

Diagnostic Assessment Report commissioned by the NIHR HTA Programme on behalf of the National Institute for Health and Care Excellence – Addendum 2

Title: Rapid Tests for Group A Streptococcal infections in people with sore throat

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Section 1: Antibiotic Prescribing Rates

Following correspondence with NICE, the EAG present in this addendum additional output from the cost-effectiveness modelling, focusing on the antibiotic prescription rates. The results are broken down into subgroups of patients with and without a group A streptococcus (GAS) infection, and provided for both adult and children in both primary care and secondary care settings.

We describe the results from the adult primary care model here, but the same patterns appear to be independent of age and care setting. It is clear that the point-of-care tests (POCT) are effective at reducing the total amount of antibiotics prescribed, with 42.6% of patients receiving antibiotics under the clinical score alone, compared to 27.9% - 33.0% when the clinical score is used alongside a POCT. For patients with GAS, the proportions that receive immediate antibiotics was similar regardless of whether a rapid test was performed alongside the clinical scoring tool. Using Centor alone predicted 11.1% of patients would have GAS and receive immediate antibiotics, compared to 7.5% - 11.1% of patients who used Centor and a POCT.

When examining patients without GAS, the benefit of the POCT is more evident. The model predicts that using Centor alone would result in 13.9% of total patients would not have GAS but receive immediate antibiotics, compared with 0.3% - 1.0% when a POCT is also used.

Table 1: Adult primary care model - predicted antibiotic utilisation rates

TestID	TestName	GAS (immediate antibiotics)	GAS (delayed antibiotics used)	GAS (delayed antibiotics not used)	GAS (No antibiotics)	Not GAS (immediate antibiotics)	Not GAS (delayed antibiotics used)	Not GAS (delayed antibiotics not used)	Not GAS (No antibiotics)	Total antibiotic utilisation	Total number of no antibiotic utilisation	Total
0	Centor	0.11074	0.02704	0.03174	0.05648	0.13932	0.1489	0.17479	0.31099	0.4260	0.5740	1
1	Clearview exact Strep A cassette (Abbott)	0.0753	0.03144	0.03691	0.08235	0.00697	0.16533	0.19409	0.40761	0.27904	0.72096	1
2	Clearview exact Strep A dipstick – test strip (Abbott)	0.0753	0.03144	0.03691	0.08235	0.00697	0.16533	0.19409	0.40761	0.27904	0.72096	1
3	BD Veritor Plus system group A Strep assay - cassette (Beckton Dickinson)											
4	Strep A rapid test - cassette (Biopanda Reagents)	0.1052	0.02773	0.03255	0.06052	0.00279	0.16585	0.1947	0.41066	0.30157	0.69843	1
5	Strep A rapid test – test strip (Biopanda Reagents)	0.1052	0.02773	0.03255	0.06052	0.00279	0.16585	0.1947	0.41066	0.30157	0.69843	1
6	NADAL Strep A - test strip (nal von minden GmbH)	0.10853	0.02732	0.03207	0.05809	0.00279	0.16585	0.1947	0.41066	0.30449	0.69552	1
7	NADAL Strep A - cassette (nal von minden GmbH)	0.10853	0.02732	0.03207	0.05809	0.00279	0.16585	0.1947	0.41066	0.30449	0.69552	1
8	NADAL Strep A plus - cassette (nal von minden GmbH)	0.10853	0.02732	0.03207	0.05809	0.00279	0.16585	0.1947	0.41066	0.30449	0.69552	1
9	NADAL Strep A plus - test strip (nal von minden GmbH)	0.10853	0.02732	0.03207	0.05809	0.00279	0.16585	0.1947	0.41066	0.30449	0.69552	1
10	NADAL Strep A scan test - cassette (nal von minden GmbH)	0.10853	0.02732	0.03207	0.05809	0.00279	0.16585	0.1947	0.41066	0.30449	0.69552	1
11	OSOM Strep A test – test strip (Sekisui Diagnostics)											
12	QuikRead Go Strep A test kit (Orion Diagnostica)	0.11063	0.02705	0.03176	0.05656	0.02926	0.16257	0.19084	0.39134	0.32951	0.6705	1
13	Alere TestPack Plus Strep A - cassette (Abbott)	0.1052	0.02773	0.03255	0.06052	0.00836	0.16516	0.19388	0.40659	0.30645	0.69354	1
14	Bionexia Strep A plus - cassette (Biomerieux)											
15	Bionexia Strep A dipstick – test strip (Biomerieux)											
16	Biosynex Strep A - cassette (Biosynex)											
17	Sofia Strep A FIA (Quidel)											
18	Alere i Strep A (Abbott)											
19	Alere i Strep A 2 (Abbott)	0.10853	0.02732	0.03207	0.05809	0.00975	0.16499	0.19368	0.40558	0.31059	0.68942	1
20	Cobas Strep A assay on Liat system (Roche Diagnostics)	0.10853	0.02732	0.03207	0.05809	0.00975	0.16499	0.19368	0.40558	0.31059	0.68942	1
21	Xpert Xpress Strep A (Cepheid)	0.10963	0.02718	0.0319	0.05729	0.00836	0.16516	0.19388	0.40659	0.31033	0.68966	1

