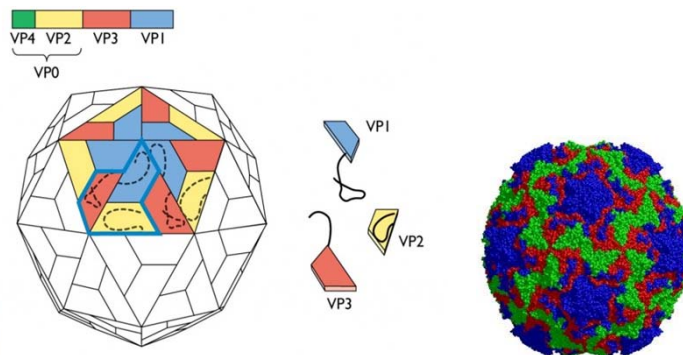


## Molecular Epidemiology of Human Rhinovirus infections in Mongolia in 2008-2013

*S. Tsatsral, NCCD, Department of Virology*

### Human Rhinovirus structure

Human rhinoviruses (HRVs) are small, single-stranded, positive-sense RNA viruses that are now classified within the genus *Enterovirus* in the family Picornoviridae.



## Human Rhinovirus

- \*The first HRV was discovered in 1953 and by now HRVs were classified into approximately 150 genotypes of HRV-A, B and C groups .
- \*HRVs are the most frequent causes of acute upper respiratory tract infections (RTIs). HRV illnesses are common in all age groups, they occur throughout the year and they are present world-wide. In longitudinal family studies the overall HRV isolation rate in persons with RTIs has varied from 6.1% to 23.3.

## Materials

We have studied 2515 Nasopharyngeal swabs which were negative for influenza viruses. These samples were collected from November 2008 to March 2013 from patients with acute RTIs and were kept at the National Center of Communicable Diseases (NCCD).

## Method-I

I – Rhinoviruses detection in clinical samples

II – Rhinovirus genotyping (Sequence)

### Rhinoviruses detection in clinical samples

#### \*RNA extraction

(ExiPrep™ Viral DNA/RNA kit, Bioneer, Korea)

#### \*Rhinoviruses detection for real time PCR

(“FTD respiratory pathogen 21” kit, Fast track diagnostics, Luxembourg)

