



The impact of rapid molecular respiratory testing on provider and parental decision making for children with respiratory illness evaluated in an ED setting



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BACKGROUND

- Rapid respiratory testing (RRT) can decrease ancillary testing, length of stay and antibiotic use for hospitalized children.
- Less is known regarding the impact of RRT in the emergency department (ED).
- Our objectives were to determine if RRT impacts ED provider clinical decision making, family acceptance, and subsequent healthcare visitation for children with influenza-like illness (ILI).

METHODS

- RAPID study- RCT of children 1 month-18 years of age presenting to a tertiary care pediatric ED with ILI received a nasopharyngeal swab and RRT using the BioFire® Respiratory Panel (RP2)
- Intervention group -RRT result given to clinicians/families
- Control group -results not available unless obtained clinically
- Outcomes included provider decision-making (anti-infective prescribing, ED diagnostic testing, disposition), family acceptance of RRT (willingness to undergo future testing)
- Surveys conducted in person day 0, by text day 1, by phone or email day 10 (Likert scale)
- Providers in the intervention group were surveyed after RRT results were available
- Families in both arms were contacted 1 and 10 days later
- Analyses – descriptive statistics, Chi Square, Wilcoxon Rank Sum Test using SAS v 9.4

RESULTS

Figure 1. CONSORT-style flow diagram of participants

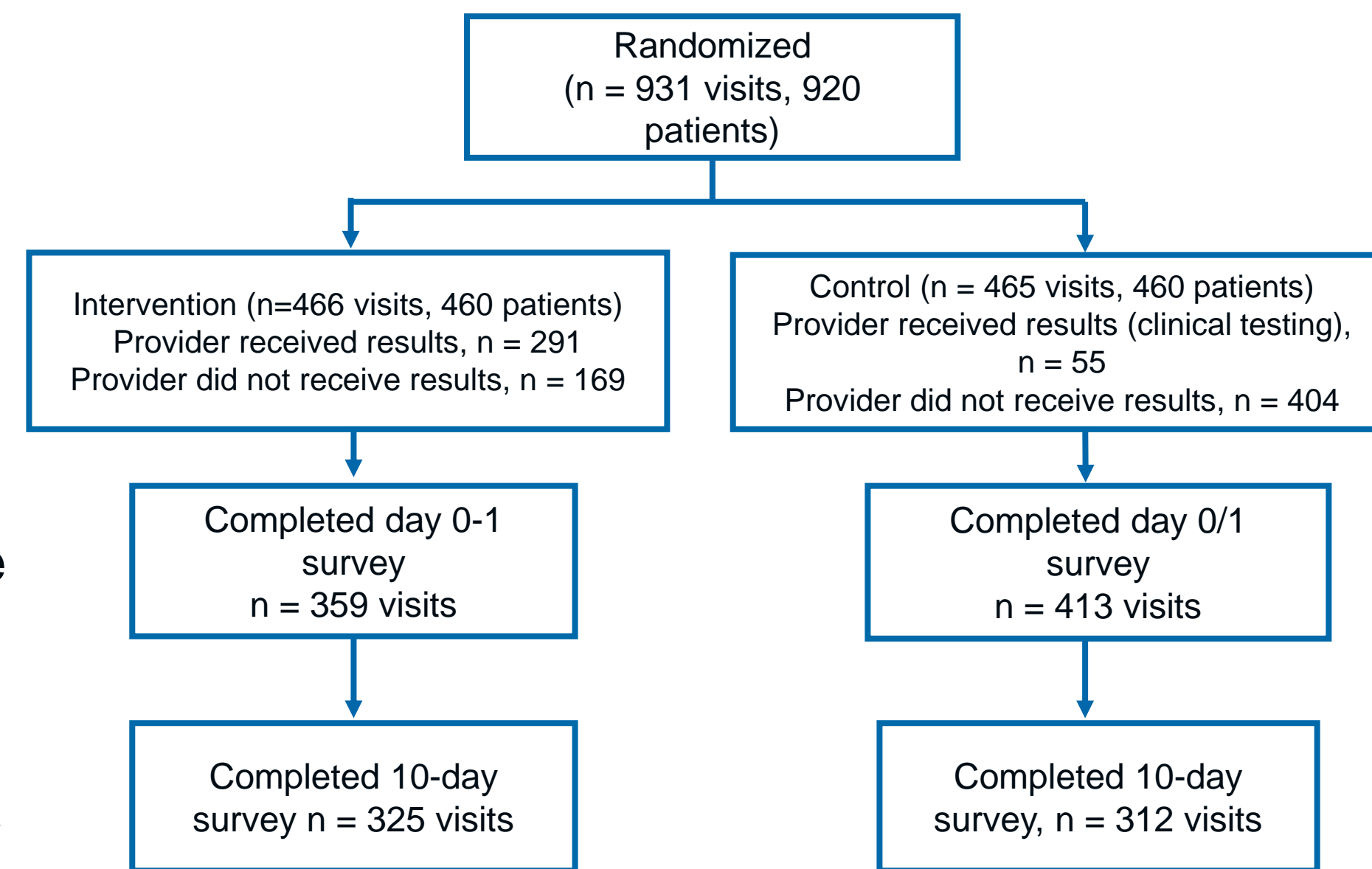


Table 1. Characteristics of providers and patients by provider decision type

Study participant characteristic	No Change in Clinical Decision Making (n=363)	Change in Clinical Decision Making (n=72)	P-value
Median age in months, (IQR)	24.8 (10.8,58.8)	35.3 (14.2,81.0)	0.077
High-risk medical condition present	121 (33)	33 (46)	0.04
Pathogen result			
Bacterial	7 (2)	8 (11)	<.0001
Influenza Virus	62 (17)	22 (31)	
Other Respiratory Virus	240 (66)	35 (49)	
Negative	52 (14)	7 (10)	
Appropriate antibiotic therapy based on diagnosis			
Antibiotics not indicated	285 (79)	44 (61)	<.0001
Antibiotics probably indicated	62 (17)	13 (18)	
Antibiotics definitely indicated	16 (4)	15 (21)	
Antibiotics prescribed	80 (22)	28 (39)	0.0025
Antivirals prescribed	14 (4)	16 (22)	<.00001
Hospitalized from ED	55 (15)	21 (29)	0.0045