Table 2: Adult secondary care model - predicted antibiotic utilisation rates

TestID	TestName	GAS (immediate antibiotics)	GAS (delayed antibiotics used)	GAS (delayed antibiotics not used)	GAS (No antibiotics)	Not GAS (immediate antibiotics)	Not GAS (delayed antibiotics used)	Not GAS (delayed antibiotics not used)	Not GAS (No antibiotics)	Total antibiotic utilisation	Total number of no antibiotic utilisation	Total
0	Centor	0.11074	0.02704	0.03174	0.05648	0.13932	0.1489	0.17479	0.31099	0.426	0.574	1
1	Clearview exact Strep A cassette (Abbott)	0.0753	0.03144	0.03691	0.08235	0.00697	0.16533	0.19409	0.40761	0.27904	0.72096	1
2	Clearview exact Strep A dipstick – test strip (Abbott)	0.0753	0.03144	0.03691	0.08235	0.00697	0.16533	0.19409	0.40761	0.27904	0.72096	1
3	BD Veritor Plus system group A Strep assay - cassette (Beckton Dickinson)											
4	Strep A rapid test - cassette (Biopanda Reagents)	0.1052	0.02773	0.03255	0.06052	0.00279	0.16585	0.1947	0.41066	0.30157	0.69843	1
5	Strep A rapid test – test strip (Biopanda Reagents)	0.1052	0.02773	0.03255	0.06052	0.00279	0.16585	0.1947	0.41066	0.30157	0.69843	1
6	NADAL Strep A - test strip (nal von minden GmbH)	0.10853	0.02732	0.03207	0.05809	0.00279	0.16585	0.1947	0.41066	0.30449	0.69552	1
7	NADAL Strep A - cassette (nal von minden GmbH)	0.10853	0.02732	0.03207	0.05809	0.00279	0.16585	0.1947	0.41066	0.30449	0.69552	1
8	NADAL Strep A plus - cassette (nal von minden GmbH)	0.10853	0.02732	0.03207	0.05809	0.00279	0.16585	0.1947	0.41066	0.30449	0.69552	1
9	NADAL Strep A plus - test strip (nal von minden GmbH)	0.10853	0.02732	0.03207	0.05809	0.00279	0.16585	0.1947	0.41066	0.30449	0.69552	1
10	NADAL Strep A scan test - cassette (nal von minden GmbH)	0.10853	0.02732	0.03207	0.05809	0.00279	0.16585	0.1947	0.41066	0.30449	0.69552	1
11	OSOM Strep A test – test strip (Sekisui Diagnostics)											
12	QuikRead Go Strep A test kit (Orion Diagnostica)	0.09634	0.02883	0.03384	0.06699	0.03065	0.16239	0.19063	0.39032	0.31821	0.68178	1
13	Alere TestPack Plus Strep A - cassette (Abbott)	0.09967	0.02842	0.03336	0.06456	0.00697	0.16533	0.19409	0.40761	0.30039	0.69962	1
14	Bionexia Strep A plus - cassette (Biomerieux)											
15	Bionexia Strep A dipstick – test strip (Biomerieux)											
16	Biosynex Strep A - cassette (Biosynex)											
17	Sofia Strep A FIA (Quidel)											
18	Alere i Strep A (Abbott)											
19	Alere i Strep A 2 (Abbott)	0.10853	0.02732	0.03207	0.05809	0.00975	0.16499	0.19368	0.40558	0.31059	0.68942	1
20	Cobas Strep A assay on Liat system (Roche Diagnostics)	0.10853	0.02732	0.03207	0.05809	0.00975	0.16499	0.19368	0.40558	0.31059	0.68942	1
21	Xpert Xpress Strep A (Cepheid)	0.10963	0.02718	0.0319	0.05729	0.00836	0.16516	0.19388	0.40659	0.31033	0.68966	1

