

## Survey v6.0 – Published version

### Remark

Copyrighted figures used for the description of a given interventions were omitted from this version of the survey. The corresponding reference is given for each illustration.

### Data policy

This questionnaire is anonymous. All data are stored on a secured server (Unisanté). Data collected during the survey will be used for one or more scientific publications. Data management will be in conformation with the New Federal Act on Data Protection (nFADP).

### Introduction to the survey

This survey is proposed by the Family Medicine Department of Unisanté, from University of Lausanne and the Institute for Implementation Science in Healthcare, from University of Zürich. Its purpose is to evaluate Family physicians' views on several antimicrobial stewardship (AMS) interventions (i.e., the coherent set of action which promote the optimized use of antimicrobials) put in place in Switzerland and elsewhere. More specifically, we aim to evaluate the awareness, acceptability, appropriateness, and feasibility of six different antimicrobial stewardship interventions in the Swiss context. You will randomly be assigned three out of the six antimicrobial stewardship interventions to evaluate. The completion of the questionnaire should take approximately 15 minutes.

### Part 0: screening

**1 What is your specialty?\*** *(only one answer)*

- ☐ FMH specialty title in general internal medicine (or general medicine or internal medicine)
- ☐ Practicing medical doctor certification
- ☐ I do not have any of the aforementioned specialist title

**2 Do you have an additional FMH specialist title?\***

- ☐ Choisissez un élément.

**3 If yes, do you consider family medicine to be your main activity?\*** *(only one answer)*

- ☐ Yes
- ☐ No

**4 Where is your main clinical activity as a family physician taking place?\*** *(multiple answers)*

- ☐ Medical practice
- ☐ Walk-in clinic
- ☐ Academic outpatient center (e.g., university hospital polyclinic)
- ☐ None of the above

**5 Are your patients mainly adults?\*** *(> 80% ≥ 16 years old)\* (only one answer)*

- ☐ Yes
- ☐ No

## Part I: socio-demographic characteristics

**6 Do you identify yourself as (only one answer)**

- ☐ Man
- ☐ Woman
- ☐ No answer/other

**7 How old are you? (only one answer)**

- ☐ < 30 years old
- ☐ 30-39 years old
- ☐ 40-49 years old
- ☐ 50-59 years old
- ☐ > 60 years old

**8 During which decade did you start to practice as a family physician? (only one answer)**

- ☐ < 1980
- ☐ 1980-1989
- ☐ 1990-1999
- ☐ 2000-2009
- ☐ 2010-2019
- ☐ 2020 and later

**9 How many family physicians work in your office?<sup>1</sup> (you included) (only one answer)**

- ☐ 1 (you only)
- ☐ 2-3
- ☐ 4-5
- ☐ > 5

**10 How many other specialists work in your office (not including physicians in training)? (only one answer)**

- ☐ 0
- ☐ 1
- ☐ 2-3
- ☐ 4-5
- ☐ > 5

**11 In which region are you practicing? (only one answer)**

- ☐ 1: GE/NE/VD/VS
- ☐ 2: BE/FR/JU
- ☐ 3: AG/BL/BS/SO
- ☐ 4: LU/NW/OW/SZ/UR/ZG
- ☐ 5: AI/AR/GL/SG/SH/TG/ZH
- ☐ 6: GR/TI

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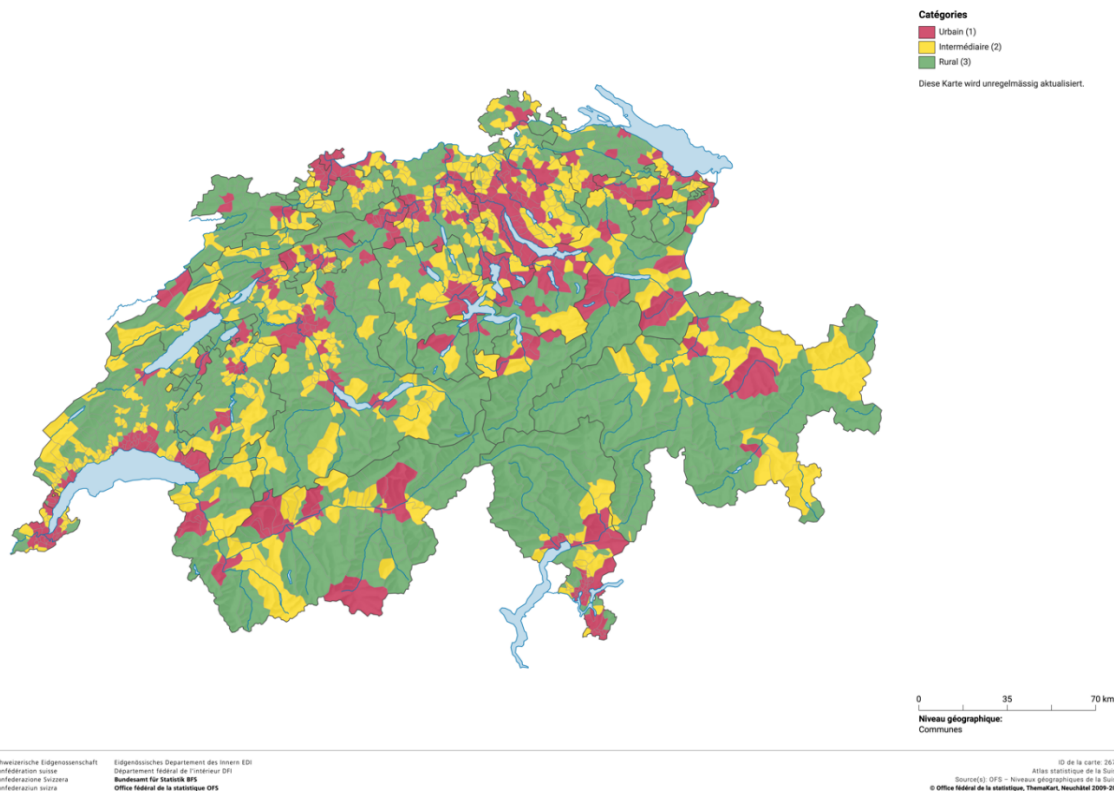
<sup>1</sup> FMH-certified general internal medicine specialist (including general medicine or internal medicine), or practicing medical doctor



