



# Validation of the Flu Score in a Young Adult Population

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## Background: the Flu Score

- Originally developed using data from two previous studies of 459 outpatient adults with suspected influenza (Nicolas Senn and Ralph Gonzales, collaborators)
- PCR or culture as reference standard
- Logistic regression used to identify independent predictors using 70% of data.
- Internally validated using 30% of data

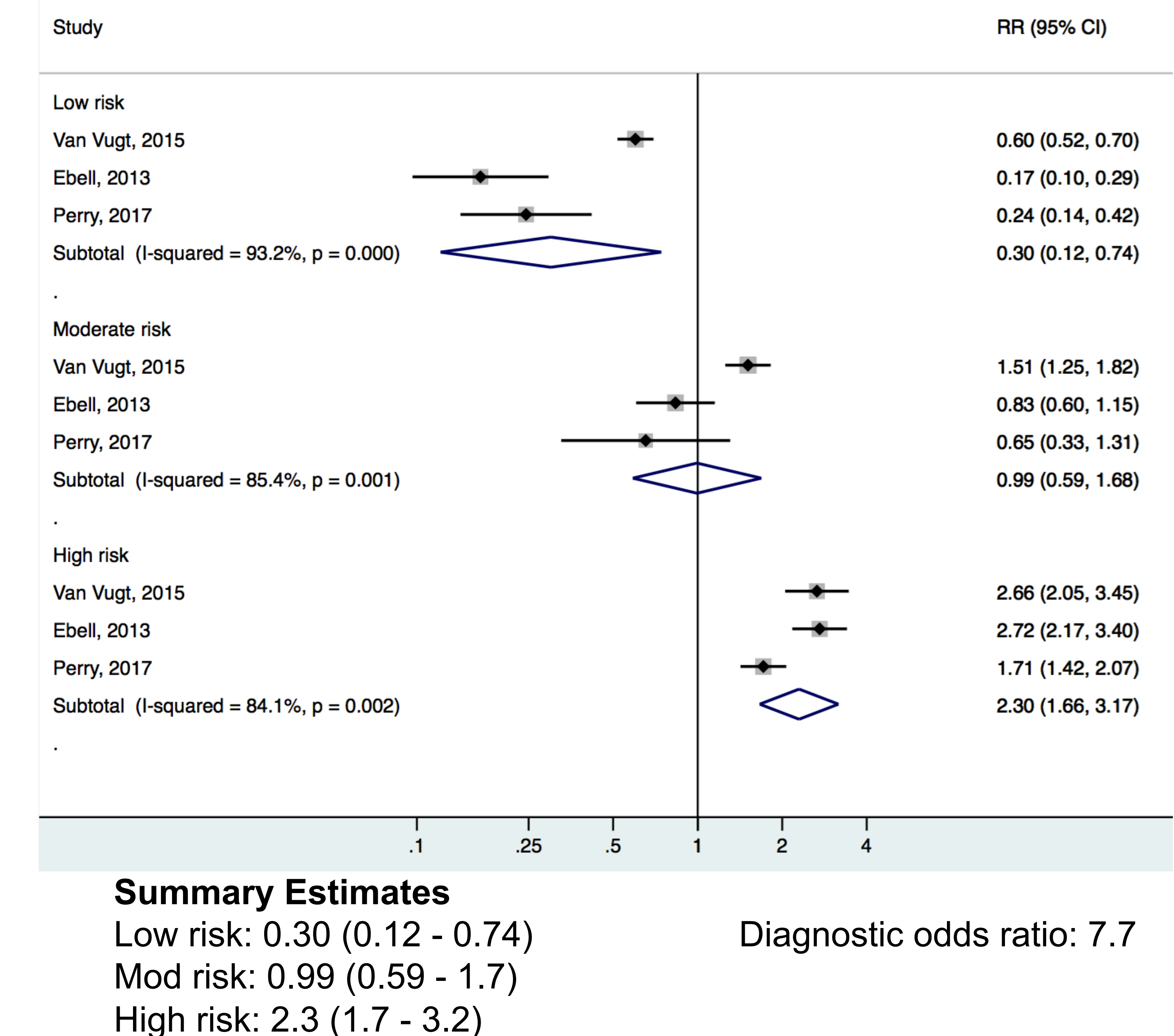
## Analysis

- Calculated Flu Score for each patient who received PCR testing
- Determined the likelihood of PCR positive influenza A or B for low, moderate and high risk groups by the Flu Score
- Compared this with original study and previous validation studies
- Performed meta-analysis of stratum specific likelihood ratios, in Stata

## Novel Approach to Meta-Analysis

- Previous meta-analyses usually just dichotomize risk scores with 3 or more groups, i.e (Low or Moderate) vs High, or Low vs (Moderate or High)
- Approach: a likelihood ratio is a type of risk ratio, so we reformatted data as risk ratios and used a standard meta-analytic procedure for risk ratios in meta-analysis of RCTs.

## Forest Plot



## Conclusions

- Our dataset produced likelihood ratios of a similar pattern to the original FluScore development, despite the increased prevalence of influenza in our sample
- Interpretation depends on the prevalence of influenza

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*References available upon request.*

## Results

### Our study (UGA Health Center)

Risk group (points)	Flu	No flu	% flu	LR
Low risk (0-2)	14	56	20%	0.24
Moderate risk (3)	12	18	40%	0.65
High risk (4-6)	119	68	64%	1.71

Overall prevalence: 50% , Diagnostic odds ratio: 7.1, % classified low risk: 24%

### Original dataset (Switzerland and San Francisco)

Risk group (points)	Flu	No flu	% flu	LR
Low risk (0-2)	12	137	8.0%	0.17
Moderate risk (3)	39	90	30.2%	0.83
High risk (4-6)	106	75	58.6%	2.72

Overall prevalence: 34% , Diagnostic odds ratio: 16, % classified low risk: 32%  
*J Am Board Fam Med 2012; 25: 55-62*

### European GRACE validation dataset

Risk group (points)	Flu	No flu	% flu	LR
Low risk (0-2)	111	1035	9.7%	0.60
Moderate risk (3)	95	352	21.2%	1.51
High risk (4-6)	67	141	32.2%	2.66

Overall prevalence: 15% , Diagnostic odds ratio: 4.4, % classified low risk: 64%  
*Fam Pract 2015; 1-7*

## Study Aim

- Validate the Flu Score in our young adult population and compare to other data sets.

## Setting and Data Collection

- University of Georgia University Health Center primarily serves 35,000 students ages 18 to 25 years
- Recruited young adults with clinically suspected influenza
- All students self-reported symptoms using an online portal prior to the visit.
- Physicians use a standard template that mandates collection of key respiratory signs and symptoms, including all elements of the Flu Score.
- Obtained nasopharyngeal sample
- Novel point of care PCR test (Cobas LIAT Roche Medical Diagnostics) performed on all patients as the reference standard (99% sens, 100% spec)