Figure 2. Survey Completion rates

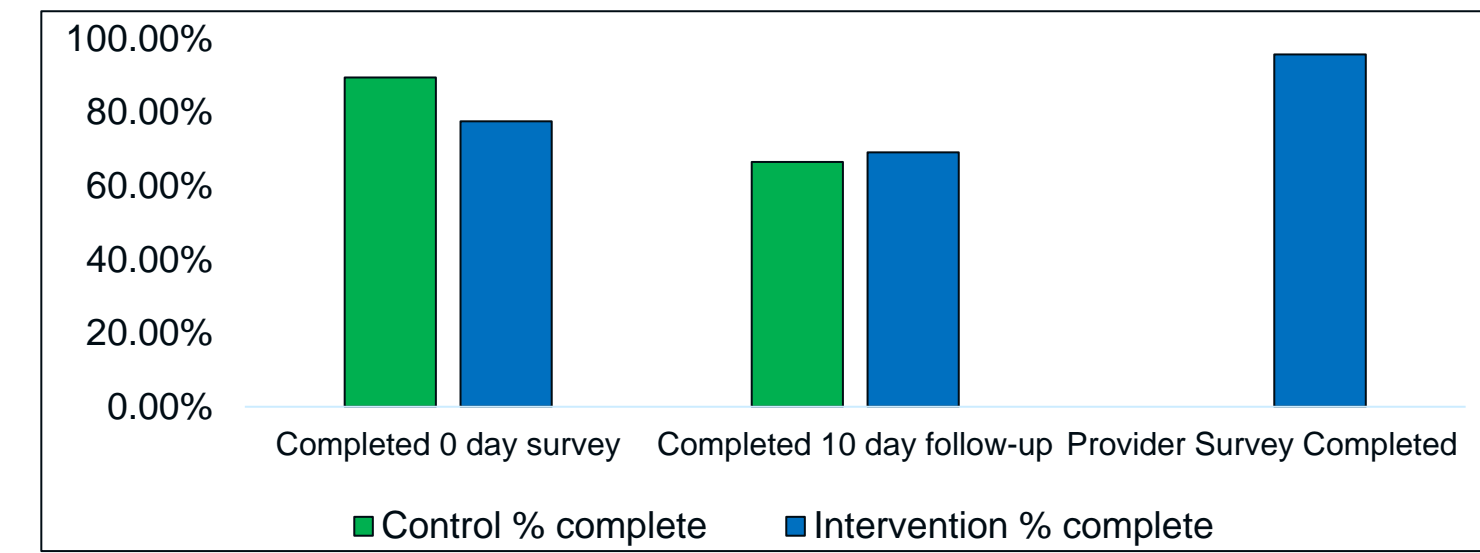


Figure 3. Family willingness to undergo future testing

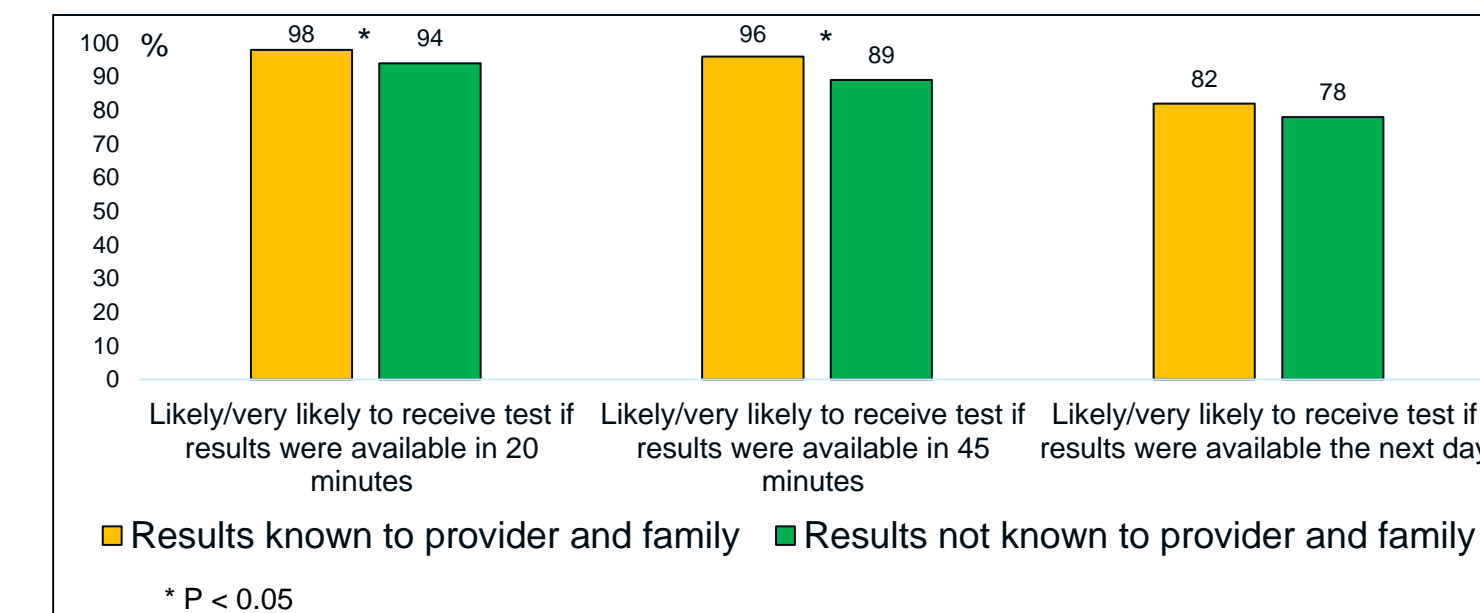
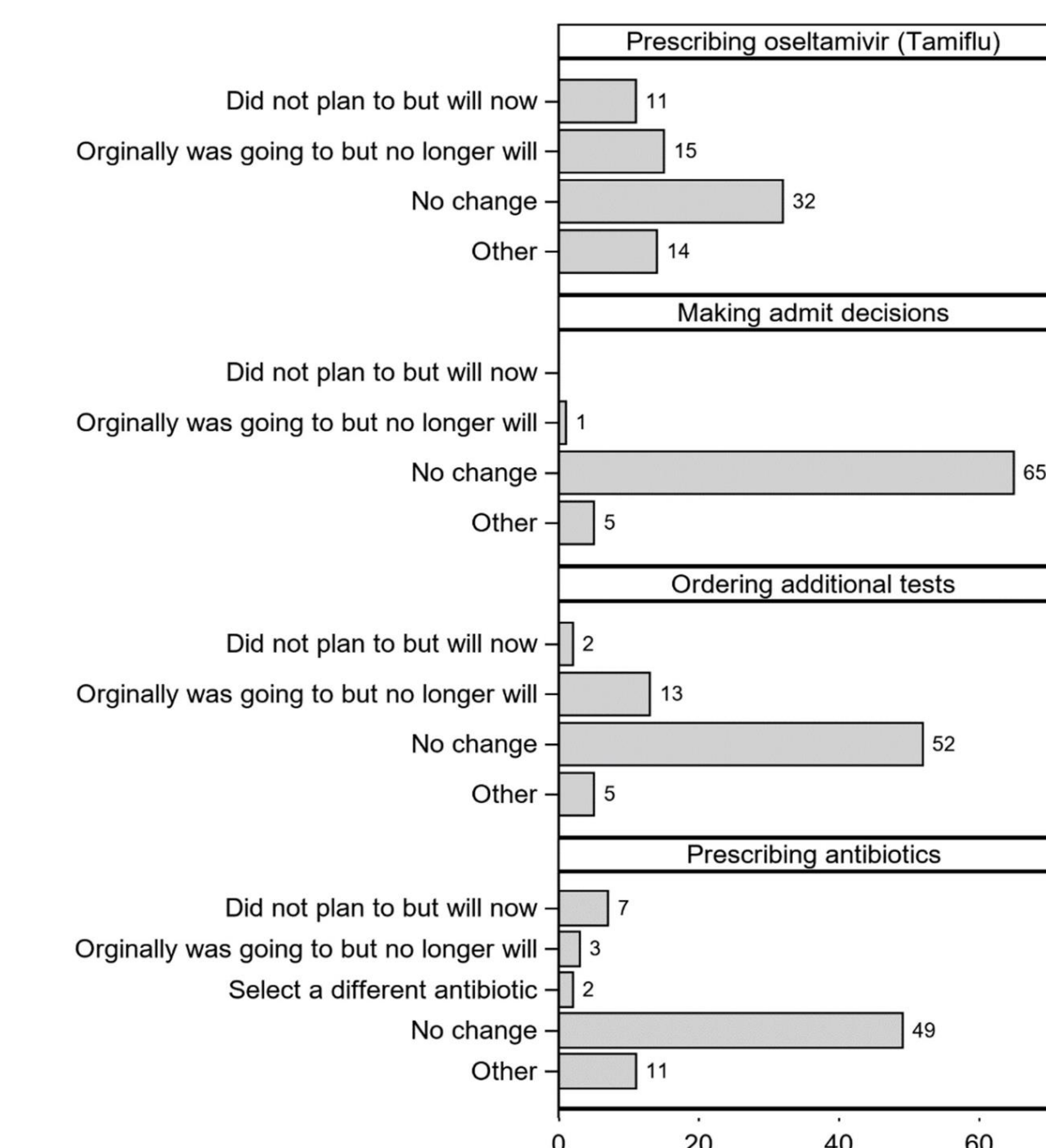


Figure 4. Provider Clinical Decision Making Based on Results of Rapid Respiratory Testing, n = 443



CONCLUSIONS

- Provider clinical decisions were changed in 17% of visits based on RRT results, most commonly among ED-trained physicians, advanced practice providers and those who were 0-5 years out of training.
- The most common decision change was antiviral use, followed by a reduction in ordering additional tests.
- Knowing results would have prevented 22/303 families (7.9%) in the control arm from additional medical visits. In the intervention group, 21/314 families (6.7%) stated that the test influenced the way their child received medical care, and 14/314 families (4.5%) sought additional care due to RRT results.

IMPLICATIONS

RRT impacted clinical decision making in almost one fifth of visits, most commonly regarding antivirals and reduction in testing, but not in decisions regarding antibiotics. Most families were willing to have their child undergo respiratory testing, especially if results were prompt, but it had little impact on their health-seeking behavior.

ACKNOWLEDGEMENTS

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