Student Study (University-based index cluster cohort)

Purpose: early and accurate identification of subjects with viral Respiratory Tract Infection (RTI).

Importance:

- Treatment guidance.
- Public health interventions.

Enrollment:

- 2009-2015.
- Electronic surveyed cohort:
  - Identify symptomatic Index Cases (IC).
  - Identify clusters of Close Contacts (CC).
  - Monitor CCs for 5 days:
    - Symptoms (self-reported)
    - Viral pathogens (shedding)
    - Targeted gene expression (RT-PCR).

Period	Enrollment	Index	Close Contact
2009-2010	448	78	126
2010-2011	404	86	122
2011-2012	420	50	169
2012-2013	0	0	1
2013-2014	88	15	55
2014-2015	105	35	82
Total	1465	264	555

Agent	2009-10	2010-11	2011-12	2013-14	2014-15	Totals
Influenza	8	18	8	4	8	46
Parainfluenza	7	22	7	0	5	41
Rhinovirus	30	25	15	6	61	137
Coronavirus	18	19	8	7	9	61
Coxsackie/Echovirus	24	23	10	ND*	ND	57
Adenovirus	1	1	0	1	6	9
Metapneumovirus	6	0	4	4	3	17

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Subjects with targeted gene expression (approx. 30 targets).

	SUBJECTID	Encounter	Index	Close Contact	Baseline
2009-2010	93	111	103	8	0
2010-2011	103	135	111	23	1
2011-2012	76	92	63	25	4
2013-2014	34	43	17	10	16
2014-2015	53	93	46	16	31
Total	359	474	340	82	52

Agent	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	Total
Adenovirus	0	1	0	0	1	3	5
Bocavirus	0	0	0	0	0	1	1
Coronavirus	6	16	8	0	3	8	41
Coxsackie/Echovirus	19	13	12	0	0	0	44
Human Metapneumovirus	2	0	4	0	4	2	12
Influenza	10	9	0	0	1	1	21
Parainfluenzavirus	3	0	3	0	0	4	10
RSV	2	4	3	0	0	1	10
Rhinovirus	25	14	23	0	3	20	85

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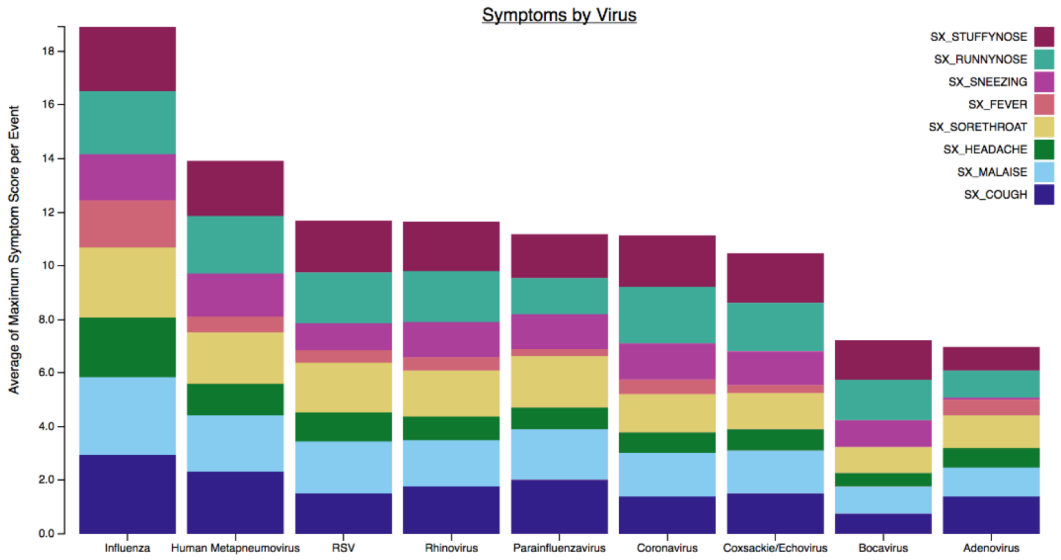

