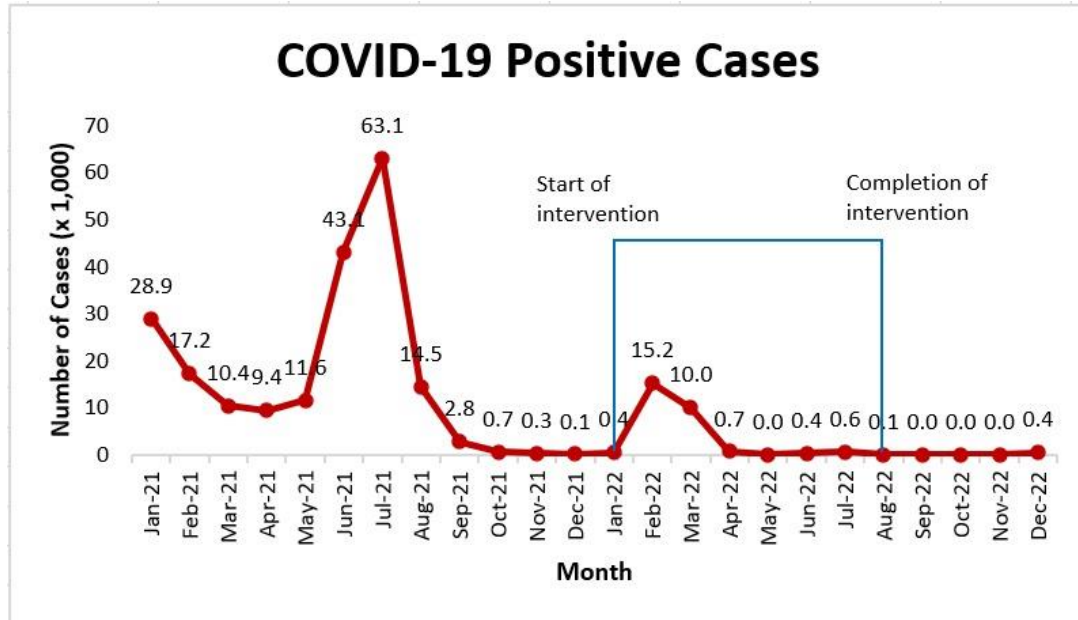


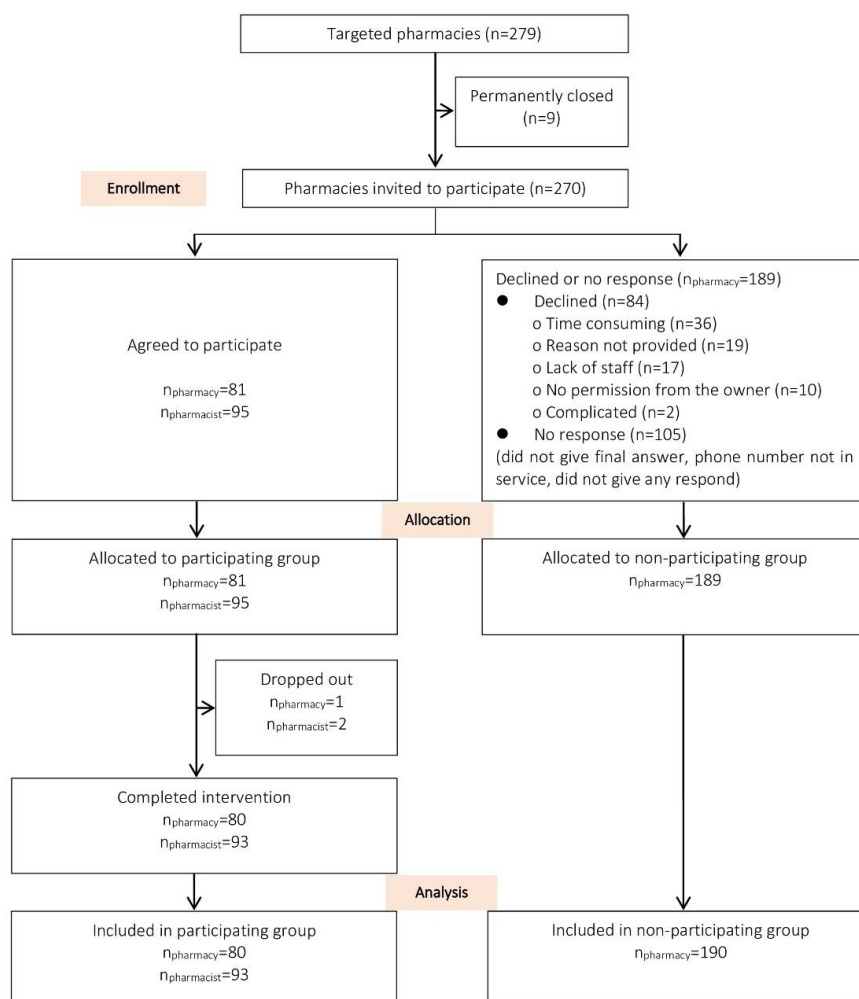
**Appendix 1 Timeline of the intervention and trend in the number of COVID-19 cases in the study location**

