Acute Respiratory Tract Infection among children in rural parts of Ballabgarh – A Community based study

By

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AIIMS

- Created in 1956
- 600 research publications by its faculty & researchers in a year
- 60-bedded hospital in the Comprehensive Rural Health Centre at Ballabgarh in Haryana
- Health cover to 2.5 lakh population through the Centre for Community Medicine

Global Scenario

- 156 million pneumonia cases occur globally each year.
- 95% of them in developing countries.
- 8.7% life-threatening & require hospitalisation.
- 2 million pneumonia deaths each year in African and South-East Asia Regions.

Rationale of Study

- Need of periodic surveys to determine incidence of ARI associated morbidity & mortality in children.
- Plan, organise & evaluate health services.
- Few prospective longitudinal studies on ARI in rural community.
- Knowledge gaps associated with acute respiratory tract infections.

General Objectives

To describe epidemiology of acute respiratory tract infections among children (under 10) in rural parts of Haryana.

Specific Objectives

1. To estimate incidence of acute respiratory tract infections among children (under 10) in rural community.
2. To estimate incidence of acute lower respiratory tract infections (ALRI) among children (under 10) in rural community.
3. To estimate the hospitalization rate among ALRI patients.

Data and Methods

- **Study design-** Community based prospective longitudinal study
- **Study Area-** 4 villages of Haryana (Faridabad)
- **Study Population-** All children < 10 years age.
- **Sample Size-** 3197 (Under 10 year)
- **Tool-** Community based questionnaire

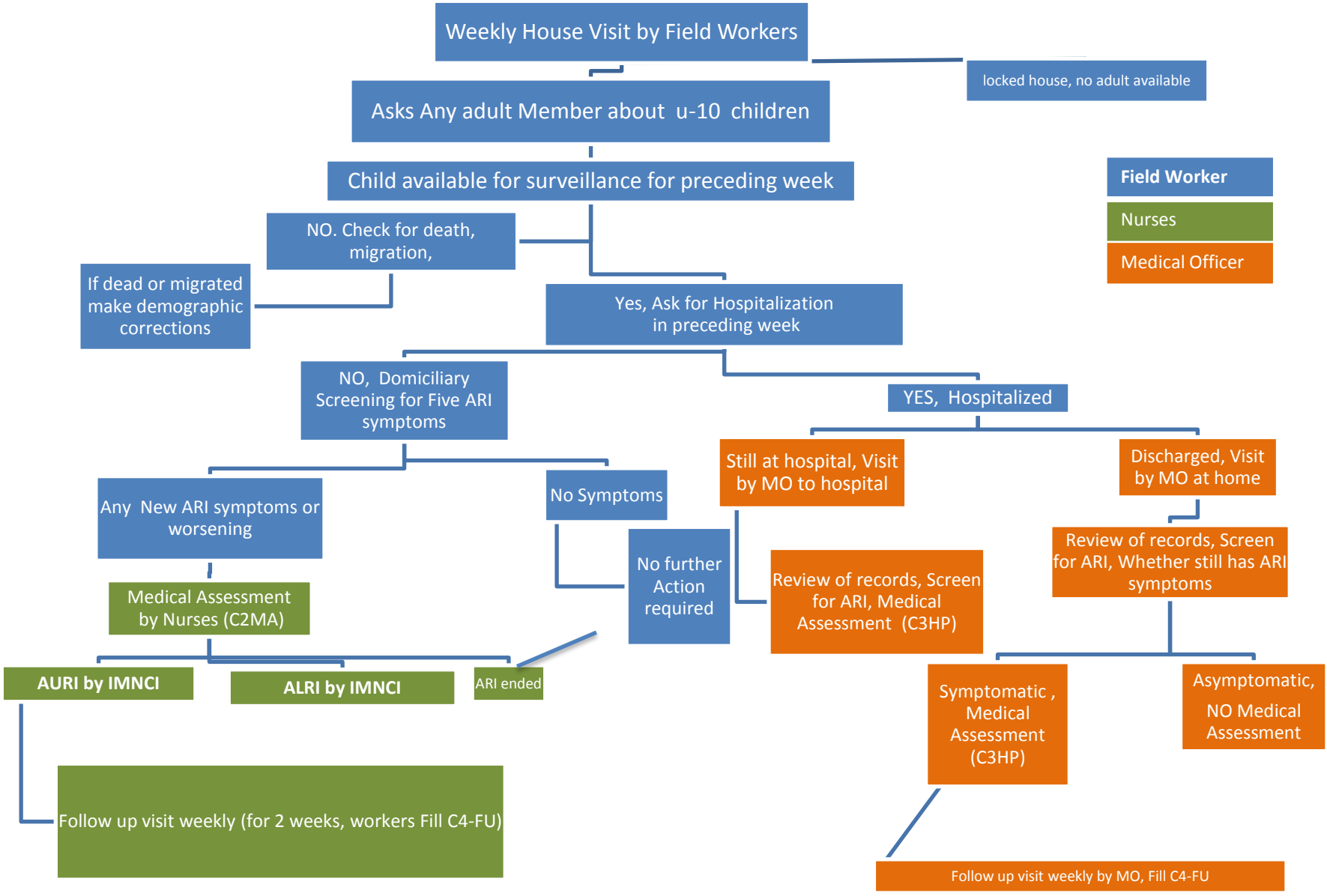
Study Definition of Acute Respiratory Infection

