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## The contribution of anthroposophic and integrative medicine to addressing the problem of antimicrobial resistance

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### *Summary*

Studies show the significant potential from anthroposophic and other integrative medicine approaches to safely reduce antimicrobial use. Therefore:

- Anthroposophic medicine and other integrative medicine approaches should be included as promising options in policies to reduce antibiotic use
- Further evaluation of such approaches should be prioritized and supported
- Knowledge should be shared through appropriate tools
- Public education on reducing antibiotic use should include options of evidence-based integrative medicine approaches as alternative.

### *Antimicrobial resistance*

Rising antimicrobial resistance (AMR) is a major global health problem killing worldwide about 700,000 people per year<sup>1</sup>, including over 25,000 in the EU.<sup>2</sup> Infections caused by multi-resistant bacteria in the EU lead to additional healthcare costs of at least EUR 1.5 billion per year, and loss of productivity.<sup>2</sup> It is estimated that by 2050, 10 million lives a year and a cumulative 100 trillion USD of economic output are at risk due to the rise of drug-resistant infections.<sup>1</sup>

### *Policies to control antimicrobial resistance*

National and international strategies, such as the World Health Organization's global action to tackle antimicrobial resistance and the European Commission's AMR action plan, have been adopted.<sup>3,4</sup> The One-Health approach of European Commission's action plan prioritized seven areas: making sure antimicrobials are used appropriately in both humans and animals; preventing microbial infections and their spread; developing new effective antimicrobials or alternatives for treatment; cooperating with international partners; improving monitoring and surveillance; promoting research and innovation; and improving communication, education and training.<sup>3</sup>

Currently these strategies appear insufficient as, for example, the average European consumption rates of antibiotics during the years 2011 – 2014 remain unchanged.<sup>5</sup>

One policy focus to reduce antibiotics prescription is through alternatives for antibiotics such as vaccines and better diagnostics.<sup>3</sup> At the moment, options for alternative strategies to antibiotics do not include the study or application of complementary and alternative (CAM) / integrative medicine therapies.

### *Anthroposophic medicine and integrative medicine*

Anthroposophic Medicine is a complementary medicine system based on a holistic understanding of man and disease that is practiced in integration with conventional medicine.<sup>6</sup> Anthroposophic medicine promotes a health promotion oriented lifestyle and treats patients with the aim to support and strengthen the self-healing or self-regulating ability of the human organism to cope with diseases. This includes restricted use of antibiotics and antipyretics in infections, use of natural medicinal products and non-medicinal treatments such as external embrocation and compresses.<sup>7</sup>

Integrative medicine denotes the integration of conventional medicine with complementary & alternative medicine (CAM), such as anthroposophic medicine.

### *The contribution of anthroposophic and integrative medicine to reducing antibiotic use*

Reducing antibiotic use is difficult: reductions by only 5-12 percentage points have been reported from conventional intervention studies.<sup>8,9</sup>

There is promising evidence that antibiotic prescription rates of anthroposophic doctors can be dramatically lower than those of conventional physicians, while ensuring positive patientsatisfaction as well as equivalent outcomes and safety:

In a prospective comparison of outcomes in patients with upper respiratory infections and ear infections under real-world conditions, a difference in antibiotic prescribing rates of 28 percentage points was noted (5.5% if treated by an anthroposophic physician, 33.6% if treated by a conventional physician).<sup>10</sup>

A secondary analysis of the above study with 529 children showed that antibiotics were prescribed to 5.5% of anthroposophically treated children and 25.6% of conventionally treated children.<sup>11</sup>

In a Dutch study the prescription of antimicrobials in 20 anthroposophic general practitioner (GP) practices was compared to the national mean GP figures for the years 2012 – 2014: anthroposophic GPs prescribed 11-16% less antimicrobials (Baars, manuscript for publication).

In a comparison of 43 GP practices in Bristol, UK, the only anthroposophic GP practice had the second lowest antimicrobial prescription rate – see figure (NSH data 2014).