Table 3: Child primary care model - predicted antibiotic utilisation rates

TestID	TestName	GAS (immediate antibiotics)	GAS (delayed antibiotics used)	GAS (delayed antibiotics not used)	GAS (No antibiotics)	Not GAS (immediate antibiotics)	Not GAS (delayed antibiotics used)	Not GAS (delayed antibiotics not used)	Not GAS (No antibiotics)	Total antibiotic utilisation	Total number of no antibiotic utilisation	Total
0	Centor	0.14798	0.03613	0.04242	0.07547	0.12564	0.13428	0.15763	0.28046	0.44403	0.55598	1
1	Clearview exact Strep A cassette (Abbott)	0.10063	0.04201	0.04932	0.11004	0.00628	0.1491	0.17503	0.36759	0.29802	0.70198	1
2	Clearview exact Strep A dipstick – test strip (Abbott)	0.10063	0.04201	0.04932	0.11004	0.00628	0.1491	0.17503	0.36759	0.29802	0.70198	1
3	BD Veritor Plus system group A Strep assay - cassette (Beckton Dickinson)											
4	Strep A rapid test - cassette (Biopanda Reagents)	0.14058	0.03705	0.0435	0.08087	0.00251	0.14957	0.17558	0.37034	0.32971	0.67029	1
5	Strep A rapid test – test strip (Biopanda Reagents)	0.14058	0.03705	0.0435	0.08087	0.00251	0.14957	0.17558	0.37034	0.32971	0.67029	1
6	NADAL Strep A - test strip (nal von minden GmbH)	0.14502	0.0365	0.04285	0.07763	0.00251	0.14957	0.17558	0.37034	0.3336	0.6664	1
7	NADAL Strep A - cassette (nal von minden GmbH)	0.14502	0.0365	0.04285	0.07763	0.00251	0.14957	0.17558	0.37034	0.3336	0.6664	1
8	NADAL Strep A plus - cassette (nal von minden GmbH)	0.14502	0.0365	0.04285	0.07763	0.00251	0.14957	0.17558	0.37034	0.3336	0.6664	1
9	NADAL Strep A plus - test strip (nal von minden GmbH)	0.14502	0.0365	0.04285	0.07763	0.00251	0.14957	0.17558	0.37034	0.3336	0.6664	1
10	NADAL Strep A scan test - cassette (nal von minden GmbH)	0.14502	0.0365	0.04285	0.07763	0.00251	0.14957	0.17558	0.37034	0.3336	0.6664	1
11	OSOM Strep A test – test strip (Sekisui Diagnostics)											
12	QuikRead Go Strep A test kit (Orion Diagnostica)	0.11838	0.03981	0.04673	0.09707	0.01131	0.14848	0.1743	0.36392	0.31798	0.68202	1
13	Alere TestPack Plus Strep A - cassette (Abbott)	0.12726	0.03871	0.04544	0.09059	0.00126	0.14972	0.17576	0.37126	0.31695	0.68305	1
14	Bionexia Strep A plus - cassette (Biomerieux)											
15	Bionexia Strep A dipstick – test strip (Biomerieux)											
16	Biosynex Strep A - cassette (Biosynex)											
17	Sofia Strep A FIA (Quidel)											
18	Alere i Strep A (Abbott)											
19	Alere i Strep A 2 (Abbott)	0.14502	0.0365	0.04285	0.07763	0.00879	0.14879	0.17466	0.36575	0.3391	0.66089	1
20	Cobas Strep A assay on Liat system (Roche Diagnostics)	0.14502	0.0365	0.04285	0.07763	0.00879	0.14879	0.17466	0.36575	0.3391	0.66089	1
21	Xpert Xpress Strep A (Cepheid)	0.14665	0.0363	0.04261	0.07644	0.00754	0.14894	0.17485	0.36667	0.33943	0.66057	1