History of new onset (within previous 7 days) or exacerbation of one or more of the following symptoms

I. Cough
II. Sore Throat (Children over 2 years)
III. Ear-ache
IV. Running Nose/Coryza
V. Rapid breathing / Shortness of breath

Methodology

Flow Chart of ARI Surveillance in Community



Results and Findings

Demographic Profile of Cohort

Population of Study villages(At start of study)

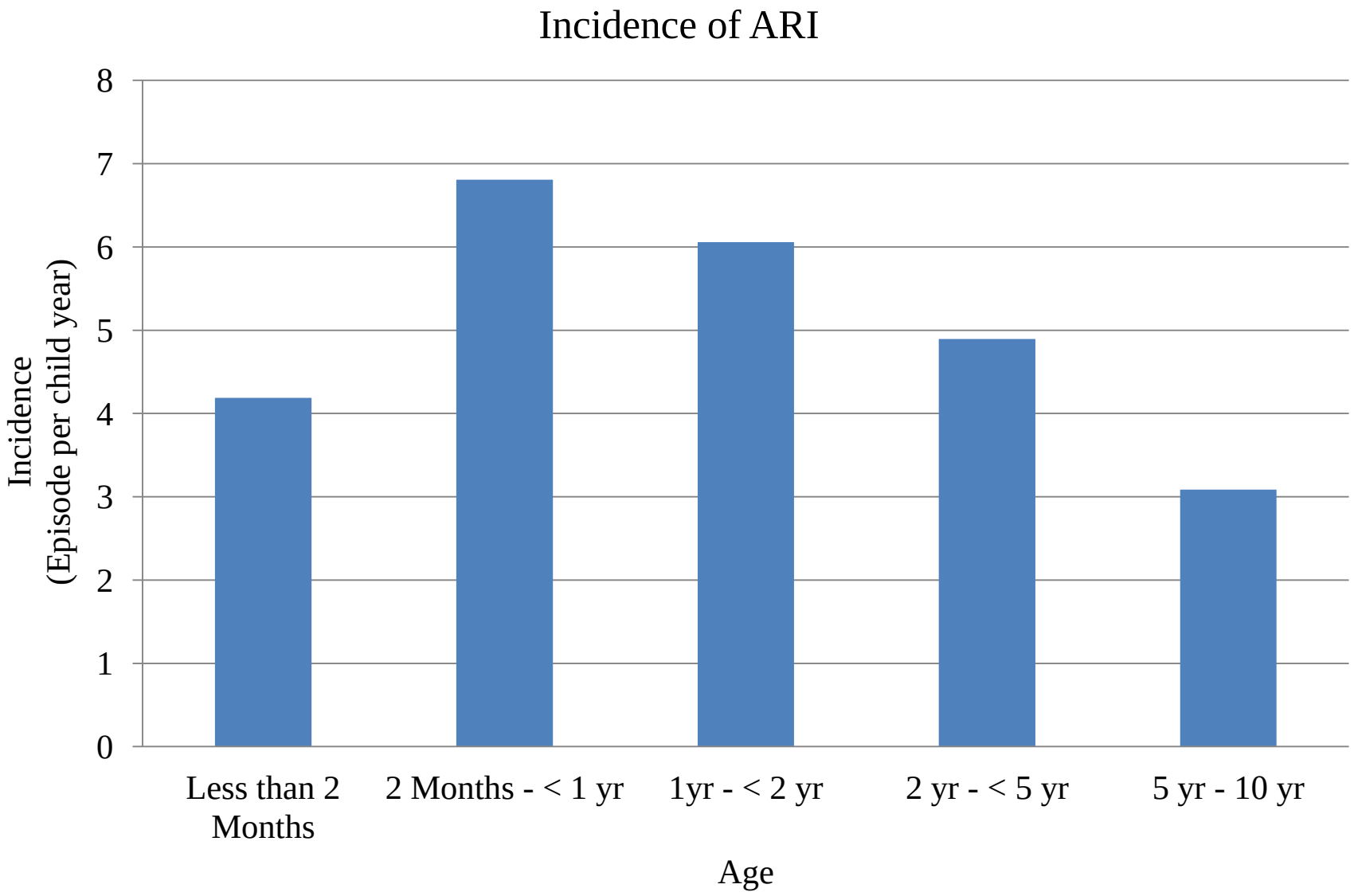
VILLAGE	HOUSES	CHILDREN (Under 10 yrs)	MALE	FEMALE
Village 1	433	537	290	247
Village 2	554	642	357	285
Village 3	510	1202	599	560
Village 4	370	448	215	201
Total	1867	2754	1461	1293