12 In which environment is your practice situated ? You can see this map in detail [here](#) (only one answer)

- ☐ Rural (green)
- ☐ Semi-urban (orange)
- ☐ Urban (red)

Typologie urbain-rural 2012



13 How high do you estimate your annual consultation number? (yourself, not the entire practice) (only one answer)

- ☐ < 1000
- ☐ 1000 – 1999
- ☐ 2000 – 2999
- ☐ 3000 – 3999
- ☐ 4000 - 4999
- ☐ > 5000

## Part II: Antimicrobial stewardship interventions potentially influencing GP's knowledge on appropriate antibiotic prescription

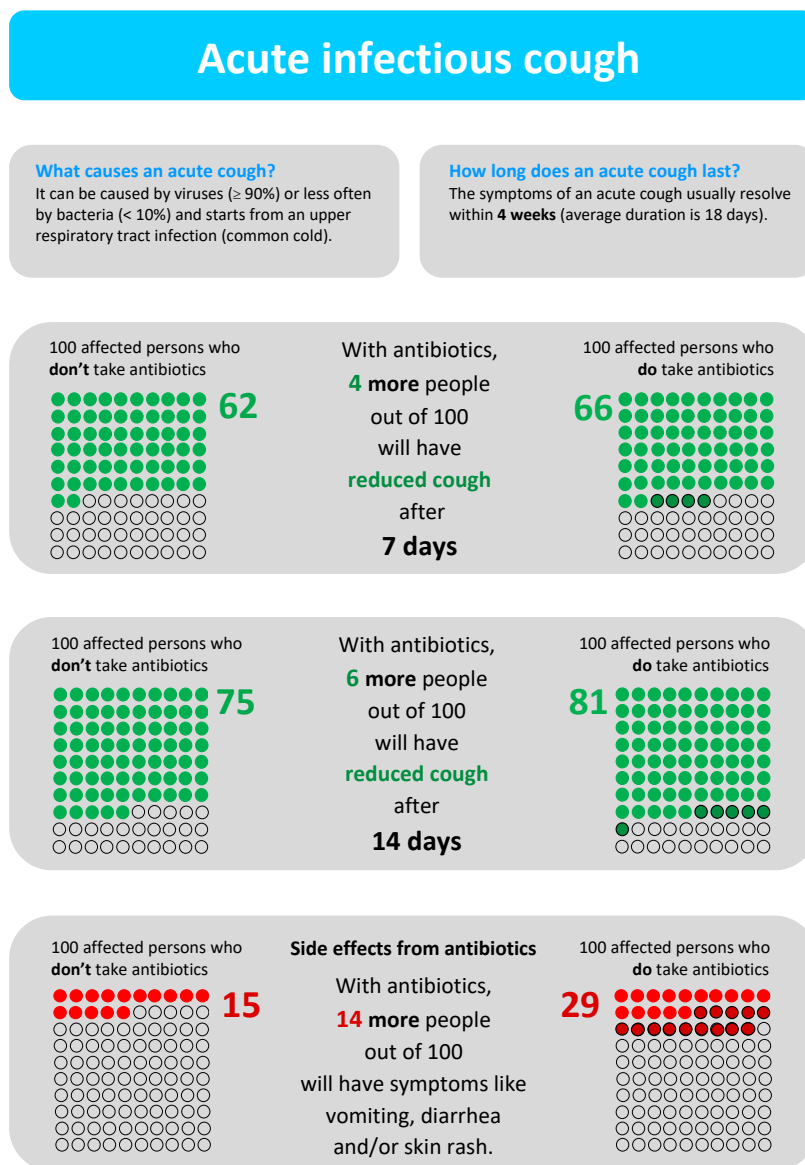
<sup>14</sup> **When looking for an information, or to update your knowledge about appropriate antibiotic use, to which sources of information do you refer? Please select and rank some of these items from the most frequently used intervention to the least frequently used. Please leave the ones you were not aware of or never use in the left box. You don't have to order all of them. In the order of decreasing importance**

- ☐ International guidelines from WHO (aWare book)
- ☐ National guidelines from countries other than Switzerland (e.g., NICE guidelines, *Infectious diseases society of America*, etc.)
- ☐ National guidelines from the Swiss society of infectious diseases (SSI): [ssi.guidelines.ch](https://ssi.guidelines.ch)
- ☐ Regional hospital guidelines or nursing homes guidelines
- ☐ Articles published in Swiss professional journals (e.g., *Primary & Hospital care*, *Revue médicale Suisse*)
- ☐ Original articles published in peer-reviewed national or international journals
- ☐ Education during congresses
- ☐ Education during other continuous medical education events (e.g. symposiums, webinars, conferences lasting up to one day)
- ☐ Medical network quality circles
- ☐ Pharmacist-physician quality circles
- ☐ [Website](#) of FOPH regarding appropriate use of antibiotics
- ☐ Website with data on antibiotic resistance profiles in Switzerland ([anresis.ch](https://anresis.ch) or [infect.info](https://infect.info) or [guide.anresis.info](https://guide.anresis.info))
- ☐ Bern Institute for Primary Health Care (BIHAM) [factsheets](#)
- ☐ UpToDate website
- ☐ Textbooks (i.e., *Compass*®, *Sanford Antimicrobial Guidebook*, *Mandell & Douglas*, *SURF-Med*)
- ☐ Infectious diseases specialist advice
- ☐ Other, please specify

<sup>15</sup> **If you wish to comment your answers, please write here: Free text answer**

## Part III: Antimicrobial stewardship interventions targeting antibiotic treatment of RTIs

On behalf of the Federal Bureau of Public Health and to support its health's strategy on antimicrobial resistance (StAR), a research team at BIHAM (Institute of Primary Health Care, [University of Bern](#)) developed summary information for primary care physicians and shared-decision making tools (clinical encounter support tools) that illustrates the risk-benefit ratio of antibiotic treatment in several situations (acute infectious cough, acute rhinosinusitis, acute sore throat, otitis media, and UTI). In the example shown below, it represents the number of patients needed to treat an acute infectious cough achieving a beneficial effect from an antibiotic treatment, as well as the number needed to harm with side effects of the antibiotics.