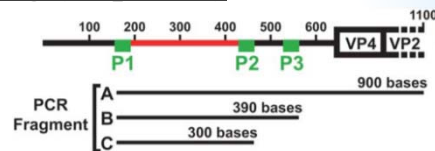
## Method-II

### Rhinovirus genotyping (Sequence)

#### \*PCR amplification

- VP4/VP2

- 5'UTR



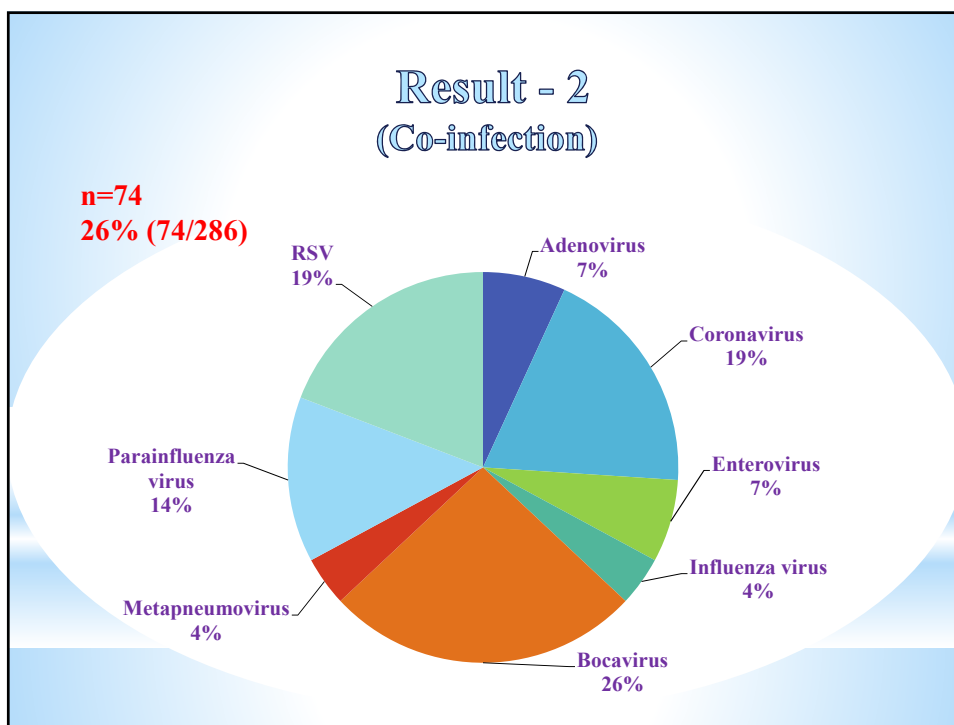
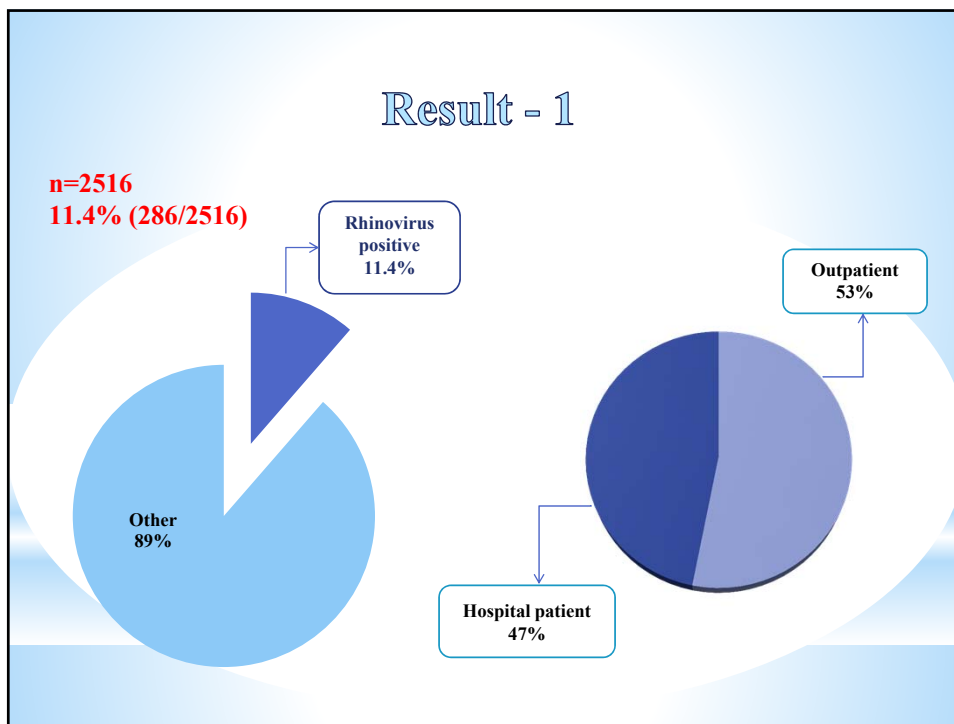
#### \*Clean PCR product (Gel purification)

#### \*Ligate PCR product (Cloning PCR products, pGEM-T Easy Vector, Promega)

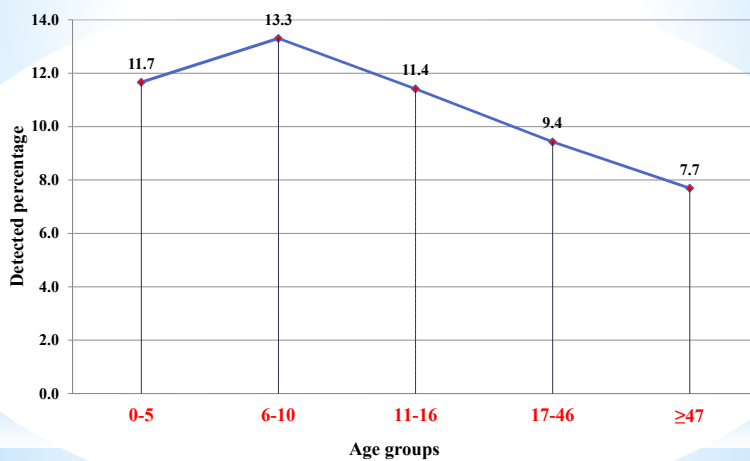
#### \*Transform bacteria (*E-Coli*, DH5a competent cell)

