



Your reference:

Our reference: DAERA/2019-0376.



Water Management Unit
17 Antrim Road
Tonagh
LISBURN
BT28 3AL

Email: WMU.FOI@daera-ni.gov.uk


20 November 2019

Dear 

Environmental Information Regulations 2004

I refer to your request for information about the NIEA Antimicrobial Baseline Study received by the Department on 13 November 2019.

I can advise that the Department has completed its search and can confirm that it holds the information you requested which is set out below:

“ mentioned 34 antibiotics were being monitored in the baseline study. Can I have more information on the list of antibiotics and pharmaceuticals being tested and any preliminary results?”

A summer antibiotic baseline study was commenced in the summer of 2019, which will be replicated in January 2020, to gain seasonal information on the occurrence of antibiotics in NI's aquatic environment.

The following 33 antibiotics were included in the survey

Ampicillin	Chlortetracycline	Erythromycin	Rifaximin	Tetracycline
Azithromycin	Ciprofloxacin	Josamycin	Roxithromycin	Trimethoprim
Cefazolin	Clarithromycin	Lincomycin	Spectinomycin	Tylosin
Cefazolin	Cloxacillin	Marbofloxacin	Spitomycin I	Virginamycin MI
Cefoperzone	Demeclocycline	Minocyclin	Sulfamerazine	Amoxicillin
Cefotaxime	Dicloxacillin	Nafcillin	Sulfamethoxazole	(Spring Watch List survey)
Ceftiofur	Doxycycline	Oxacillin	Sulfanilamide	

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The following preliminary data, relating to waste water treatment works is available from the survey, note more data will become available as results are processed and the winter survey is completed in early 2020. 8 out of the 33 antibiotics screened were detected as per table below:

WWTW & rec. water	Antibiotic (Results ug/l)							
	Azithromycin	Clarithromycin	Erythromycin	Sulfamethoxazole	Trimethoprim	Tilmicosin	Roxithromycin	Lincomycin
Belfast [discharge to sea]	0.023	0.069		0.054	0.51	11.0		
Lisburn	0.013	0.049		0.013	0.25			
F10519	0.0006	0.01			0.022			
Dunmurry	0.0025	0.064		0.042	0.20			
F10512	0.0005	0.015			0.032			
Newtownbreda	0.02	1.9		0.034	0.25			
F10511	0.001	0.023			0.043			
Omagh	0.034	0.21	0.59	0.081	0.43			
F10087	0.0005	0.0088			0.008			
Enniskillen	0.039	0.33	0.34	0.12	0.38		0.0075	
F10688		0.001						
Coalisland	0.006	0.20	0.15	0.024	0.17			
F11540	0.0002	0.016			0.01			0.006
Banbridge	0.004	0.16		0.086	0.24			
F10273		0.008			0.013			
Cookstown	0.027	0.081		0.091	0.14			
F11451		0.008			0.01			
Downpatrick	0.018	0.33	0.30	0.077	0.29			
F10541	0.004	0.022			0.017			
Magherafelt	0.019	0.34		0.10	0.20			
F10380	0.0004	0.016		0.0082	0.008			
Armagh	0.023	0.061		0.084	0.40			
F10343		0.012		0.0093	0.03			
Glenstall	0.062	0.59	0.95	0.067	0.48			
F10427		0.002						
PNEC-ENV*	0.02	0.08	0.50	0.60	100	NA	NA	1.8
PNEC-MIC**	0.25	0.25	1.0	16.0	0.50	NA	1.0	2.0
F10020 River Control No detections against 32 screened antibiotics								

PNECs Predicted no effect concentration values sourced from the AMR Industry Alliance (discharge targets) Sep 2018

*PNEC-ENV Predicted no-effect Concentration (environmental)

Values based on eco-toxicology, data generated by AMR Industry Alliance member companies and relevant peer reviewed literature, derivitisation of standard risk methodologies (Brandt et al 2015; Le Page et al 2017)

**PNEC-MIC Predicted no-effect concentration (AMR)

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Values intended to be protective of resistance promotion (based on approach of Bengtsson-Palme & Larsson 2016)

