# **QbCheck as an Objective Measure Of ADHD Symptoms To Ensure Optimal Medical Treatment In A Paediatric (0-17y) Population**

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#### OBJECTIVE

We aimed to evaluate the use of QbCheck as an objective measure of ADHD core symptoms to measure medication effectiveness and support optimal symptom management.

On the QbCheck a total symptom score (TSS=0-100) is provided to indicate likelihood of ADHD with five variables captured as measures of the 3 core ADHD symptoms:

1. Activity (MicroEventX);

117 patients were identified aged 6y1m-17years with n=57 that met all criteria of:

METHODOLOGY

- 1. A diagnosis of ADHD
- 2. Prescribed stimulant medication
- 3. Successfully completed a QbCheck on and off medication.

Statistical analysis was carried out for the total sample population

2. Impulsivity (Commission Error);

3. Attention:

a. Omission Errors

b. Reaction Time

c. Reaction Time Variance

Anonymous feedback on the tool was also collected.

### RESULTS

The average time medication dose and QbCheck = 2h08 (IR) -2h58 (LA).

84% of patients showed a reduction in TSS from high to elevated likelihood of ADHD symptoms and only 28% reported this subjectively.

A reduction was seen in all variables and this was statistically significant (P<0.001) in 4 out of 5 variables, equating to all means being in the normal range(<1.5) on medication.

75.9% of patients/parents reported the QbCheck helped understanding of

before being carried out separately for each of the subgroups, Long-Acting (LA) and Immediate Release (IR) Methylphenidate.

P-values were determined using a two-tailed distribution t-test with paired sample analysis and McNemar's chi-squared test.

	QbCheck is a registered medical device according to the European Medical Device Directive.			CE QbCheck version 1.16.2 Page 1 (2)	
	Objective QbCheck Result		Objective Measures		
	The test taker had a <b>QbCheck ADHD Total Symptom Score of 92</b> . A score above 50 represents a <b>high</b> likelihood for having ADHD-like symptoms.		The objective measures add valuable information to your interpretation and are expressed in Q-scores and percentiles. The Q-Scores allow for comparison with the performance of an age and gender adjusted norm group. The percentile expresses (in percent) the probability of a normative person to score lower than the test person.		
	80%		-3 0	+3 Q-Score Percentile	
ō	80%	The test taker's Total Symptom Score equals a <b>high</b> ADHD Total Symptom Level.	Activity MicroEventsX	2.8 99	
6y11m F Pre-Medicati		About 7% of the general population display a similar level of ADHD-like symptoms.	Impulsivity Commission Errors	0.7 75	
			Inattention Omission Errors	♦ 1.1 86	
			Reaction Time	2.1 98	
	QDCheck ADHD Total Symptom Level		Reaction Time variation	2.0 97	
	Detailed QbCheck Result		Sample Case		
	Activity Graph		Activity Graph - Sample Case		
	Attention and Impulse Control Graph		Attention and Impulse Control Graph - Sample Cas	Q3 Q4 Se	
	0 Q1 Q2 Q2 • Correct Response Commission Error Omission Error	Q3 Q4 15 min	0 Q1 Q2   • Correct Response Commission Error Omission Error	Q3 Q4 15 min	

#### ADHD symptoms.

All of the nine clinicians (paediatricians and psychologists) surveyed were confident using the QbCheck. None disagreed with use of the QbCheck as part of the diagnostic assessment.

All clinicians using QbCheck for medication reviews agreed it helped with patient discussions and use of medication.

Data

Right: QbCheck Results for a 7-year-old male pre- and post-medication (10mg Rubifen IR) Graph 1: Significantly reduced TSS with medication Graph 2: Significant reduction in Q Scores for all ADHD variables with Short Acting methylphenidate





Average Q-Score Results at Baseline and at Medication Review for Total

## CONCLUSION

These findings indicate the value of QbCheck as a tool to gain an objective assessment of medication effectiveness in children with ADHD to ensure optimisation and avoiding over-treatment and side effects.

The significant reduction in TSS from 'high' to 'elevated' likelihood of ADHD symptoms may also suggest optimisation was not yet achieved for many in this audit cohort.



-50.7%

0.60

P<.001\*\*\*

-31.7% *P*=.18

1.39

Reaction Time Variation