#### \*Plate bacteria (LB/amp/IPTG/X-Gal plate, blue and white screening)

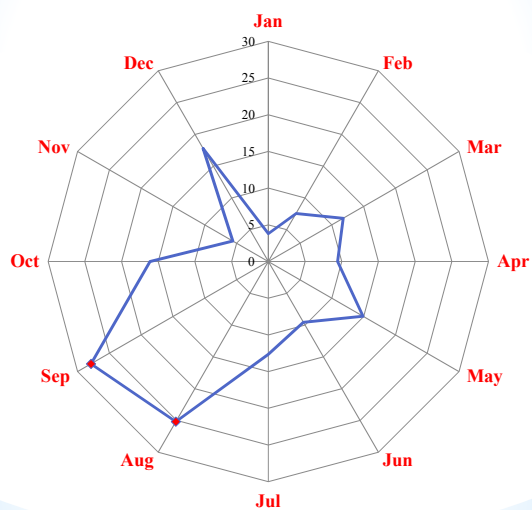
#### \*Analyze sequence (ABI 3130xl genetic analyzer, M13 vector primer)

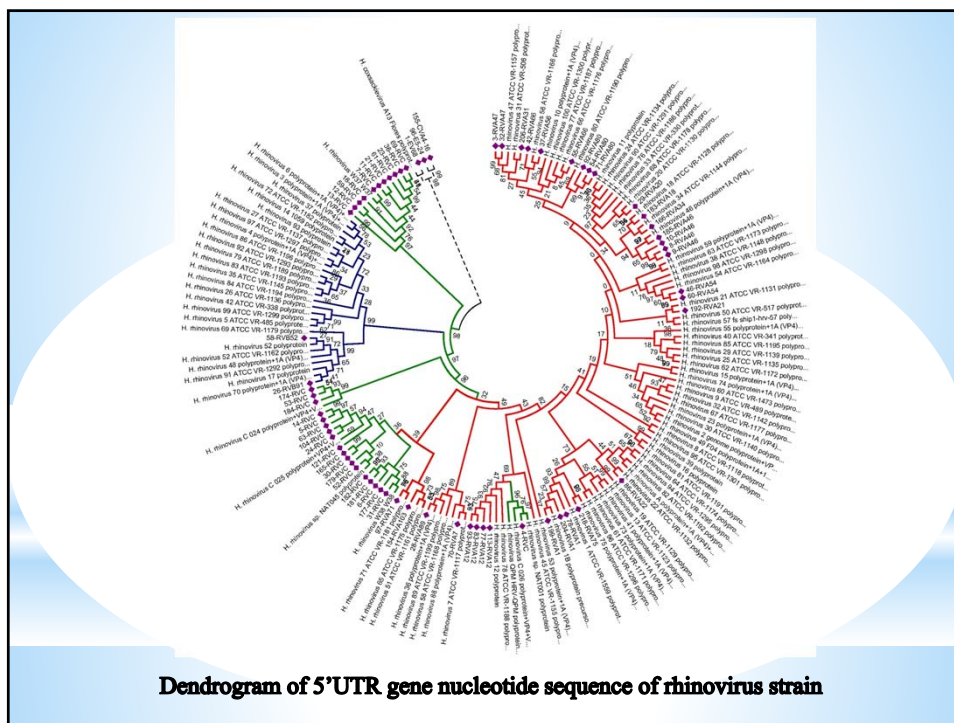
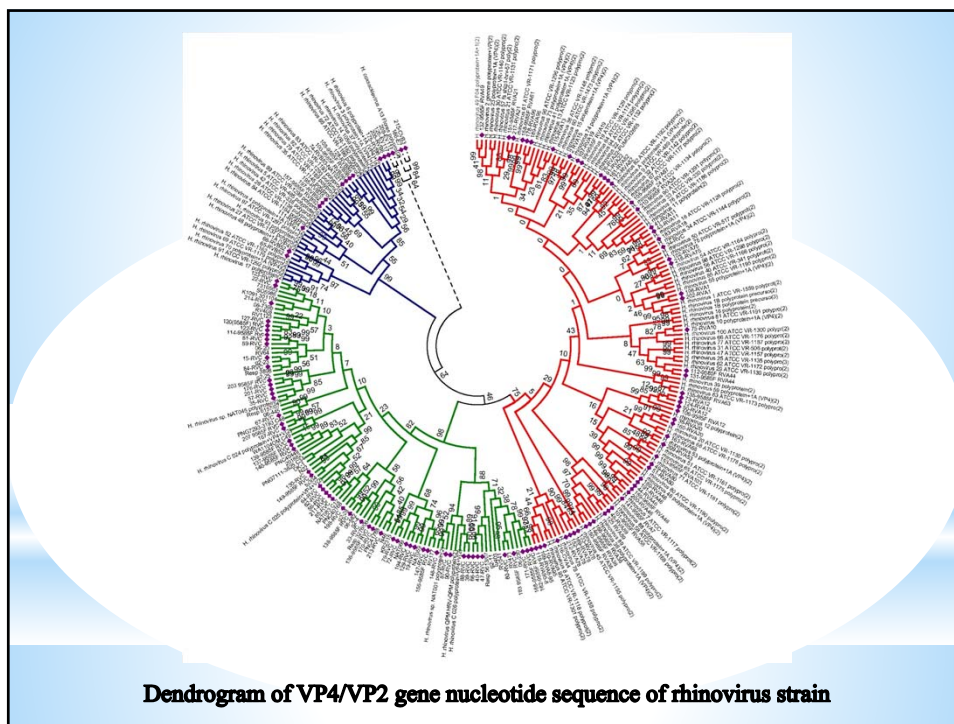


