

Supplemental Information

SUPPLEMENTAL TABLE 2 Potential Solutions That Could be Implemented by Manufacturers or Clinicians Based on Our Findings

Potential Failure Modes	Strategies Used By Families to Overcome Failure Mode	Manufacturers Could...	Clinicians Could...
A. Remember to conduct the test	Plan to do test as part of a preestablished routine Set alarm or reminder Leave testing materials in line of sight (eg, on the kitchen table)	Provide guidance around establishing a testing regimen	Coach families to pair the test with another routine Coach families to place testing materials in a location to prompt their use
B. Remember in which order to do the steps of the test	Refer to instructions while conducting the test	Create simple numbered flowchart of test steps to correlate with redesigned numbered packaging	
C. Cannot locate testing materials	Keep all materials in original box Keep all materials in a designated location (eg, kitchen cabinet, desk drawer, supply drawer in child's room, etc)		Coach families to pick one location to keep testing materials
D. Perforation on testing card package is small and hard to see/find	Keep scissors with materials and use those to open testing card package	Make perforation larger Mark location of perforation	
E. Child or pet knocks testing card off surface	Set up testing card in a carefully selected location (eg, out of the child's reach, on a high countertop, within eyesight, etc)		Make families aware of this challenge and share helpful strategies
F. Cannot tell if there were 6 drops administered		Design test card to only hold correct amount of reagent Supply only the amount of reagent needed Provide guidance on the test's tolerance for fewer than or more than 6 drops	
G. Cannot remember how many drops to use	Write "6" on the bottle to cue use of 6 drops	Make guidance on card more pronounced Design test card to only hold correct amount of reagent Supply only the amount of reagent needed Provide guidance on the test's tolerance for fewer than or more than 6 drops	
H. Cannot tell which end is the swab end versus the handle end when opening, potential for contamination		Improve labeling of swab to clearly locate end for opening	
I. Child does not like swabbing	Do swab while child is sleeping Explain testing steps to the child verbally Have child do swab themselves (while coaching them, eg, "swirl it like you're swirling your French fries in ketchup")		Coach families through possible challenges of and strategies for collecting the sample and advise on any strategies that may influence test performance

SUPPLEMENTAL TABLE 2 Continued

Potential Failure Modes	Strategies Used By Families to Overcome Failure Mode	Manufacturers Could...	Clinicians Could ...
	<p>Keep child in a comfortable/distracting setting (eg, watching TV, counting, singing, etc)</p> <p>Have child in a chair that supports child's head and neck to prevent bucking</p> <p>Ask child which nostril to swab first</p> <p>Have another caregiver help restrain the child during swabbing</p> <p>Model test swabbing on oneself first</p> <p>Distinguish the test explicitly from a deep nasal swab</p>		
J. Fear of not getting enough sample	<p>Do more circles in each nostril</p> <p>Observe swab to see if it looks wet</p>	<p>Design swab to indicate when sufficient sample is collected</p>	<p>Coach families on what an adequate sample is, especially with regards to swabbing the child,</p>
K. Sticker can be hard to peel off	<p>Peel sticker tab off before swabbing (so that both hands are free)</p>	<p>Create tab to make sticker easier to peel off</p>	
L. Remember to go back to read results after 15 min and before 30 min	<p>Set timer (eg, using smart home system, stand-alone timer, or phone)</p> <p>Sit and wait 15 min in front of the card</p> <p>Place the test card in a location to cue reading it in 15 min (eg, next to them at their desk)</p> <p>Write time of test administration onto the testing card</p> <p>Read results before 15 min pass</p>	<p>Share strategies for remembering to go back to test</p>	<p>Share strategies for remembering to go back to test</p>
M. Confuse testing cards (if conducting test on >1 person)	<p>Write name on the testing card</p>	<p>Create specific locations for recording: name, date, and time sample was taken, and add filling these in as a step for conducting the test</p>	
N. Read the lines because of poor vision	<p>Use zoom feature on phone camera to observe results</p>	<p>Provide multiple images of positive test results to show range of what they look like</p>	
O. Remember to record the results	<p>Record test date and details while waiting and place the recording sheet next to the test card to cue recording results</p>	<p>Provide guidance on what to do if the test result is positive</p>	<p>Provide guidance on what to do if the test result is positive</p>