Age-wise Population of Children in Villages as on 31st March 2013

Age	Total Population
Less than 2 Months	63
2 Months - < 1 yr	274
1yr - < 2 yr	331
2 yr - < 5 yr	949
5 yr - 10 yr	1501
Total	3118

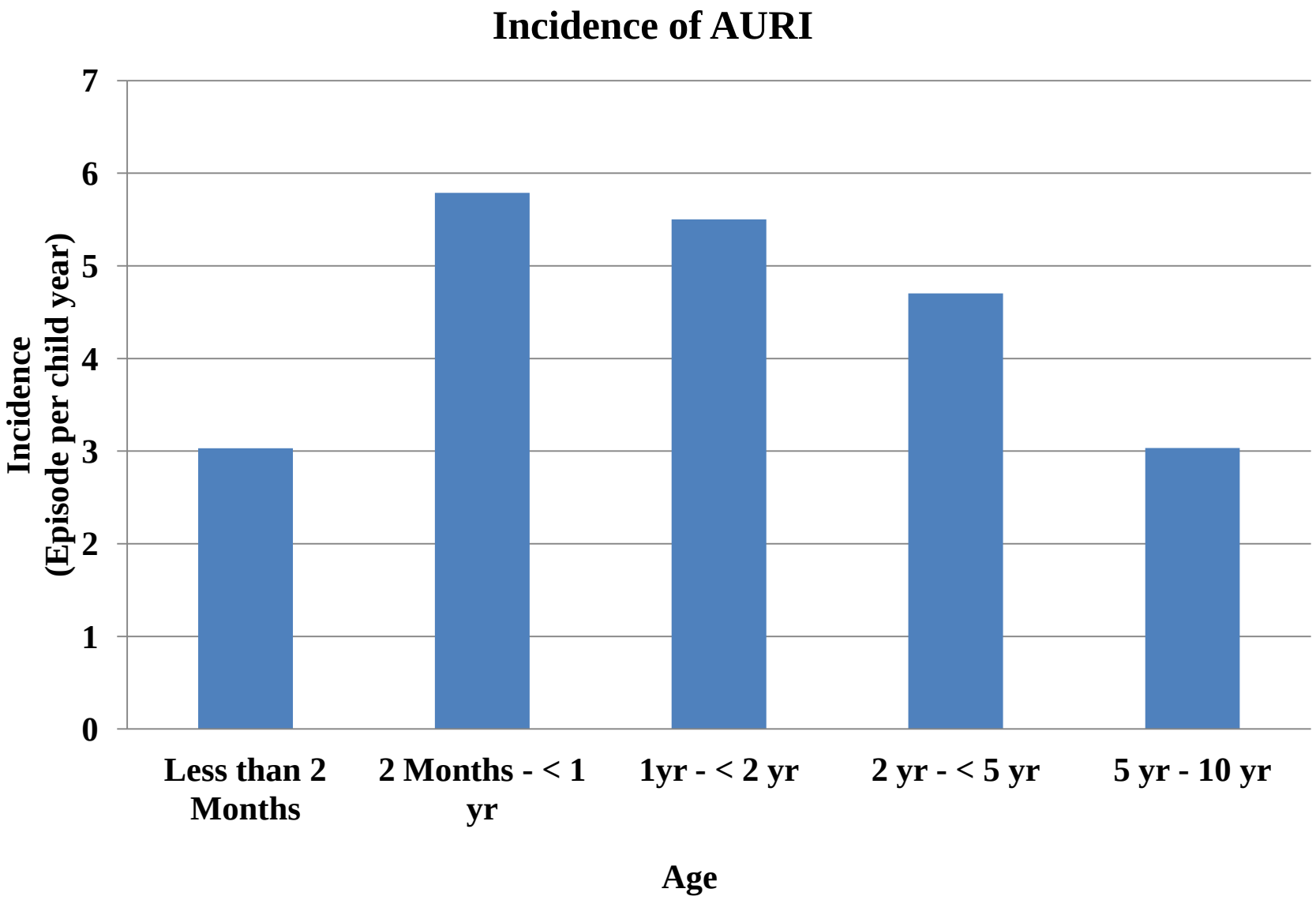
Incidence of Acute Respiratory Tract Infection (ARI) in Children

