

Strategies for Decreasing Infant Mortality Rate among the Arab Bedouins of Negev, Israel

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Abstract: The semi-nomadic Bedouins of Negev have undergone a transition to modernization. But due to political reasons many of them still live in unrecognized localities in the state of Israel. They suffer from number of diseases and have a high IMR (infant mortality rate) as compared to Jewish population. This review article aims at discussing different strategies that may be implemented for improving IMR among the Bedouins. Increasing literacy-rate among Bedouin women along with launching newer measures like trained female Bedouin health volunteers, community health-clinics and home-based newborn care may help in reducing IMR. Congenital anomaly among newborns is mostly due to consanguinity. Malnutrition, anemia and accidents were the other important reasons for child mortality. Unrecognized Bedouin habitats are not having the basic amenities for daily living. Poverty does not allow them to spend much on health. Dedicated inter-sectorial coordination and launching newer health programs for Bedouin children may help improve the IMR.

Key words: Bedouin, Infant mortality, Negev, newer strategies.

1. Background

The Bedouins are traditionally pastoral nomadic Arab tribes living in the Negev region in Israel. They are mostly shepherds by profession who moves from one place to the other. The Bedouins in Israel are the Arab Muslims, who have been staying here since the Ottoman Empire. Apart from Israel; they are spread in different parts of the world like Egypt, Jordan, Mongolia and the neighboring nations.

The Bedouins are no longer a nomadic tribe now. For decades they have been undergoing a process of transition from a semi-nomadic society to a society that lives in permanent habitations. There are approximately 210,000 Bedouins [1] who live in Negev and represent one third of the Negev population. Approximately 120,000 Bedouins live in regulated, planned settlements in Negev: seven urban centers (the largest is in Rahat, soon to become a town of 80,000 residents), and two regional councils with 11 small towns [1]. The establishment of these

settlements began in the 1960s. Around 90,000 [1] of them still live in unrecognized villages and encampments.

There is a continuous conflict between the Arabs and the state. For making Israel a planned state, these Bedouins were asked to get localized into a concentric geographical location to which they do not pay heed as according to them, the entire land belonged to them even if most of them have no documentation to substantiate their claims to private or communal land ownership, as required under the law of Israel. This leads to a continuous tension and stress among the Arabs in Israel. This might be a reason, why most of these tribes are devoid of the minimum facilities from the State of Israel in terms of electricity, health care, education, sanitation, water supply, peaceful environment and proper roadways.

The IMR (infant mortality rate) among the Bedouins was reported to be higher as compared to the Jews in Israel [2, 3]. The IMR is highest in Negev, which is around 6 per 1,000 live births. During 2009-2011, the IMR was 3.5 among the Jews population and 11.6 among the Arabs [3]. In 2014,

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IMRs stood at 2.2 percent in Israeli Jewish populations, while Arab Israelis reported a rate of 6.4 infant deaths per 1,000 live births that year [4], which is almost 3 times higher as compared to that of the Jewish population. Though there is a decreasing trend in the IMR among the Bedouins but the rate of decline is not so abrupt as that of the Jews.

The present study provides an understanding in the etiology of increased infant mortality among the Arab Bedouins of Negev and sorts out strategic planning of innovative programs to be implemented for diminishing the IMR among the Bedouin community in the State of Israel.

2. Methods

Literature search has been done using PubMed, Medline and Google Scholar search engine to find out relevant facts about Bedouins, infant mortality and the prevailing health condition in Israel. The Official sites of Ministry of Health, Israel, Ministry of External affairs and Central Bureau of Statistics have also been searched to gather relevant information regarding the Bedouins and their health conditions. A couple of visits to the unrecognized villages have been made by the author in the Negev desert to have a better understanding of the general condition of living of Bedouins. Interviews have been carried out with the health care providers of those areas to get a better insight of the persisting health scenario in that area in relation to infant mortality.

3. Results

3.1 Present Scenario of Health

Westernization has its impact in every part of the world and the Bedouins in Israel are also not an exception. The Bedouins have now turned from nomads to semi nomads and few of them reside in urban localities. But still, those towns are characterized by poverty, high unemployment, and poor public services. The other half remain in unrecognized settlements that lack basic infrastructure

including clean water, electricity, sewage disposal, and public transportation. Despite the changes in the urbanized segment of the population, Bedouins largely remain a traditional society organized into tribes in which men are responsible for decision-making. There are high rates of consanguinity (60%), often between first cousins, and polygamy (25%). Women are mostly illiterate and stay within the homes, busy doing the daily chores and bringing up their children. In some families, they are not allowed to leave their houses without a male chaperone. This might interfere with timely utilization of health services. Many Bedouin women suffer from nutritional deficiencies, putting them at risk for delivering prematurely with certain congenital anomalies in the newborns.