Version 08.09.23

Courtesy of Bern Institute for Primary Health Care (BIHAM)

- <sup>16</sup> Were you aware of the existence of at least one of these shared decision-making tools?\* (only one answer)

- ☐ Yes
- ☐ No

17 **This shared decision-making tool is acceptable, with the acceptability of the tool being defined as the tool being agreeable, palatable, and satisfactory.\* (only one answer)**

- ☐ I strongly disagree
- ☐ I disagree
- ☐ I neither agree nor disagree
- ☐ I agree
- ☐ I strongly agree

18 **This shared decision-making tool is appropriate, with appropriateness being defined as the perceived fit, relevance, or compatibility of the tool with the practice setting.\* (only one answer)**

- ☐ I strongly disagree
- ☐ I disagree
- ☐ I neither agree nor disagree
- ☐ I agree
- ☐ I strongly agree

19 **This shared decision-making tool is feasible, with feasibility being defined as the extent to which the tool can be successfully used or carried out within the practice setting\* (only one answer)**

- ☐ I strongly disagree
- ☐ I disagree
- ☐ I neither agree nor disagree
- ☐ I agree
- ☐ I strongly agree

20 **If you wish to comment your answers, please write here : *free text***

21 **Please estimate how much time using this shared decision-making tool would add or save to the consultation (*in minutes*)**

**These shared decision-making tools are supplemented with a factsheet containing key information (e.g., diagnostic features, red flags, and symptomatic and/or antibiotic treatment), as well as a decision-aid algorithm.**

# Information leaflet and decision aid for antibiotic treatment of cough due to acute respiratory infections

This document, made for physicians, summarizes key research data that can be used to share decision-making with the patient.

**Epidemiology**

- Cough is one of the most common reasons for consulting primary health care, accounting for 8% of all cases.<sup>1,2</sup>
- The prevalence of cough in the population ranges from 8% to 18%; 75-92% of these cases are caused by respiratory tract infections.<sup>3,4</sup>

**Classification**

- There is no single definition for acute infectious cough. Cough can be caused by infection of either or both the upper (URT) and/or lower respiratory tract (LRT), often coexisting.<sup>5,6</sup> Correct diagnosis depends on careful history-taking and clinical examination.<sup>7,8</sup> The acute respiratory illness (ARI, bronchitis), the main symptom is often cough with at least one other respiratory tract symptom (sputum production, wheezing, chest pain) and no other explanation for the symptoms.<sup>9,10</sup> The cough may last for about 4 weeks (in 75% of the patients) or more than 4 weeks (in 25%).<sup>11,12</sup>

**Pathogenesis**

**Visual: > 90%**

- Rhinovirus (30-50%)
- Influenza virus
- Adenovirus
- Coronavirus (new SARS-CoV-2)
- Other: RSV and Parainfluenza virus

**Bacterial: < 10%**

- Mycoplasma pneumoniae
- Chlamydia pneumoniae
- Bordetella pertussis / Bordetella parapertussis
- S. pneumoniae
- Invasive pneumococci

**Clinical presentation of acute bronchitis**

- Cough (productive or unproductive/ dry)

**Positive symptoms:**

- Fever
- Nasal discharge / rhinorrhea / sneezing
- Sore throat / redness of the lymphatic pharyngeal ring
- Head and/or muscle aches
- Malaise / fatigue

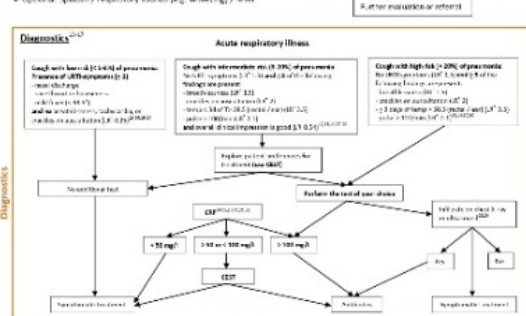
**Findings in clinical examination:**

- Optional: Sputum / respiratory sounds (e.g. wheezing) / fever

**Red flags**

- Blue overall clinical impression (H<sup>+</sup> < 1)
- Systolic blood pressure < 90 mmHg
- Tachypnea (> 24 breaths/min) & RA<sup>+</sup> & R<sup>+</sup>
- Haemoptysis
- Stridor
- Pulmonary diseases like asthma, COPD or tuberculosis
- Immunosuppression or immune deficiency

Further evaluation or referral



The probability of bacterial pneumonia is estimated by the following criteria: CRP < 10 mg/L, no other symptoms, no risk factors for pneumonia, no comorbidities, no immunosuppression, no recent antibiotic use, no recent travel to high-risk areas, no recent contact with someone with pneumonia. If any of these criteria are not met, the patient is considered to be at intermediate or high risk of pneumonia.

## Treatment options:

**1. Symptomatic treatment**

- NSAIDs like Ibuprofen are for adult patients with fever, head- and/or muscle aches.<sup>13</sup>
- Antitussives / opioids: Dextromethorphan might relieve an unproductive cough, but its efficacy is debated.<sup>14</sup> According to the NICE guidelines, codeine is not more effective than placebo.<sup>15</sup>
- Bronchodilators should only be prescribed if infection symptoms are caused by an underlying asthma disease, e.g. asthma.<sup>16</sup>
- Phytotherapeutics / Honey: A combination of ivy and thyme may relieve cough.<sup>17,18</sup> Echinacea is not effective.<sup>19</sup> Honey may decrease the frequency and severity of cough and improve sleep quality.<sup>20,21</sup>
- Antihistamines and decongestants provide little clinical benefit.<sup>22,23</sup>
- Mucolytic agents: Acetylcysteine showed some benefit (e.g. reduction of cough at day seven), but level of evidence is low.<sup>24</sup>