Initial Observations

- 8 different antibiotics (ABs) were detected out of 33 screened, as per table above;
- Highest AB concentrations detected at Belfast, Newtownbreda & Glenstall (*lower Bann*) WWTW effluents;
- All 13 WWTW effluents screened had ABs detections;
- All 13 WWTW effluents had detections for 2 WL ABs Azithromycin and Clarithromycin;
- 5 WWTW effluents had detection for the WL AB Erythromycin;
- 4 WWTW effluents had detections of 5 different types of ABs & Belfast WWTW effluent had 6 different AB types detected;
- 7 WWTWs had detections for Azithromycin at or above the PNEC-ENV
- 3 WWTWs had detections for Clarithromycin & Erythromycin above the PNEC-ENV
- 4 WWTWs had detections for Clarithromycin (3) and Trimethoprim (1) above the PNEC-MIC
- All works had detections for Trimethoprim (AB primary use treatment of UTIs) & Sulfamethoxazole
- Belfast WWTW had a significant concentration detection for Tilmicosin, AB intended for veterinary use only, at 11ug/l concentration detected at over 11 times the concentration of next highest concentration for an AB (Erythromycin 0.95ug/l);

All 12 receiving waters 2km downstream of the WWTWs had AB detections against Azithromycin (7), Clarithromycin (12), Trimethoprim (10) & Sulfamethoxazole (2)

More data relating to ground waters, water bodies proximal to PPC pig & poultry farms, care home consented discharges and fish farms will become available in 2020.

“Have you been testing for antimicrobial resistance? If not, when do you plan to introduce testing especially of animal manures, slurry, litter and AD digestate and their run off/leachate to water bodies?”

Water Chemistry Group has not been testing for antimicrobial resistance (AMR) in the aquatic environment. However the DAERA Marine Assessment Team (MAT) in conjunction with QUB has carried out some initial AMR work in inner Dundrum Bay

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(IDB). The project was designed to investigate the presence of AMR bacteria in an area of aquaculture. Six sites from IDB were collected on 8 occasions. *Escherichia coli* (*E. coli*) were tested for resistance to the antibiotics Augumentin, Colistin, Gentimycin, Norfloxacin and Tetracycline. 25.6% of isolates presented results suggesting resistance to one or more antibiotics, 7% presented multiple antibiotic resistance. MAT laboratories are working in collaboration with WMU WCG to further investigate the presence of AMR and the levels of antibiotics in water. This will include focus on the EU 'Watch List' for antibiotics with studies on NI bathing waters.

"Are you testing for Coccostat residues?"

No these veterinary medicines are not antibiotics and current work by WCG is designed to further understand the impact and risk posed by antibiotics in the aquatic environment as an extension of the EU Watch List.

Final query to be forward to DEFRA for response

In relation to your final query on UK/NI antibiotic usage, sales figures and target animals:

The Department for Environment, Food and Rural Affairs (DEFRA) are the Department responsible for publishing the VARRS report. Veterinary Medicines Directorate (VMD) are an executive agency of DEFRA. They can be contacted on 01932 336911 and the branch responsible for gathering the antibiotic sales data that appears in the UK VARSS Report is the Antimicrobial Sales Data Team. VMD also have information on the various reports and the methodology used to collect the data on their website (see link below):

<https://www.gov.uk/government/publications/veterinary-antimicrobial-resistance-and-sales-surveillance-2018>

If you require any clarification, believe that any part of your request has been overlooked, misunderstood or misinterpreted, please contact me in the first instance to see if it is a matter that can be resolved.

If you are unhappy with the manner in which your request for information has been handled or the decision to release/withhold information, you have the right to request a formal review by the Department. If you wish to do so, please write to The Review Section, The Department of Agriculture, Environment and Rural Affairs, Data Protection & Information Management Branch, Floor 2, Ballykelly House, 111 Ballykelly Road, Ballykelly, LIMAVADY, BT49 9HP, within two months from the date of this letter.

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If after such an internal review you are still unhappy with the response, you have the right to appeal to the Information Commissioner at Wycliffe House, Water Lane, Wilmslow, CHESHIRE, SK9 5AF, who will undertake an independent review of the Department's decision.

Yours sincerely,



Water Management Unit

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