In addition, Bedouin children suffer from nutritional deficiencies, especially anemia, which together with crowded living conditions is a risk factor for contracting infectious diseases. Bedouins have a high fertility rate and nearly half of the births in Negev are in this population. Women tend to give birth frequently and the interval between consecutive pregnancies is short which leads to preterm delivery, low birth weight, an increased risk for congenital malformations, and infant mortality [5, 6].

3.2 Why Should We Think for the Infant Mortality?

IMR is the number of deaths of children less than one year of age per 1,000 live births in a given population. Infant mortality is an important and established measure of societal health, especially for comparing with other population [5].

It is regarded as a highly sensitive measure of population health. This reflects the apparent association between the causes of infant mortality and other factors that are likely to influence the health status of whole population such as their economic development, general living conditions, social wellbeing, rates in which illness occurs and also quality of environment [7, 8].

3.3 Causes for Increased IMR among the Bedouins

The common causes of Infant mortality among the Arab Bedouins in Israel are:

- (1) Genetic malformation as a result of consanguinity
- (2) Lack of education among women
- (3) Early age of child bearing—Preterm delivery
- (4) Increased unintentional injuries/accidents
- (5) Decreased gap between two consecutive child births
 - Increased fertility rate
 - Easy access to In vitro fertilization
- (6) Poverty
 - Unemployment
 - Migration of families due to their nomadic culture
- (7) Polygamy

3.4 Persisting Government Initiative for Decreasing the IMR

As of 2010, all Bedouins are entitled to free prenatal care and postnatal care provided in MCHCs (maternal-child health centers), majority of which are located within or in close proximity to the Bedouin settlements. Services provided include childhood immunization program, developmental screening, hearing and vision evaluations and anticipatory guidance. While vaccination coverage tends to be high, other components of infant health care are under utilization. Most of the women arrive late or infrequently for their antenatal checkup. This results in delayed diagnosis and treatment of obstetric and pediatric conditions [5].

4. Discussion

After going through the history of Bedouins in Israel—regarding their transition from a traditional nomadic life to a semi-urbanized lifestyle, their different customs, the present standard and cost of living, and different political and environmental scenarios prevailing around them, it becomes very

important to understand that, proposing a program/policy and implementing it for decreasing the IMR among the Bedouin population of Israel will call for a dedicated planned inter-sectorial coordination.

Prevention, education, health promotion and community mobilizations will be the prime steps required for implementing a successful program for decreasing IMR.

4.1 Prevention of Congenital Malformed Children

The IMR attributed to congenital malformation is 4.9 per 1,000 live births among the Bedouins [5]. Most of the malformations (around 60%) occurred among the residents of the unrecognized villages. Most common malformations were the metabolic diseases, followed by congenital heart disease, musculoskeletal disorders and neural tube defects.

These diseases are the results of consanguinity. The prevalence of consanguineous marriages is 44.8% among the Bedouins in Israel. The most common type of spousal relationship was first cousin (65.7% of all consanguineous marriages) [9]. Consanguinity is a deeply rooted social trend among the Muslim Bedouins in Israel. The offspring of consanguineous unions may be at increased risk for recessive disorders because of the expression of autosomal recessive gene mutations inherited from a common ancestor. The closer the biological relationship between parents, the greater is the probability that their offspring will inherit identical copies of one or more detrimental recessive genes. For example, first cousins are predicted to share 12.5% (1/8) of their genes. Thus, on average, their progeny will be homozygous at 6.25% (1/16) of gene loci [10].

4.1.1 Preconception Genetic Counseling

Preconception genetic counseling for consanguinity is considered one of the important pillars amongst the community genetic services in highly consanguineous populations.