**2. Antibiotic treatment**

- Advantages:**<sup>25,26,27</sup>
  - After 7 days, antibiotics reduce cough in 4 more people in 100 (50% in placebo group vs. 46% in treatment group).
  - After 14 days, antibiotics reduce cough in 6 more out of 100 people (75% in placebo group vs. 81% in treatment group), but do not reduce time to resolution of cough.
  - Overall, antibiotics shortened duration of cough by half a day (mean: 0.46 days) more than placebo. Weigh this small advantage against possible side-effects of antibiotics.<sup>2</sup>
  - Antibiotics may reduce the risk of pneumonia for <1% of people < 65 years old (NNT = 100) and for up to 3% of people > 65 years old (NNT = 33).<sup>2</sup>
  - Symptoms lasted the same amount of time with antibiotics and placebo, when bacteria that might be susceptible to antibiotics were present.<sup>28</sup>
- Disadvantages / risks:**
  - Adverse effects, e.g. nausea, vomiting, diarrhea, headache, skin rash, and vaginitis occur in 5-35% (NNT 4-30).<sup>29,30</sup>
- Choice, dosage and duration of antibiotics**<sup>31</sup>
  - Amoxicillin** (first-line pneumonia) - Without comorbidities: Amoxicillin 500 mg / 3x p.o., daily dose max. 3g.
  - With comorbidities:** Amoxicillin/Clavulanic acid 500 mg / 3x p.o.
- Alternative:** In 8 years old without comorbidities: Cefprozil 250mg/12h p.o. 3x p.o. 3x p.o. (pregnancy or Clavulanic acid 500mg/12h p.o. 3x p.o. 3x p.o.)
- Duration of treatment:** 7-14 days after the resolution of fever / clinical stabilisation; usually 7 days. Shorter treatment possible, if pneumonia is mild or moderate and patient's overall clinical impression improves rapidly.<sup>32</sup>
- Advantage of lowering antibiotic prescription rate:**
  - Will not promote antibiotic resistance in bacteria; avoid potential adverse effects of antibiotic prescription.
  - Inappropriate treating patients with antibiotics promotes the expectation they should receive another antibiotic treatment if they again fall ill.<sup>33</sup>

References: see [https://www.bhpr.unibe.ch/researchtools-to-facilitate-shared-decision-making/index\\_eng.html](https://www.bhpr.unibe.ch/researchtools-to-facilitate-shared-decision-making/index_eng.html)



Courtesy of Bern Institute for Primary Health Care (BIHAM)

22 Were you aware of the existence of at least one of these factsheets?\* (only one answer)

- ☐ Yes
- ☐ No

23 This factsheet is acceptable, with the acceptability of the factsheet being defined as the factsheet being agreeable, palatable, and satisfactory\* (only one answer)

- ☐ I strongly disagree
- ☐ I disagree
- ☐ I neither agree nor disagree
- ☐ I agree
- ☐ I strongly agree

24 This factsheet is appropriate, with appropriateness being defined the perceived fit, relevance, or compatibility of the factsheet with the practice setting\* (only one answer)

- ☐ I strongly disagree
- ☐ I disagree
- ☐ I neither agree nor disagree
- ☐ I agree
- ☐ I strongly agree

25 This factsheet is feasible, with feasibility being defined as the extent to which this factsheet can be successfully used or carried out within the practice setting\* (only one answer)

- ☐ I strongly disagree
- ☐ I disagree

- ☐ I neither agree nor disagree
- ☐ I agree
- ☐ I strongly agree

<sup>26</sup> **If you wish to comment your answers, please write here:** *Free text answer*

<sup>27</sup> **Please estimate how much time using this factsheet would add or save to the consultation (*in minutes*)**



- 28 **Were you aware of the existence of the [ssi.guidelines.ch](https://ssi.guidelines.ch) website?\*** *(only one answer)*
- ☐ Yes
  - ☐ No
- 29 **This website is acceptable, with acceptability of this website being defined as this website being agreeable, palatable, and satisfactory.** *(only one answer)*
- ☐ I strongly disagree
  - ☐ I disagree
  - ☐ I neither agree nor disagree
  - ☐ I agree
  - ☐ I strongly agree
- 30 **This website is appropriate, with appropriateness being defined the perceived fit, relevance, or compatibility of this website with the practice setting\*** *(only one answer)*
- ☐ I strongly disagree
  - ☐ I disagree
  - ☐ I neither agree nor disagree
  - ☐ I agree
  - ☐ I strongly agree
- 31 **This website is feasible, with feasibility being defined as the extent to which this website can be successfully used or carried out within the practice setting\*** *(only one answer)*
- ☐ I strongly disagree
  - ☐ I disagree
  - ☐ I neither agree nor disagree
  - ☐ I agree
  - ☐ I strongly agree
- 32 **If you wish to comment your answers, please write here:** *Free text answer*
- 33 **Please estimate how much time consulting those guidelines would add or save to the consultation** *(in minutes)*

The list of all 23 guidelines is displayed below.