Table 4: Child secondary care model - predicted antibiotic utilisation rates

TestID	TestName	GAS (immediate antibiotics)	GAS (delayed antibiotics used)	GAS (delayed antibiotics not used)	GAS (No antibiotics)	Not GAS (immediate antibiotics)	Not GAS (delayed antibiotics used)	Not GAS (delayed antibiotics not used)	Not GAS (No antibiotics)	Total antibiotic utilisation	Total number of no antibiotic utilisation	Total probability
0	Centor	0.14798	0.03613	0.04242	0.07547	0.12564	0.13428	0.15763	0.28046	0.44403	0.55598	1
1	Clearview exact Strep A cassette (Abbott)	0.10063	0.04201	0.04932	0.11004	0.00628	0.1491	0.17503	0.36759	0.29802	0.70198	1
2	Clearview exact Strep A dipstick – test strip (Abbott)	0.10063	0.04201	0.04932	0.11004	0.00628	0.1491	0.17503	0.36759	0.29802	0.70198	1
3	BD Veritor Plus system group A Strep assay - cassette (Beckton Dickinson)											
4	Strep A rapid test - cassette (Biopanda Reagents)	0.14058	0.03705	0.0435	0.08087	0.00251	0.14957	0.17558	0.37034	0.32971	0.67029	1
5	Strep A rapid test – test strip (Biopanda Reagents)	0.14058	0.03705	0.0435	0.08087	0.00251	0.14957	0.17558	0.37034	0.32971	0.67029	1
6	NADAL Strep A - test strip (nal von minden GmbH)	0.14502	0.0365	0.04285	0.07763	0.00251	0.14957	0.17558	0.37034	0.3336	0.6664	1
7	NADAL Strep A - cassette (nal von minden GmbH)	0.14502	0.0365	0.04285	0.07763	0.00251	0.14957	0.17558	0.37034	0.3336	0.6664	1
8	NADAL Strep A plus - cassette (nal von minden GmbH)	0.14502	0.0365	0.04285	0.07763	0.00251	0.14957	0.17558	0.37034	0.3336	0.6664	1
9	NADAL Strep A plus - test strip (nal von minden GmbH)	0.14502	0.0365	0.04285	0.07763	0.00251	0.14957	0.17558	0.37034	0.3336	0.6664	1
10	NADAL Strep A scan test - cassette (nal von minden GmbH)	0.14502	0.0365	0.04285	0.07763	0.00251	0.14957	0.17558	0.37034	0.3336	0.6664	1
11	OSOM Strep A test – test strip (Sekisui Diagnostics)											
12	QuikRead Go Strep A test kit (Orion Diagnostica)	0.11838	0.03981	0.04673	0.09707	0.01131	0.14848	0.1743	0.36392	0.31798	0.68202	1
13	Alere TestPack Plus Strep A - cassette (Abbott)	0.12726	0.03871	0.04544	0.09059	0.00126	0.14972	0.17576	0.37126	0.31695	0.68305	1
14	Bionexia Strep A plus - cassette (Biomerieux)											
15	Bionexia Strep A dipstick – test strip (Biomerieux)											
16	Biosynex Strep A - cassette (Biosynex)											
17	Sofia Strep A FIA (Quidel)											
18	Alere i Strep A (Abbott)											
19	Alere i Strep A 2 (Abbott)	0.14502	0.0365	0.04285	0.07763	0.00879	0.14879	0.17466	0.36575	0.3391	0.66089	1
20	Cobas Strep A assay on Liat system (Roche Diagnostics)	0.14502	0.0365	0.04285	0.07763	0.00879	0.14879	0.17466	0.36575	0.3391	0.66089	1
21	Xpert Xpress Strep A (Cepheid)	0.14665	0.0363	0.04261	0.07644	0.00754	0.14894	0.17485	0.36667	0.33943	0.66057	1