In populations with high consanguinity rates (Fig.1) and common inherited blood disorders, community

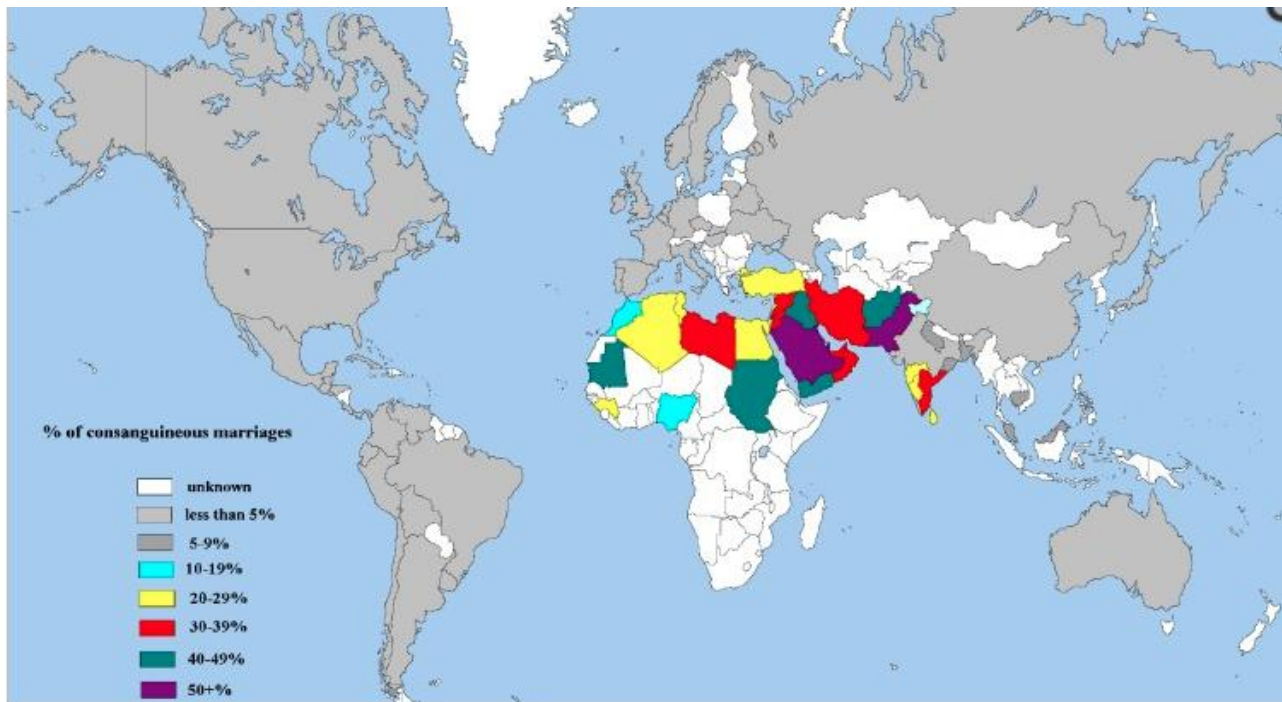


Fig. 1 Global consanguinity rates [10].

programs for premarital screening to detect carriers of hemoglobinopathies such as thalassemia and sickle cell anemia are in progress as for example in Jordan, Saudi Arabia, Iran, Iraq, Bahrain and Turkey. Carrier detection and genetic counseling programs have been very successful in reducing the birth prevalence of inherited disorders in some populations, such as in Iran [10].

So, premarital counseling should be made compulsory among the Arab populations in Israel. The Bedouins should be explained about the importance of such counseling and then the program has to be implemented.

4.1.2 Prenatal Diagnosis

Most of the disorders can be either diagnosed prenatally or can be detected by multiple markers screening tests (“triple test”), prenatal ultrasound or directed genetic testing based on tribal origin or family history of disease [5].

Though the facilities are already available in some of the governmental set-ups in Israel, where the Bedouin women go for their antenatal check-ups, but, promotion should be done for the prenatal diagnosis

and it should be a routine step during antenatal check up, especially for the high risk cases.

4.2 Woman’s Role and Child Health

The young lady, who is an adolescent today, will be a mother tomorrow. And as a result of this, women have an immense role to play in decreasing the child mortality.

4.2.1 Women’s Education

The single biggest factor in reducing the rate of death among children younger than five years is better education for women.

Educated women have better knowledge about contraception and tend to have smaller families; fewer children in a family improve the chance of survival of an infant [11]. Education makes women alert and helps them improve their decision making ability in every field including health and hygiene, nutrition and immunization—which are vital in reducing the leading causes of death in the under five children [12].