← Table des matières - SGInf-Guidelines

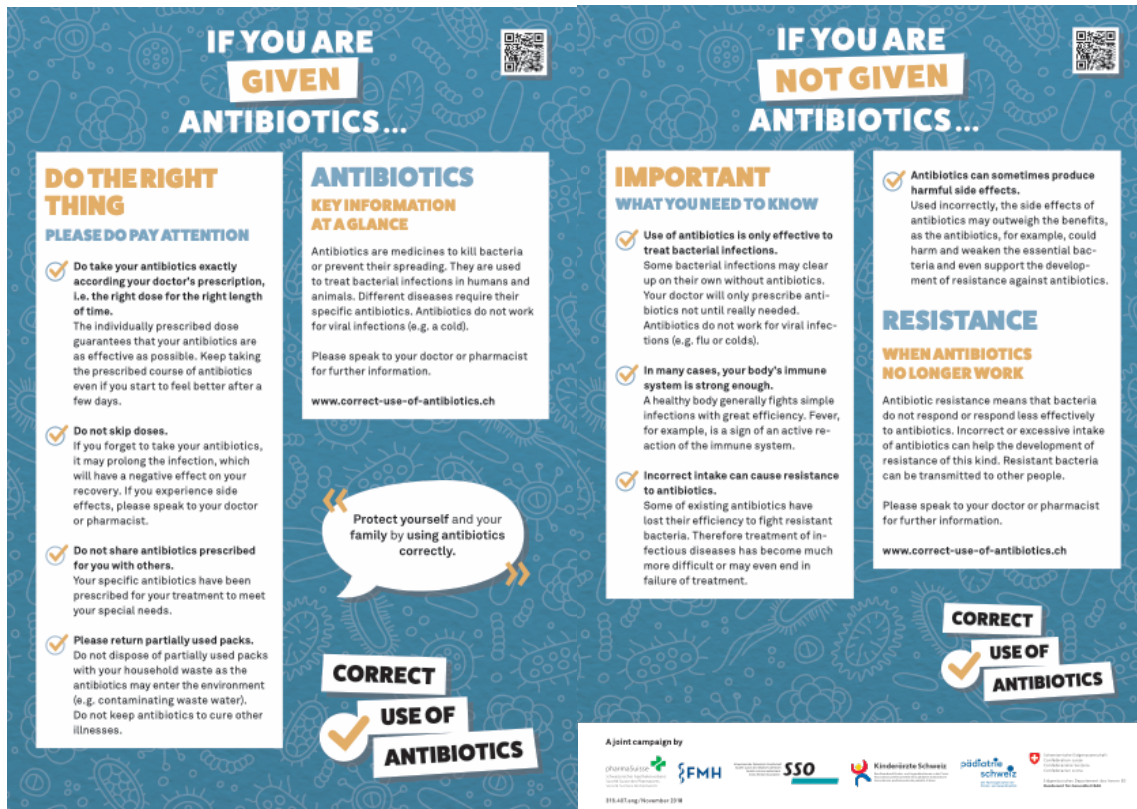
<p>Sélection de collection SGInf-Gui...</p> <p>Chercher ...</p> <p><b>SGInf-Guidelines</b></p> <ul style="list-style-type: none"> <li>▶ Abdo...</li> <li>▶ Haut...</li> <li>▶ Kardi...</li> <li>▶ Resp...</li> <li>▶ Urog...</li> <li>▶ ZNS</li> <li>▶ Non ...</li> </ul>	<table> <tr> <th>Le nom ↑</th><th>Valable depuis</th></tr> <tr> <td colspan="2"><b>Filtre (23 Directives publiées)</b></td></tr> <tr> <td>Abkürzungen Infektiologie; Antibiotika / Abréviations infectiologie; antibiotiques</td><td>09.09.2023</td></tr> <tr> <td>Borréliose, Maladie de Lyme</td><td>22.05.2023</td></tr> <tr> <td>Chlamydia (C. trachomatis) / LGV</td><td>05.04.2023</td></tr> <tr> <td>Diverticulite</td><td>05.05.2023</td></tr> <tr> <td>Endocardite infectieuse / Prévention</td><td>06.04.2023</td></tr> <tr> <td>Gastro-entérite infectieuse</td><td>05.05.2023</td></tr> <tr> <td>Gonococcie (N. gonorrhoeae)</td><td>05.05.2023</td></tr> <tr> <td>Harnwegsinfektionen bei Kindern und Jugendlichen</td><td>20.02.2023</td></tr> <tr> <td>Infection à Clostridioides difficile</td><td>05.04.2023</td></tr> <tr> <td>Infection à Mycoplasma genitalium</td><td>30.05.2023</td></tr> <tr> <td>Infection des voies urinaires (IU)</td><td>13.04.2023</td></tr> <tr> <td>Infections à Helicobacter pylori</td><td>03.11.2023</td></tr> <tr> <td>Infections du pied diabétique</td><td>05.05.2023</td></tr> <tr> <td>Osteoartikuläre Infektionen im Kindesalter</td><td>06.02.2023</td></tr> <tr> <td>Otite Moyenne Aigue</td><td>05.05.2023</td></tr> <tr> <td>Perioperative Antibiotikaphylaxe bei Kindern</td><td>25.11.2022</td></tr> <tr> <td>Pharyngite</td><td>21.04.2023</td></tr> <tr> <td>Pneumonie / Pneumonie acquise en communauté</td><td>29.03.2023</td></tr> <tr> <td>Prostatite bactérienne</td><td>05.05.2023</td></tr> <tr> <td>SARS-CoV-2 / COVID-19 - Antiviral and immunomodulatory treatment considerations for hospitalized patients (continually updated)</td><td>18.10.2023</td></tr> <tr> <td>Sinusite bactérienne aigue</td><td>05.05.2023</td></tr> <tr> <td>Syphilis</td><td>06.06.2023</td></tr> <tr> <td>Uretrite chez l'homme</td><td>05.05.2023</td></tr> </table>	Le nom ↑	Valable depuis	<b>Filtre (23 Directives publiées)</b>		Abkürzungen Infektiologie; Antibiotika / Abréviations infectiologie; antibiotiques	09.09.2023	Borréliose, Maladie de Lyme	22.05.2023	Chlamydia (C. trachomatis) / LGV	05.04.2023	Diverticulite	05.05.2023	Endocardite infectieuse / Prévention	06.04.2023	Gastro-entérite infectieuse	05.05.2023	Gonococcie (N. gonorrhoeae)	05.05.2023	Harnwegsinfektionen bei Kindern und Jugendlichen	20.02.2023	Infection à Clostridioides difficile	05.04.2023	Infection à Mycoplasma genitalium	30.05.2023	Infection des voies urinaires (IU)	13.04.2023	Infections à Helicobacter pylori	03.11.2023	Infections du pied diabétique	05.05.2023	Osteoartikuläre Infektionen im Kindesalter	06.02.2023	Otite Moyenne Aigue	05.05.2023	Perioperative Antibiotikaphylaxe bei Kindern	25.11.2022	Pharyngite	21.04.2023	Pneumonie / Pneumonie acquise en communauté	29.03.2023	Prostatite bactérienne	05.05.2023	SARS-CoV-2 / COVID-19 - Antiviral and immunomodulatory treatment considerations for hospitalized patients (continually updated)	18.10.2023	Sinusite bactérienne aigue	05.05.2023	Syphilis	06.06.2023	Uretrite chez l'homme	05.05.2023
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Courtesy of the Swiss society of infectious diseases

<sup>34</sup> Do you suggest adding some other guidelines which could be useful for your practice? (free text)

The Federal Office of Public Health, together with several medical and pharmaceutical societies, has developed [materials](#) to inform patients on using antimicrobials responsibly, usable from physicians and pharmacists. It contains an information sheet and a short video clip, available in 13 languages, emphasizing on using the correct dose, correct duration, and not to share antibiotics. It also explains why an antibiotic treatment might not be necessary in some cases. These information sheets can also be ordered in forms of posters or post-it to be used in the GPs' offices or pharmacies. An example in English is shown below.