Age	Total Weeks of Surveillance	Total ARI Cases	Incidence (Episode per child year)
Less than 2 Months	944	76	4.1864
2 Months - < 1 yr	8516	1115	6.8084
1yr - < 2 yr	11169	1301	6.0571
2 yr - < 5 yr	31812	2995	4.8956
5 yr - 10 yr	49859	2958	3.0850
Under 10 yr	102300	8445	4.2927


Incidence of ARI
Incidence (Episode per child year)
8
7
6
5
4
3
2
1
0
Less than 2 Months
2 Months - < 1 yr
1yr - < 2 yr
2 yr - < 5 yr
5 yr - 10 yr
Age

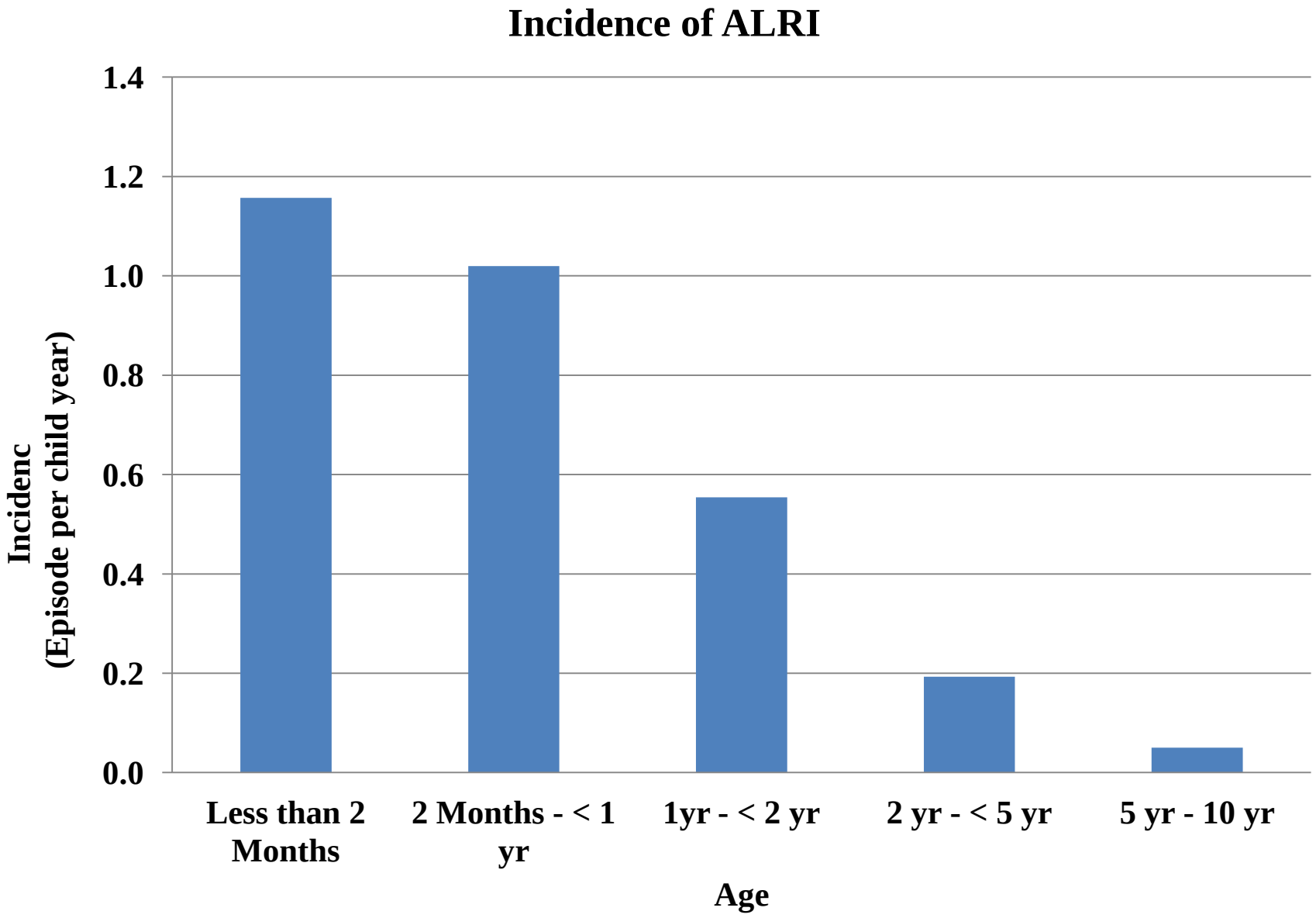
Incidence of Acute Upper Respiratory Tract Infection (AURI) in Children