Achieving universal primary education was itself included in the Millennium Development Goals. The first measure of success in education was to ensure

that all children should complete primary schooling. But simply completing school is not sufficient. The quality of knowledge and the level of competency that schools are able to successfully impart are equally important. An early start is vital in providing children with good health habits, responsible behavior patterns and improved self-esteem [12]. Therefore, quality education must be the focus of our attention. The state of Israel should be more enthusiastic in increasing the educational status of the Bedouin females.

4.2.2 Women Employment

Traditions in a Bedouin family play a fundamental role in developing a girl's physical, social and mental health. Cultural values are embedded deeply in the family traditions, making her access to health care facilitates limited and most of the time dependent on the family's decision. In terms of seeking health for herself, a woman has no control over decision making, difficulty in going to health centres and discomfort in communicating with male physicians. With a patriarchal system dominating, women do not have much liberty in terms of education and freedom of any kind.

Another factor inhibiting women's empowerment and better health status is lack of support from the husband's family. The religious doctrine is often misinterpreted, leading to an unjustified restriction on women's mobility on the grounds that it is a threat to social and religious values and a distraction from household duties.

In such a condition, it is very important to act in order to empower the women, mainly those of reproductive age group. Empowerment of females can be done in various ways. Formation of SHGs (Self Help Groups) for females, named as "Kishori Panchayat", which means "Adolescent Female Group" can be a good example of how the adolescent females are empowered in the adopted villages of MGIMS (Mahatma Gandhi Institute of Medical Sciences), Sevagram, Maharashtra, India. This is mainly a peer group of adolescent females in the village, where,

under the guidance of the community health nurse, they meet minimum two times every month and share their views and experiences regarding healthy habits and manners, which are guided in a positive manner by the social worker or the village health nurse. They are also involved in vocational trainings like stitching, making dolls etc. that can help them earn their pocket money. This very model may be tried among the Bedouin girls that will not only increase their knowledge about health and hygiene but will also empower them.

4.2.3 Domestic Violence against Woman

Every second woman in the Bedouin family is a victim of domestic violence both physical and mental. Each woman has an average of 3 children, so, for the sake of taking care of the children, the woman abides by the family customs and does not leave the house.

Domestic violence is also having grave consequences on the mothers' health. And it is quite obvious, a sick and weak mother will never bring forth a healthy child. So, in such circumstances, the laws have to be strengthened, that will help fight incidences of domestic violence.

4.3 A Female Bedouin Community Volunteer

One of the key components of the National Health Mission in India is to provide every village in the country with a trained female community health activist ASHA or Accredited Social Health Activist [13]. This has been a step taken by Government of India to develop maternal and child health in the rural population of India.

ASHA is a literate female member of the community, preferably in the age group of 25 to 45 years, who may be married/widow/divorced, so that she stays in the village [13].

The ASHA being a member of the same community is well acquainted with the traditions, norms and customs of the community. She also knows all the families very well and vice versa. So, she has an easy access into the families and whatever she says or

shares with the community will be well accepted by all, compared to the health education imparted by the doctors or other health experts.

If such a concept can be utilized among the Bedouins, it would be a step forward in diminishing the IMR.

4.4 Program for Adolescent Females

Most of the Bedouin women are suffering from nutritional deficiency disorders like Anemia. Programs of implementing weekly Iron and folic acid tablets to the adolescent Arab girls will help decrease Anemia. An anemic mother is responsible for producing a weak baby. There are always increased chances of post partum bleeding for the anemic mothers.

There should be specific programs of supplying free condoms among the Arab women, as it will not only help in contraception, but also prevent them for acquiring sexually transmitted infections, which may pass to her child or may cause gross birth anomaly.

Program may include regular health talks in the villages, mostly by the trained “female Bedouin community volunteers”.

It is quite appreciating that the state of Israel has launched HPV vaccination in the national

immunization program, which includes both females and males. But the adherence to receiving the vaccination should be looked after. There are few groups of people, who are against the HPV vaccination for a number of reasons. Those people should be identified and brainstorming exercises should be done with them regarding the pros and cons of the vaccines. The Herpes infection can also lead to infections in the fetus or the newborn child.

4.5 Preventing Unintentional Accidents

There have been a number of deaths of Bedouin children from unintentional domestic accidents (Fig. 2) that are avoidable. Most of the unnatural deaths occurring in less than 5-year population are described as “Near vehicle deaths”, that is, many of the Bedouin men earn their livelihood by driving cars and they park the car outside their houses and while driving out from their home, they are negligent enough to drive over their small kids who have been hiding or playing behind the wheels.