Courtesy of the Swiss Federal Office of Public Health

35 Were you aware of the existence of these patient information materials?\* (only one answer)

- ☐ Yes
- ☐ No

36 If yes, which part of this campaign were you aware of? (check all that apply)

- ☐ Patient information leaflet
- ☐ Poster to hang in your office
- ☐ Educational video
- ☐ Post-its to stick to antibiotic prescriptions

37 These patient information materials are acceptable, with the acceptability of this campaign being defined as these materials being agreeable, palatable, and satisfactory\* (only one answer)

- ☐ I strongly disagree
- ☐ I disagree
- ☐ I neither agree nor disagree

- ☐ I agree
- ☐ I strongly agree

**38 These patient information materials are appropriate, with appropriateness being defined the perceived fit, relevance, or compatibility of these materials with the practice setting\* (only one answer)**

- ☐ I strongly disagree
- ☐ I disagree
- ☐ I neither agree nor disagree
- ☐ I agree
- ☐ I strongly agree

**39 These patient information materials are feasible, with feasibility being defined as the extent to which these materials can be successfully used or carried out within the practice setting.\* (only one answer)**

- ☐ I strongly disagree
- ☐ I disagree
- ☐ I neither agree nor disagree
- ☐ I agree
- ☐ I strongly agree

**40 If you wish to comment your answers, please write here: *Free text answer***

**41 Please estimate how much time using these information leaflet would add or save to the consultation (*in minutes*)**

**Audit and feedback of antimicrobial prescription is a potential system-wide antimicrobial stewardship strategy that could modify the behavior of primary care physicians and reduce inappropriate antibiotic prescription. The concept lies in analyzing antibiotic prescription data and providing feedback to clinicians on their prescription, with benchmarking with their peers. This intervention is used in some quality circles and has been tested in a Swiss-wide study (1). An example of such feedback given by a newsletter is shown below.**

*[Figure removed, from (1)]*

**42 Were you aware of the existence of such type of an intervention?\*** *(only one answer)*

- ☐ Yes
- ☐ No

**43 This intervention is acceptable, with the acceptability of an intervention being defined as an intervention being agreeable, palatable, and satisfactory\*** *(only one answer)*

- ☐ I strongly disagree
- ☐ I disagree
- ☐ I neither agree nor disagree
- ☐ I agree
- ☐ I strongly agree

**44 This intervention is appropriate, with appropriateness being defined the perceived fit, relevance, or compatibility of an intervention with the practice context\*** *(only one answer)*

- ☐ I strongly disagree
- ☐ I disagree
- ☐ I neither agree nor disagree
- ☐ I agree
- ☐ I strongly agree

**45 This intervention is feasible, with feasibility being defined as the extent to which an intervention can be successfully used or carried out within the practice context\*** *(only one answer)*

- ☐ I strongly disagree
- ☐ I disagree
- ☐ I neither agree nor disagree
- ☐ I agree
- ☐ I strongly agree

**46 If you wish to comment your answers, please write here:** *Free text answer*

**47 In your opinion, who should provide such personalized feedback?** *(check all that apply)*

- ☐ Health insurers
- ☐ Quality circles
- ☐ The national center for antibiotic resistance ([anresis.ch](https://anresis.ch))
- ☐ An academic institution
- ☐ Professional medical associations (e.g., FMH or cantonal medical societies)
- ☐ None at all

- ☐ Other

48 **In your opinion, when receiving personalized feedback, who should be compared to you (benchmarking)?** *(check all that apply)*

- ☐ Members of my quality circle
- ☐ All physicians practicing in my area (e.g., in a 10 km-radius)
- ☐ Physicians of the same specialty from my canton
- ☐ Physicians of the same specialty nationally
- ☐ Quality indicators available at the national or international level (e.g., target of percentage of fluoroquinolones prescribed)
- ☐ Other

49 **In your opinion, in which form should this feedback be provided?**

- ☐ Quarterly report
- ☐ Group discussion with peers
- ☐ Included in the statistics of my practice
- ☐ Other

50 **Please estimate how much time it would take to read and understand a personalized feedback?** *(yearly, in minutes)*

Several communication skills trainings were assessed for reducing antibiotic prescriptions in primary care in clinical trials. An internet-based communication skills training for physicians (2) was designed to facilitate usage of specific patient-centered communication skills by physicians in the case of an acute cough, using three elements of an effective consultation: to gather information about patient beliefs and expectations, exchange information and agree on management, and check the patient's understanding. This continuous medical education intervention contained both factual information for GPs as well as video clips illustrating how to use those communication skills in daily routine situations. The web-based training was complemented by an information booklet to be given to patients. Its mean time of completion was 37 minutes (3). An illustration of this internet-based program as well as the information booklet are shown below.