Low antibiotic prescription rates have also been found among physicians practicing other CAM approaches.<sup>12</sup>

Lower antibiotic use may reflect both physician and client preferences: in a cross-sectional study including 6,630 children, 41.6% of children with anthroposophic lifestyle never had antibiotics compared to only 15.1% of reference children.<sup>13</sup>

Reduced anti-pyretic use, as practiced in anthroposophic medicine, may contribute to reducing infection rates.<sup>7,14</sup>

### *Future perspectives*

Given the magnitude of the AMR problem, all promising options that can reduce antibiotic use must be considered, including the potential of the anthroposophic medicine and other CAM/integrative medicine approaches.

Thailand, for example, proposed the use of herbal medications (though not anthroposophic medicine) when antimicrobials were not needed, as part of its successful, country-wide program for reduction of antibiotic use.<sup>15</sup>

We recommend the following actions:

- Anthroposophic medicine and other CAM / integrative medicine approaches should be included as promising policy to reduce antibiotic use, including in the European Commission's second AMR action plan.
- Evaluating the potential of CAM / integrative medicine prevention and treatment strategies in symptom relief and reducing antibiotic use should be prioritized and supported. Evaluations should include enhancing the practice of delayed prescription of antibiotics with the addition of CAM approaches.
- Knowledge / expertise of anthroposophic and other CAM experts regarding risk management and reduction of prescription - and consumption rates should be shared through appropriate tools.
- Public education on reducing antibiotic use should include suggestion of evidence based CAM approaches as alternative.

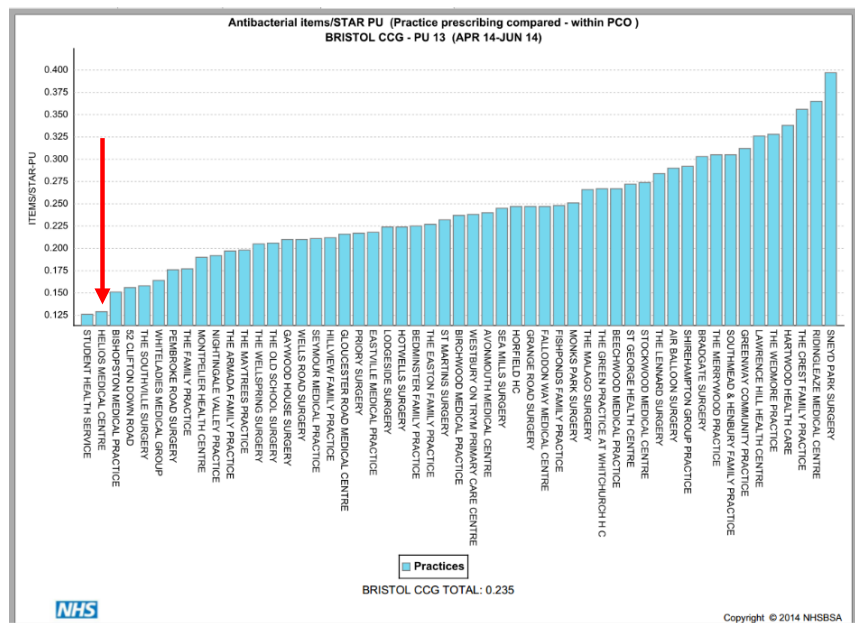


Figure: Example of prescription rates of antibiotics in Bristol, UK, demonstrating very low prescription of an anthroposophic general practitioner practice – see red arrow (from the searchable database of the NHS Business Services Authority, <https://apps.nhsbsa.nhs.uk/infosystems/welcome>)

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## **About IVAA**

The international umbrella organization IVAA represents and coordinates the national anthroposophic doctor's associations from more than 30 countries.

IVAA focuses on:

- Demonstrating the contribution of anthroposophic medicine to address major health challenges
- Obtaining formal recognition of anthroposophic medicine as an integrative medical system
- Advocating for registration and availability of anthroposophic medicinal products
- Advocating for access to anthroposophic treatments such as anthroposophic nursing, art therapies, eurythmy therapy and body therapies
- Promoting pluralism in medicine and the right of patients to access the treatment of their choice

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