4.6 Advocating Post Mortem Examination for Unexplained Infant Deaths

In 2012, 18 infants under age 1 year died of unknown causes among the Bedouin community of

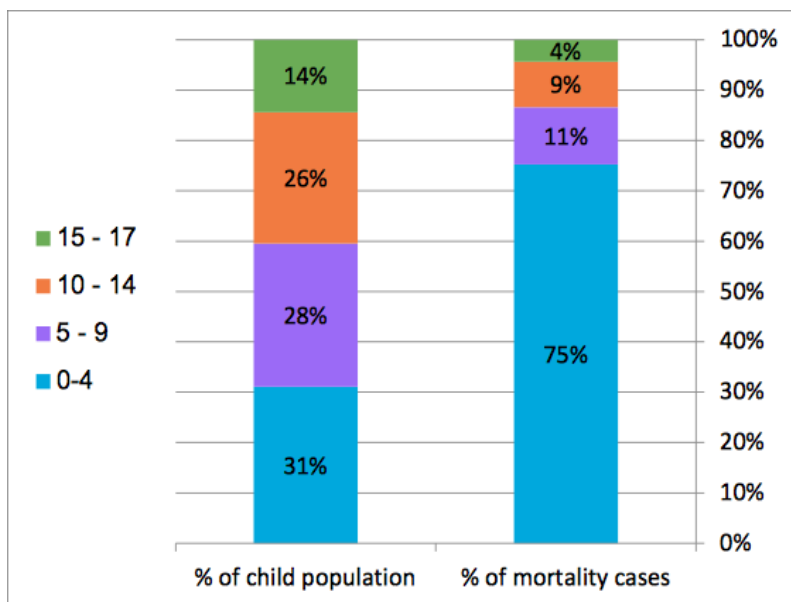


Fig. 2 Mortality among Bedouin children from unintentional domestic accidents in Israel in 2012 [3].

Negev. This category is difficult to summarize given the unclear and likely heterogeneous causes for death. Some cases may be consistent with SIDS (sudden infant death syndrome), but autopsies are usually not performed for religious or cultural reasons.

It is true, post mortem is not well accepted among the Muslim communities of the Bedouins, but it is a necessity. Unless, the real cause of the death is discovered, it is very hard to plan and implement a program properly.

In such a condition, post mortem examination should be made a must by law, when any child dies all of a sudden without any proper diagnosis.

4.7 Addressing Prematurity, Low Birth Weight and Too Many Children

There are a number of causes of prematurity. But the common causes resulting in delivering a premature child in the Arab community are as follows:

4.7.1 Maternal Diseases

A number of maternal diseases like Diabetes, Anemia, STIs (sexually transmitted infections) like Herpes, HIV etc. can cause infection to the fetus and may result in premature delivery or abortions.

4.7.2 Early Marriage

It is quite common in the community, that, girls marry quite early, between 14 to 16 years. But at such an early age, the mother is not ready enough, physically to bear a child, resulting in increased mortality and prematurity.

4.7.3 Decreased Gap between Two Children

It is also another important reason for increased IMR. In general, the Bedouin women are having a high fertility rate and they do not use any contraceptives, so, it is quite difficult to take proper care of the new born, having another accompanied breast feeding child of about a year.

4.7.4 Easy Availability of Cheap IVF and Polygamy

In vitro fertilization is done in women who are diagnosed infertile. For diagnosing a woman infertile,

she should have failed to conceive after unprotected intercourse for at least one year and that too with her spouse having a good sperm count and none of them suffering from any STI.

But, it has been seen that, the Arab men after marrying the lady, expect her to be pregnant by 6 months and if not, they do not wait and they go to different private hospitals and private practitioners for IVF (*in-vitro* fertilization).

And in the mean time, the husband marries his second wife and tries to get a baby and so the problem multiplies.

4.7.5 Breaking the Vicious Cycle

It is clear that, there is a very complex scenario, which can be given the form of a hypothetical vicious cycle (Fig. 3), which is responsible for causing increased IMR among the Arab population. So, programs should be meant to break the cycle for uplifting the infant's health, which is again possible only by virtue of dedicated inter sectorial and political coordination and transparency in work.

4.8 Role of IEC (Information, Education Communication)

Countries often develop posters, flyers, leaflets, brochures, booklets, and messages for health education sessions, radio broadcast or television as a means of promoting desired, positive behaviors in the community. In some cases, these activities are part of a communication plan within a comprehensive strategy, while in many others they are isolated actions.

