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Appendix 1

RISK FACTORS FOR SEVERE ARI IN CHILDREN UNDER FIVE YEARS OF AGE IN AN URBAN BANGLADESHI COMMUNITY

This questionnaire is to be administered by a trained ARI physician and should be filled up by interview of the mothers of current cases.

It will be necessary to obtain an oral consent from the guardian of the selected subjects. Some of the data will be collected from the health card or immunization card of the child.

Date ___/___/___/ Identification no:___

Diagnosis: CASE/CONTROL [ ] Verified: Y/N [ ]

The Questionnaire

PART I The child with ARI

Q.1.	Date of birth	dd / mm / yy ___/___/___/
	Age (In months)	_____ Months
Q.2.	Sex	Male / Female
Q.3.	Weight (In grams)	_____grams
	Nutritional status	Normal [ ] Malnutrition 1st degree [ ] 2nd degree [ ] 3rd degree [ ]
Q.4.	Birth weight	_____grams
Q.5.	Vaccination given to the child ? If no, go to Q.7	Yes/No [ ]

Q.6. Enter information according to the immunization card.

	Accurately from card dd / mm / yy	Roughly if no card dd / mm / yy
BCG	___/___/___/	___/___/___/
DPT I	___/___/___/	___/___/___/
DPT II	___/___/___/	___/___/___/
DPT III	___/___/___/	___/___/___/
Measles	___/___/___/	___/___/___/

Q.7. Did the child has diarrhoea during last 14 days ? Yes/No [ ]

Q.8. Did this child has any serious illness during past year ? Yes/No [ ]
If no, go to Q.11

Q.9. How many times ? _____

Q.10. Can you please describe the illness ?
(If ARI, Please note the type) _____

Q.11. Has any other of your children have same illness during past 14 days ? Yes/No [ ]

Q.12. Did you breastfeed your child birth ? Yes/No [ ]
If no, go to Q.14

Q.13. Please specify type of breastfeeding with duration in months.

a. Exclusive breastfeeding: 0 1 2 3 4 5 6 7 8 9 10
b. Bottle feeding: 0 1 2 3 4 5 6 7 8 9 10
c. Mixed feeding: 0 1 2 3 4 5 6 7 8 9 10

Q.14. can the child see well at night ? Yes/No [ ]
Vitamin 'A' deficiency ? Yes/No [ ]
(Put the result from clinical examination) Type [ ]

(1) Night blindness (2) Xerophthalmia
(3) Corneal opacity (4) Normal

Q.15. How many persons presently sleeping in the same room with the child ? [ ]

PART II Questionnaire about mother and household

Q.16.Age of mother(In years)	_____years	
Q.17.Education of mother(In years)	_____years	
Q.18.Marital status	Married	[ ]
	Others	[ ]
Q.19.Occupation of mother	House wife	[ ]
	working	[ ]
If house wife, go to Q.23		
Q.20.Hours mother stay outside home	> 8 hours	[ ]
	< 8 hours	[ ]
Q.21.Distance of work place	> 3 Kms	[ ]
	< 3 Kms	[ ]
Q.22.Caretaker of the child, in absence of mother ?	Grands	[ ]
	Others	[ ]
Q.23.Number of under five children in the family ?	_____	
Q.24.Monthly family income in Takas	_____	
Q.25.Where do you cook ?		[ ]
(1)Inside bedroom		
(2)Attached to bedroom		
(3)Another place		
Q.26.Kind of fuel do you use for cooking ?		[ ]
(1)Gas (2)Electricity (3)Biogas		
(4)Kerosine (5)Others		
Q.27.Ventilation of bedroom ?	Good	[ ]
	Average	[ ]
	Poor	[ ]
Q.28.Smoke outlet in cooking place ?	Yes/No	[ ]
Q.29.Window opposite cooking place ?	Yes/No	[ ]
Q.30.Who smoke regularly in the family ?		[ ]
(1)None (2)Father (3)Mother		
(4)Both (5)Others		

Q.31.History of atopisity in the family ? Yes/No [ ]
If no, go to Q.35

Q.32.Who suffer from allergy ? [ ]
(1)Father (2)Mother
(3)Both (4)Others

Q.33.Type of allergy ? [ ]
(1)Food allergy (2)Skin allergy
(3)Respiratory symptoms (4)Others

Q.34.Duration of allergy. (In years) ? _____Years

Q.35.What kind of bed used by child for sleeping ? [ ]
(1)On Earth floor (2)On wooden bed
(3)Others

PART III Maternal knowledge and Practice

Q.36. When did this illness start ?
(Record sequence of signs and symptoms by day in the calendar below).