*[Figure removed, from (2)]*

*[Figure removed, from (4)]*

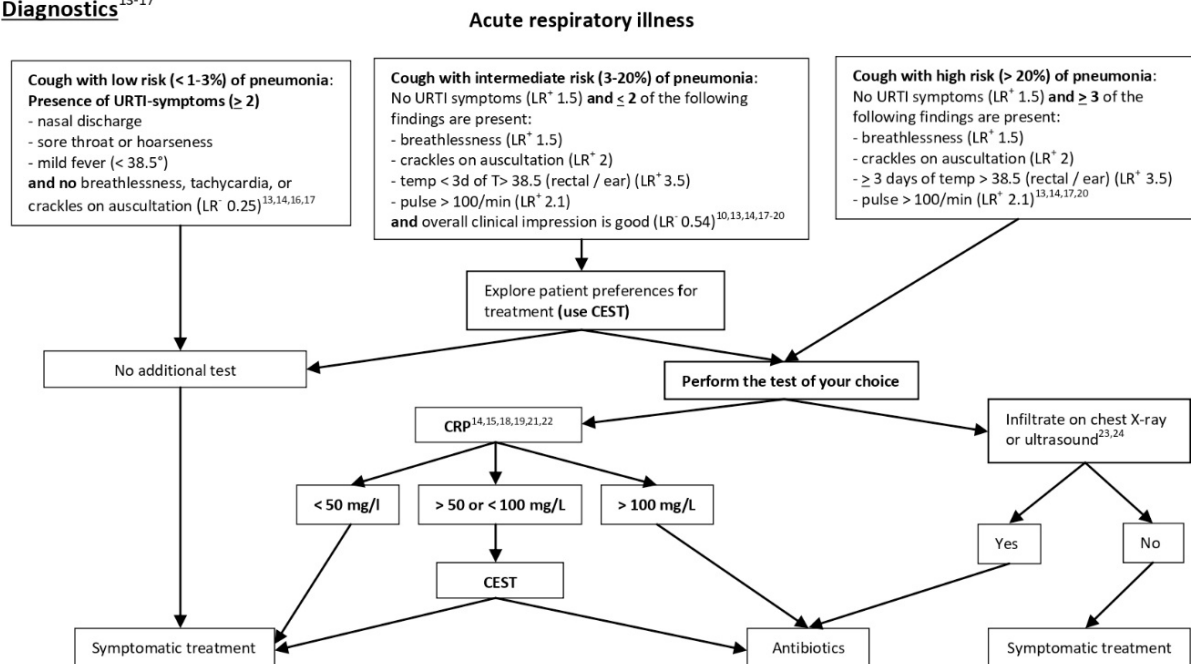
- 51 **Were you aware of the existence of this or any similar communication skills training?\*** (*only one answer*)
- ☐ Yes
- ☐ No
- 52 **A communication skills training is acceptable, with the acceptability of a communication skills training being defined as it being agreeable, palatable, and satisfactory\*** (*only one answer*)
- ☐ I strongly disagree
- ☐ I disagree
- ☐ I neither agree nor disagree
- ☐ I agree
- ☐ I strongly agree
- 53 **A communication skills training is appropriate, with appropriateness being defined the perceived fit, relevance, or compatibility of a communication skills training with the practice setting** (*only one answer*)
- ☐ I strongly disagree
- ☐ I disagree
- ☐ I neither agree nor disagree
- ☐ I agree
- ☐ I strongly agree
- 54 **A communication skills training is feasible, with feasibility being defined as the extent to which an intervention can be successfully used or carried out within the practice setting\*** (*only one answer*)
- ☐ I strongly disagree
- ☐ I disagree
- ☐ I neither agree nor disagree
- ☐ I agree
- ☐ I strongly agree
- 55 **If you wish to comment your answers, please write here:** *Free text answer*



Several point-of-care blood tests can be used in the management of respiratory tract infections. They can give rapid information to identify patients who are most likely to benefit from an antibiotic treatment and those who are not. Point-of-care C-reactive protein (POC-CRP) is a potentially useful tool to safely reduce inappropriate antibiotic prescription in an acute infective cough in primary care according to some studies (5). The National Institute for Health and Care Excellence (NICE) in UK recommends the use of POC-CRP in suspected acute respiratory infection in adult patients, if, after clinical assessment, it is unclear if antibiotics are needed (an illustration of this guideline is shown). The Institute for Primary Health Care (BIHAM) from Bern University also suggests the use of POC-CRP in the management of an acute infectious cough (an illustration of the decision-aid algorithm is shown).

[Figure removed, from (6)]

#### Diagnostics<sup>13-17</sup>



Courtesy of Bern Institute for Primary Health Care

56 Were you aware of the existence of POC-CRP for guiding antibiotic therapy in respiratory tract infections ?\* (only one answer)

- ☐ Yes  
☐ No

57 POC-CRP for guiding antibiotic therapy in respiratory tract infections is acceptable, with the acceptability of POC-CRP being defined as POC-CRP being agreeable, palatable, and satisfactory\* (only one answer)

- ☐ I strongly disagree  
☐ I disagree  
☐ I neither agree nor disagree  
☐ I agree  
☐ I strongly agree

- 58 **POC-CRP for guiding antibiotic therapy in respiratory tract infections is appropriate, with appropriateness being defined as the perceived fit, relevance, or compatibility of POC-CRP with the practice setting. (only one answer)**
- ☐ I strongly disagree
  - ☐ I disagree
  - ☐ I neither agree nor disagree
  - ☐ I agree
  - ☐ I strongly agree
- 59 **POC-CRP for guiding antibiotic therapy in respiratory tract infections is feasible, with feasibility being defined as the extent to which POC-CRP can be successfully used or carried out within the practice setting\* (only one answer)**
- ☐ I strongly disagree
  - ☐ I disagree
  - ☐ I neither agree nor disagree
  - ☐ I agree
  - ☐ I strongly agree
- 60 **If you wish to comment your answers, please write here: *Free text answer***
- 61 **Please estimate how much time using point-of-care CRP would add or save to the consultation (in minutes, without taking count of the assay itself)**

Several point-of-care blood tests can be used in the management of respiratory tract infections. They can give rapid (i.e, during the consultation) information to identify patients who are most likely to benefit from an antibiotic treatment and those who are not. Point-of-care Procalcitonin (POC-PCT) is a potentially useful tool to safely reduce inappropriate antibiotic prescription in an acute cough in primary care, according to some studies (7). Its use is mentioned in the management of a community acquired pneumonia by the Swiss society of Infectious diseases ([ssi.guidelines.ch](https://ssi.guidelines.ch)). An extract of the guideline is displayed. A request to include this test among the tests reimbursed for medical practices has been submitted to the Federal Commission for Analyses and Devices.