Age	Total Weeks of Surveillance	Total AURI Cases	Incidence (Episode per child year)
Less than 2 Months	944	55	3.0297
2 Months - < 1 yr	8516	948	5.7886
1yr - < 2 yr	11169	1182	5.5031
2 yr - < 5 yr	31812	2877	4.7028
5 yr - 10 yr	49859	2910	3.0350
Under 10 yr	102300	7972	4.0522


Incidence of AURI
Incidence (Episode per child year)
7
6
5
4
3
2
1
0
Less than 2 Months
2 Months - < 1 yr
1yr - < 2 yr
2 yr - < 5 yr
5 yr - 10 yr
Age

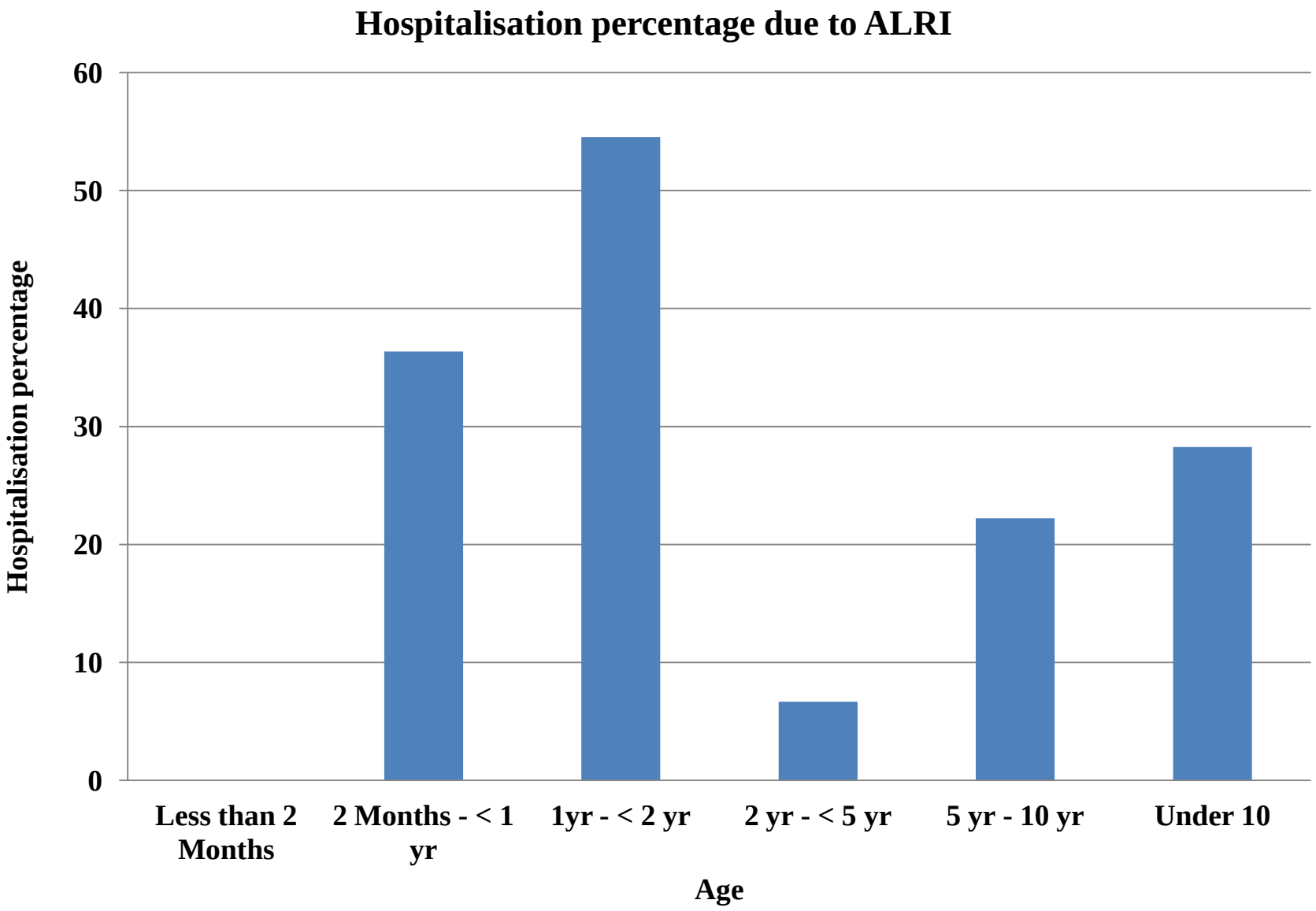
Incidence of Acute Lower Respiratory Tract Infection (ALRI) in Children

Age	Total Weeks of Surveillance	Total ALRI Cases	Incidence (Episode per child year)
Less than 2 Months	944	21	1.1568
2 Months - < 1 yr	8516	167	1.0197
1yr - < 2 yr	11169	119	0.5540
2 yr - < 5 yr	31812	118	0.1929
5 yr - 10 yr	49859	48	0.0501
Under 10 yr	102300	473	0.2404


Incidence of ALRI
Incidenc
(Episode per child year)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Less than 2 Months
2 Months - < 1 yr
1yr - < 2 yr
2 yr - < 5 yr
5 yr - 10 yr
Age

Hospitalisation rate due to Acute Lower Respiratory Tract Infection (ALRI)

Age	Child years	Child hospitalised		Hospitalisation Rate (Per 1000 child year)	
		ALRI	Total	ALRI	Total
Less than 2 Months	18.15	0	0	0	0
2 Months - < 1 yr	163.77	4	11	24.42	67.17
1yr - < 2 yr	214.79	6	11	27.93	51.21
2 yr - < 5 yr	611.77	1	15	1.63	24.52
5 yr - 10 yr	958.83	2	9	2.09	9.39
Under 10	1967.31	13	46	6.61	23.38


Hospitalisation percentage due to ALRI
Hospitalisation percentage
60
50
40
30
20
10
0
Less than 2 Months
2 Months - < 1 yr
1yr - < 2 yr
2 yr - < 5 yr
5 yr - 10 yr
Under 10
Age

Conclusion and recommendations

- Major cause of morbidities in early childhood especially in infants and children less than 2 yrs as found in the study.

- Major cause of hospitalization in children less than 2 years of age.

- Decisions need to taken at national & state policy level.

- At village level

- Educating villagers about danger signs of pneumonia

- Early treatment to be provided at sub-centre and PHC level

- Improvement of health facilities at village level.

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Thank You