Days	Signs/Symptoms

Q.37.What illness do you think he/she has ? _____

Q.38.What worried you to decide to come to hospital ? _____

Q.39.Did you have to wait sometime (days) before coming here ? Yes/No [ ]
If no, go to Q.41
Q.40.Reasons for your wait, Please specify _____

Q.41.How many days you have delayed ? _____

Q.42.What did you do with the feeding
of the child during this illness ?
a.Solid food [ ]
(1)More than usual (2)Less than usual
(3)As usual
b.Fluid [ ]
(1)More than usual (2)Less than usual
(3)As usual

Q.43.Did you stop breast feeding
during this illness ? Yes/No [ ]

If no, go to Q.45

Q.44.Reasons for stopping breast feeding ? _____

Q.45.Did you treat him before coming
to hospital ? Yes/No [ ]

If no, go to Q.48

Q.46.Type of treatment Given ? _____

Q.47.For how many days ? _____

Q.48.Check list for ARI patient:

Signs and symptoms		Duration	Verbatim used
Fever	Y/N [ ]		
Cough	Y/N [ ]		
Running Nose	Y/N [ ]		
Blocked Nose	Y/N [ ]		
Severe chest indrawing	Y/N [ ]		
Stridor	Y/N [ ]		
Drowsiness	Y/N [ ]		
Unable to drink	Y/N [ ]		
Low temperature	Y/N [ ]		
Convulsion	Y/N [ ]		
Fast Breathing	Y/N [ ]		Rate of breathing /minute_____
Others			

PART IV Investigations

Q.49.C.B.C. P_____ L_____ E_____ B_____ M_____ [ ]

(1) Polymorph.Leukocytosis
(2) Lympho.Leukocytosis
(3) Poly.Leukemoid Reaction
(4) Lympho.Leukemoid Reaction
(5) Normal

Q.50.X-Ray chest [ ]

(1) Patchy opacity
(2) Pneumonic consolidation
(3) Patchy opacity + Consolidation
(4) Normal

Q.51.Final sequelae in case (at discharge) [ ]
(1)Cured (2)Discharged(self)
(3)Missed (4)Refereed
(5)Complication (6)Fatality

Q.52.Final sequelae in controls [ ]
(1)Cured (2)Not Improved
(3)Missed (4)Complication
(5)others

Notes /Comments if any ?

T H A N K Y O U F O R C O O P E R A T I O N

Appendix 2.

Respiratory infections in children: management in small hospitals

A manual for doctors

WORLD HEALTH ORGANIZATION
GENEVA
1988

SUMMARY OF CASE MANAGEMENT

Very severe: admit to hospital and give chloramphenicol

Cough or wheeze with cyanosis or not able to drink.
(If you do not have chloramphenicol: give benzylpenicillin, ampicillin, or amoxycillin and gentamicin.)

Severe: admit to hospital and give antibiotics

Cough with no wheeze: admit if chest indrawing is occurring.

Cough and wheeze: admit if the respiratory rate is over 50 breaths per minute.

Also admit a child with:

- stridor at rest (laryngotracheobronchitis (croup), diphtheria, epiglottitis);
- an adherent grey pharyngeal membrane (diphtheria);
- convulsions, apnoea, severe dehydration or drowsiness.

Moderate: give antibiotics at home and supportive therapy

Cough and fast breathing (50 breaths per minute) with no chest indrawing.

Red ear drum, or ear discharge for less than two weeks.

Purulent pharyngitis with large and tender lymph nodes in the neck (cervical adenitis).

Mild: give supportive therapy at home, but no antibiotics

Cough or wheeze with a respiratory rate of less than 50 breaths per minute.

Stridor absent when the child is quiet.

Blocked or runny nose.

Red throat.

Ear discharge for more than two weeks.