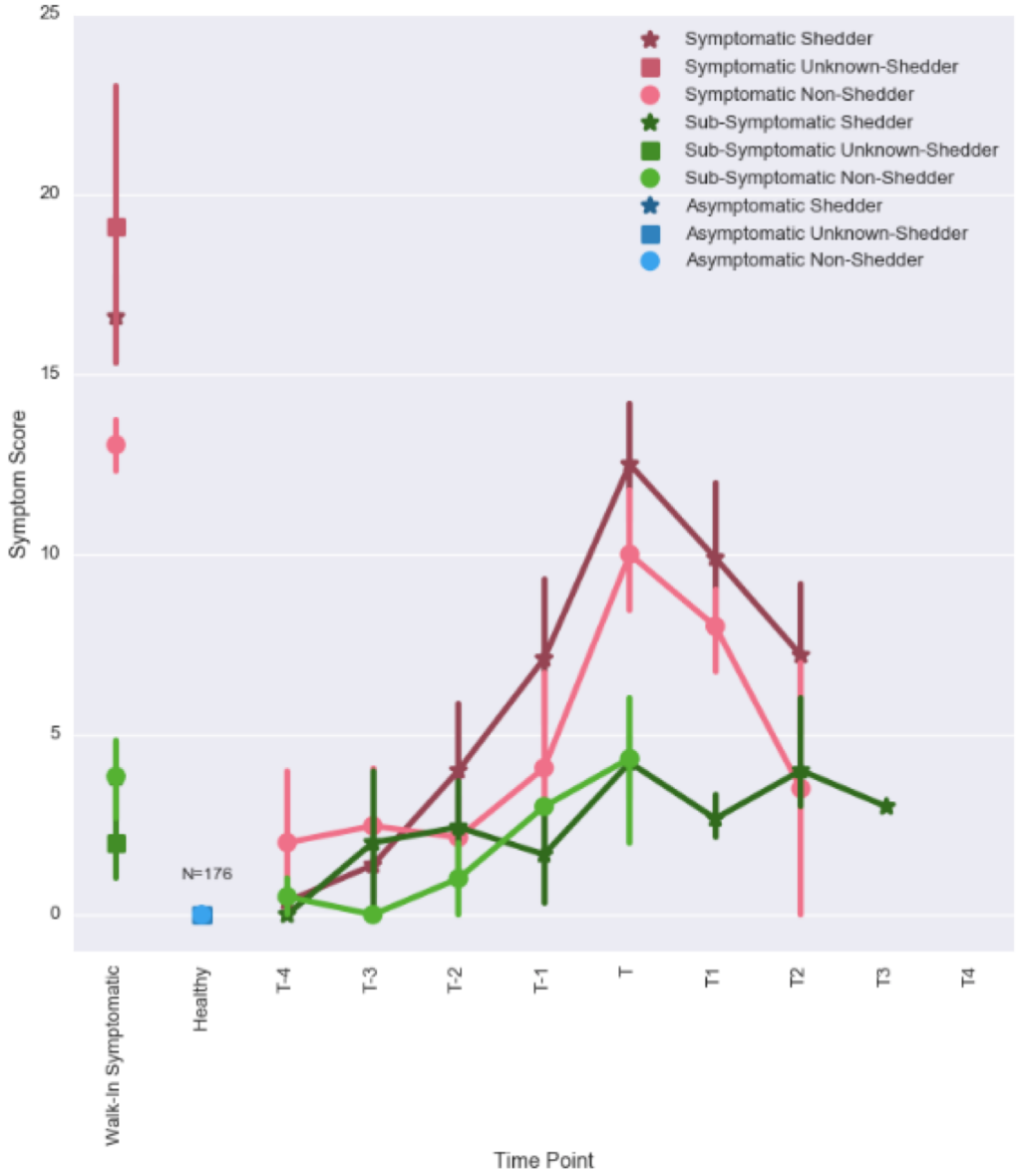

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Questions:

- Model the viral agent rate across time using self-reported symptoms and subject demographics.
- Early detection (pre-symptomatic) of viral infections from targeted gene expression.

Challenges:

- Index cases do not have multiple measurements and peak symptoms are unknown.
- Healthy controls are difficult to align in time.