These initiatives are commonly referred to broadly as "IEC (Information, education and communication)" activities.

An operational definition of "IEC" refers to a public health approach aiming at changing or reinforcing health-related behaviors in a target audience, concerning a specific problem and within a pre-defined period of time, through communication methods and principles.

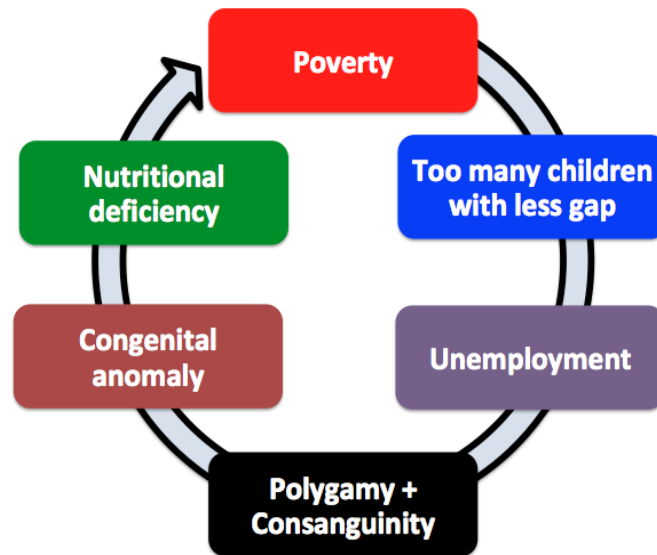


Fig. 3 Vicious cycle.

But, most importantly, all the IEC materials should be in Arabic, so that it is easy for the Bedouins to understand.

4.9 Strengthening of Outreach Activities

The state already runs efficient mobile health services, which go to the interior of the unrecognized villages, mainly for providing the immunization to the children.

These services have to be strengthened and should include antenatal check-ups also.

4.10 Home Based Newborn Care [14]

The main objective of the HBNC (home based newborn care) is to decrease the neonatal mortality and morbidity through:

- (1) The provision of essential newborn care to all newborns and the prevention of complications;
- (2) Early detection and special care of preterm and low birth weight newborns;
- (3) Early identification of illness in the newborn and provision of appropriate care and referral;
- (4) Support the family for adoption of healthy practices and build confidence and skills of the mother to safeguard her health and that of her child.

4.11 Regular Employment of the Household

Poverty is an important factor responsible for increased morbidity among children. Though, now, few of the Bedouins work in nearby factories but it is not a permanent job and less salary.

So, the Bedouins are forced to go back to their traditional nomadic lifestyle. So, in search of job, the families move from one place to the other, and the worst sufferers are the pregnant women and the newborns, in terms of receiving timely health services like vaccinations, antenatal check-ups, education, which ultimately have a grave outcome in terms of IMR.

A scope for regularization of employment of the Bedouins will not only help them to fight away poverty, it will also help Israel to solve the problem of “un-recognized villages”. So, there is a bilateral benefit of employment.

4.12 To Run a Community Clinic in Regular Basis

Though the state runs a community clinic (responsible for primary care) in almost all of the unrecognized Bedouin villages, from which the Bedouins get the very essential oral drugs free of cost, but the clinic works for 4 (four) hours, twice a week, and the nearest health facility is around 50 km from

the village, that too with no proper roadways.

So, first step has to be regularization of the clinic, with increase in number of essential drugs in the free basket including barrier contraception.

4.13 Improved Referral System

Most of the unrecognized Bedouin villages are deprived of any proper road systems, as a result of which, it is very difficult for the ambulance to reach in time. In most cases, the child dies, by the time the ambulance arrives.

So, the first thing that has to be done is to build roads in the villages (after recognizing the “unrecognized” villages) and secondly to maintain a system of quick referral via ambulance to the nearest health center.

Infant mortality is quite low in Israel and there will be further improvement, once the IMR among the Bedouin population (whose IMR is approximately 3 times the IMR of the Jews) is controlled.

The various programs that are discussed should be implemented in practice in order to see a positive change in the IMR of the Bedouin communities in Israel. Addressing the problem calls for a multi-disciplinary, broad-minded, longitudinal approach requiring years of investment to achieve significant results. Key components should include increasing human resources especially nurses and physicians, financial investments in health sector, more accessible health care, improved data sharing between health providers, awareness of the problem and motivation to solve it from within the Bedouin community itself and increased research work.

Conflict of Interest

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