea calida*. Among isolates, strains resistant to carbapenems, ESBL producers and *methicillin resistant were found*.

Conclusions: The microbiological surveillance performed represents a useful action to understand refugees health status and to trace unusual microorganisms movement even carriers of antimicrobial resistance during migrants traveling.

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1. Introduction

In the spring 2011 civil war becoming in Syria providing condition for diseases outbreaks [1].

In the Syrian Arab Republic before the crisis, the access to health services increased since the 1980s, with better equity between the rural populations and the middle class [<http://www.moh.gov.sy/Default.aspx?tabid=337>]. Despite this improvement, the capacity of the health system, so as the quality of care, were not sufficient to improve the decrease the inequity. As normally happens the onset of civil war can led to the complete deterioration of the health infrastructure through the destruction of facilities, the shortage in health care personnel and medicines other than a lack of secure routes and transportation. More than 250,000 Syrians have lost their lives in four-and-a-half years of armed conflict.

During the war, the precariousness living condition dropped down the health system. Vital infrastructure were destroyed, resulting in a lack of shelter and sanitation services. Many Syrians were injured with scarce possibility to have adequate care. Moreover, the quality of health care was affected by the deterioration in the functionality of medical equipment, the shortages of drugs and medical supplies due to sanctions.

By June 2013, the United Nation (UN) said 90,000 people had been killed in the conflict. However, by August 2014 that figure had more than doubled to 191,000 – and continued to climb to 250,000 by August 2015, according to activists and the UN (<http://www.un.org/>).

More than four million people have fled Syria since the start of the conflict, most of them women and children. It is one of the largest refugee exoduses in recent history.

Neighboring countries have borne the brunt of the refugee crisis, with Lebanon, Jordan and Turkey struggling to accommodate the flood of new arrivals. The exodus accelerated dramatically in 2013, as conditions in Syria deteriorated.

Overall, an estimated 12.2 million are in need of humanitarian assistance inside Syria, including 5.6 million children, the UN says (<http://www.un.org/>).

In December 2014, the UN launched an appeal for \$8.4bn to provide help to 18 million Syrians, after only securing about half the funding it asked for in 2014. A report published by the UN in March 2015 estimated the total economic loss since the start of the conflict was \$202bn and that four in every five Syrians were now living in poverty - 30% of them in abject poverty (<http://www.un.org/>).

Syria's education, health and social welfare systems are also in a state of collapse.

Three years of civil war in Syria have caused the deaths of >100,000 people including 11,000 children, with many more wounded [2].

Because the shattered medical infrastructure, the exodus or death of health care workers, and the deterioration of immunization programs communicable diseases like measles, poliomyelitis, meningitis, and other, have spread through Syrian populations.

The suffering population that has been forced to migrate in neighboring countries, in refugee camps, created a health crisis requiring immense resources to address. These state of abnormal migration led to a spread of infection in detection facilities creating a probable dangerous condition for epidemic spread of infection to be controlled within the refugee camps [3].

Considering these camps as a sort of community where almost 900 migrants and refugees stay for a medium of 15 months, it is of notable importance to monitor and check continually the people arriving so as their health status before and after the entrance in the camps.

We describe a group of 48 Syrian migrants arrived in the second week of October 2015 in the asylum seekers centre (ASC) in Rome (Italy) where they receive social, legal and health assistance [4]. An internal healthcare facility (IHF) is operative where specialized personnel (e.g. infectiologist, nurses and psychologist) was prompt to receive the Syrian people making them all the tests for microbial agents presence (bacterial and virus agents).

This group is of importance not only because refugee from the tremendous civil war but also because stopped in

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