Appendix 3

Table 2.1
Comparison of case control studies
for risk factors of ARI and severe ARI

No.Study site	Study type	Study population	ARI classification	Important Risk Factors
1.Bunes Aires Argentina Nutritional Status	Matched 1:1 Age/Sex/SES	< 5 Yrs, 699	ALRI(Radiology+) Vs Healthy	Concurrent ARI Recurrent ARI Current Asthma Bronchial Hypersensitivity Incomplete DPT Breastfeeding < 1 Month Aerosol use
2. Southern Brazil	Age matched1:1	< 2 Yrs, 1000	ALRI(Radiology+) Vs Healthy	Day care center attended Malnutrition Lack of breastfeeding Recurrent ARI
3. Bangkok Thailand	Unmatched 1:1	< 3 Yrs, 450	Healthy Vs URI Healthy Vs LRI URI Vs LRI Radiology+)	Malnutrition Crowding Concurrent ARI Incomplete Vaccination Poor Hygiene
4. Southern Brazil	Unmatched 1:2	< 5 Yrs, 381	Mortality study ARI(death case) VS Healthy Control	Lack of breastfeeding Fathers' absence Crowding Low Income Low Birth weight
5. Rural Gambia	Matched Age/Sex Ethnic group	< 2 Yrs, 387	Mortality study ARI(Death case) Vs Other(Death case) Verbal autopsy	Indoor smoke No other significant Factors detected

Appendix 4

Comparison of different types studies of ARI risk factors

Study site Study type	Study population Total sample(N)	ARI classification	Setting	Instrument
Argentina Descriptive	< 5 Yrs, 1003	ARI only (I) Criteria set by Investigator	Hospital	Clinical Questionnaire Lab test
Bangladesh Descriptive	< 5 Yrs, 405	ALRI(I)	Hospital	Do
Philippines Descriptive	< 5 Yrs, 603	WHO manual	Hospital	Do
Philippines Cohort	< 5 Yrs, 1978	ARI/ALRI(I)	Community	Observation Questionnaire
Uruguay Cohort	106 Birth cohort	URI/LRI(I) BOSTID signs	Community	Do
Columbia Cohort	340 Birth cohort	BOSTID signs (-Sore throat)	Community	Do
Thailand Cohort	< 4 Yrs, 674	BOSTID signs + Any two(I)	Community	Do
Kenya Cohort	< 3 Yrs, 470	BOSTID signs At least two	Community	Do
Argentina Case control	< 5 Yrs, 1003	ALRI(I)	Hospital	Clinical Questionnaire Lab test

BOSTID = Board of Science and Technology for International Development.
ALRI = Acute Lower Respiratory Infections.
LRI = Lower Respiratory Infections.
URI = Upper Respiratory Infections.

Appendix 5 Correlation of mothers' terms of sign symptoms as mentioned by mothers

Illness	Terms used	Respondent mothers Cases	Controls
1.Fever	Jor	148	154
2.Cough	Kashi	180	176
	Cough	0	1
3.Running nose	Nak bondo	1	1
	Sash kosto	1	0
	Thanda	141	166
4.Blocked Nose	Beshi sash kosto	1	0
	Buk chepe jawa	1	0
	Dom bondo	1	0
	Ghor ghor sobdo	1	0
	Nak bondo	41	19
	Sash bondo	1	0
	Sash kosto	33	49
	Sash tante pare na	1	0
	Thanda	1	0
	Uash tulte pare na	6	2
5.Chest Indrawing	Sash kosto	108	3
	Buk chapa	26	1
	Hapani	4	0
	Hapor bhanga	7	0
	Ghono ghono sash	2	0
	Pater upar debe jawa	5	1
	No response	1	0
6.Fast breathing	Beshi beshi sash kosto	7	4
	Ghono ghono sash	26	21
	Hapanir tan	10	6
	Sah kosto	75	50
	sash shavabik na	1	0
	No response	1	0
7.Stridor	Sashe kosto	2	1
	Sasher sobdo	1	0
8.Abnormally sleepy	Acheton	1	0
	Beshi ghoom	2	0
	Hat pa nare na	1	0
9.Unable to drink	Buker doodh tane na	1	0
	Khawa bondo	1	0
	Kichu khai na	3	0
10.Convulsion	Khichuni	8	0

VITAE

Dr. Shaikh A. Shahed Hossain was born in Khulna, Bangladesh. He received his bachelor degree in medicine in 1980, from Rajshahi Medical College, under the Faculty of Medicine, Rajshahi University in Bangladesh.

After residency, he joined the government service under the Ministry of Health and Family planning of Bangladesh and worked in different positions in rural and urban health centers and hospitals. In 1984 he joined the International Center for Diarrhoeal Disease Research (ICDDR) as a member of national epidemic control cell. From 1985 to 1993 he worked abroad as a physician mainly in IRAN. From 1994 till now he has been working as an honorary Medical Officer in the Children Hospital, Dhaka (Dhaka Shishu Hospital).

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