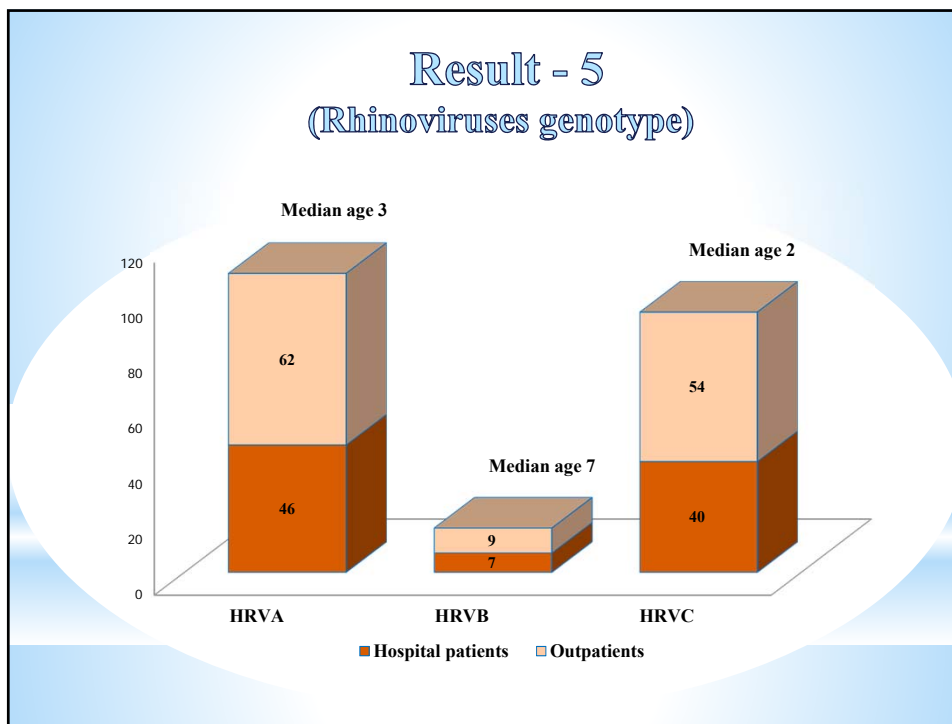
### Result-3 (Age groups)



### Result - 4 (Distribution of detected rhinoviruses, per month)







## Conclusions

- \*HRV was detected throughout the year and in all age groups.
- \*From all genotypes of HRV genotypes HRVA and HRVC were more frequently detected than HRVB genotype.