#### Empirische Therapie



##### Ambulantes Setting (leichte Pneumonie)

- **ohne Komorbidität:** Amoxicillin 1 g q8h **po**, Tagesdosis maximal 3 g
- **mit Komorbiditäten:** Amoxicillin/Clavulanate 1 g q8h **po**
- Alternativen:
  - Alter  $\geq 8$  Jahre ohne Komorbiditäten: Doxycyclin 100 mg q12h **po** oder Azithromycin 500 mg q24h oder Clarithromycin 500 mg q12h
  - Ältere Patienten oder Personen **mit Komorbiditäten** einschliesslich COPD: Amoxicillin/Clavulanate 1 g q8h **po**
  - Ältere Patienten oder Personen **mit Komorbiditäten** einschliesslich COPD und Penicillin-Allergie: Azithromycin 500 mg **po** q24h oder Clarithromycin 500 mg q12h **po** (alternativ: Levofloxacin 500 mg q12 h oder Moxifloxacin 400 mg q24h)
- **Optional: keine Antibiotikatherapie bei Procalcitonin  $<0.25 \mu\text{g/L}$**

*Courtesy of the Swiss society of infectious diseases*

62 **Were you aware of the existence of POC-PCT for guiding antibiotic therapy in respiratory tract infections?\*** *(only one answer)*

- ☐ Yes
- ☐ No

63 **Assuming the test is reimbursed, POC-PCT for guiding antibiotic therapy in respiratory tract infections is acceptable, with the acceptability of POC-PCT being defined as POC-PCT being agreeable, palatable, and satisfactory\*** *(only one answer)*

- ☐ I strongly disagree
- ☐ I disagree
- ☐ I neither agree nor disagree
- ☐ I agree
- ☐ I strongly agree

64 **Assuming the test is reimbursed, POC-PCT for guiding antibiotic therapy in respiratory tract infections is appropriate, with appropriateness being defined the perceived fit, relevance, or compatibility of POC-PCT with the practice setting .***(only one answer)*

- ☐ I strongly disagree
- ☐ I disagree
- ☐ I neither agree nor disagree
- ☐ I agree
- ☐ I strongly agree

65 **Assuming the test is reimbursed, POC-PCT for guiding antibiotic therapy in respiratory tract infections is feasible, with feasibility being defined as the extent to which POC-PCT can be successfully used or carried out within the practice setting\*** *(only one answer)*

- ☐ I strongly disagree
- ☐ I disagree
- ☐ I neither agree nor disagree
- ☐ I agree
- ☐ I strongly agree

<sup>66</sup> **If you wish to comment your answers, please write here:** *Free text answer*

<sup>67</sup> **Please estimate how much time using point-of-care PCT would add or save to the consultation.**  
*(in minutes, without taking count of the assay itself)*

#### Part IV: Assessment of blood tests at the GP's practice

<sup>68</sup> **Do you take blood samples in your practice?** *(only one answer)*

- ☐ Yes
- ☐ No

<sup>69</sup> **Do you have laboratory devices in your practice?** *(only one answer)*

- ☐ Yes
- ☐ No

<sup>70</sup> **If yes, which test do you perform in your own practice?** *(Check all that apply)*

- ☐ Full blood count
- ☐ CRP
- ☐ Streptotest
- ☐ D-dimer
- ☐ Conventional troponin
- ☐ Highly sensitive troponin
- ☐ SARS-CoV-2 antigenic test

<sup>71</sup> **Which point-of-care devices do you have in your practice?** *(free text answer)*

#### Part V: General question about antimicrobial stewardship in Switzerland

<sup>72</sup> **How must an antimicrobial stewardship intervention be designed to effectively support GPs in taking decisions about antibiotic treatment?** *(free text answer)*

## References

1. Aghlmandi S, Halbeisen FS, Saccilotto R, Godet P, Signorell A, Sigrist S, et al. Effect of Antibiotic Prescription Audit and Feedback on Antibiotic Prescribing in Primary Care: A Randomized Clinical Trial. *JAMA Intern Med.* 2023;183(3):213-20.
2. Anthierens S, Tonkin-Crine S, Douglas E, Fernandez-Vandellos P, Krawczyk J, Llor C, et al. General practitioners' views on the acceptability and applicability of a web-based intervention to reduce antibiotic prescribing for acute cough in multiple European countries: a qualitative study prior to a randomised trial. *BMC family practice.* 2012;13(1):101.
3. Little P, Stuart B, Francis N, Douglas E, Tonkin-Crine S, Anthierens S, et al. Effects of internet-based training on antibiotic prescribing rates for acute respiratory-tract infections: a multinational, cluster, randomised, factorial, controlled trial. *The Lancet.* 2013;382(9899):1175-82.
4. Yardley L, Douglas E, Anthierens S, Tonkin-Crine S, O'Reilly G, Stuart B, et al. Evaluation of a web-based intervention to reduce antibiotic prescribing for LRTI in six European countries: quantitative process analysis of the GRACE/INTRO randomised controlled trial. *Implement Sci.* 2013;8:134.
5. Fawsitt CG, Lucey D, Harrington P, Jordan K, Marshall L, O'Brien KK, et al. A cost-effectiveness and budget impact analysis of C-reactive protein point-of-care testing to guide antibiotic prescribing for acute respiratory tract infections in primary care settings in Ireland: a decision-analytic model. *Family practice.* 2021.
6. NICE. Suspected acute respiratory infection in over 16s: assessment at first presentation and initial management [Clinical Guideline]. National Institute for Health Care Excellence; 2023 [updated 2023.11.16. Available from: <https://www.nice.org.uk/guidance/ng237>.
7. Lhopitallier L, Kronenberg A, Meuwly J-Y, Locatelli I, Mueller Y, Senn N, et al. Procalcitonin and lung ultrasonography point-of-care testing to determine antibiotic prescription in patients with lower respiratory tract infection in primary care: pragmatic cluster randomised trial. *BMJ.* 2021:n2132.