Source: Semarang City Health Office

**Appendix 2. Map of the study location**



## Appendix 3. Flowchart of participant recruitment

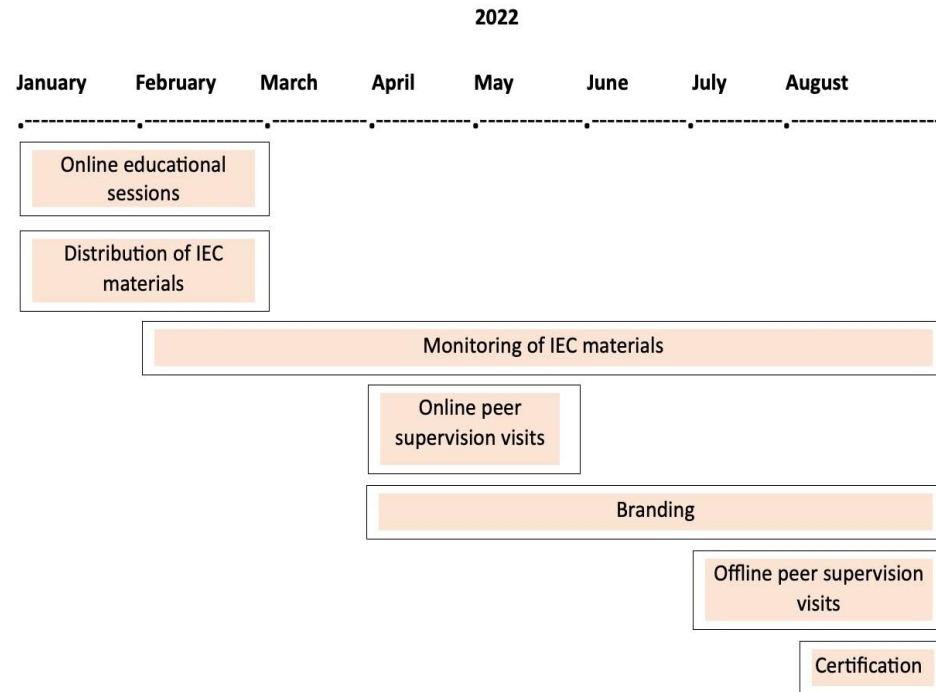


**Appendix 4. Intervention components**

| Component                               | Target                                                                           | Implementer                                                                                                                                                                      | Methods                                                                                                               | Content                                                                                                                                                                                                                                                                                                                    | Timing and frequency                                                                                                                                                                                                               |
|-----------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Component 1: Online educational session | Participating pharmacists divided into 11 WhatsApp groups, each with 8-9 members | <ul style="list-style-type: none"> <li>- Facilitator: senior pharmacists recruited and trained for 3 days</li> <li>- Administrator: research staff trained for 3 days</li> </ul> | - 3-week WhatsApp group sessions using daily case-based discussions combined with self-study and role play using Zoom | <ul style="list-style-type: none"> <li>- Module 1: Antibiotic resistance (case: UTI and COVID-19)</li> <li>- Module 2: Principles of prudent use of antibiotics and self-medication by pharmacists (case: sore throat and diarrhoea)</li> <li>- Module 3: communication and counselling (case: fever and cough)</li> </ul> | <ul style="list-style-type: none"> <li>- Daily online sessions for the first 3 weeks of the intervention</li> <li>- Daily attendance, participation and weekly quizzes were assessed by facilitators using online forms</li> </ul> |
| Component 2: Awareness campaign         | Customers in participating pharmacies                                            | Administrator: research staff trained for 2 days                                                                                                                                 | Distribution of IEC PINTAR materials to all participating pharmacies                                                  | Posters, flyers, leaflets, flipcharts, and notepads containing the following messages: <ul style="list-style-type: none"> <li>- medical conditions not requiring antibiotics</li> <li>- dangers of inappropriate antibiotic use</li> <li>- problem of antibiotics resistance</li> </ul>                                    | <ul style="list-style-type: none"> <li>- Duration of at least 6 months</li> <li>- Started after component 1 completed</li> <li>- Monthly visits to check compliance and stocks</li> </ul>                                          |

|                                            |                           |                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Component 3:<br>Peer supervision           | Participating pharmacists | <ul style="list-style-type: none"> <li>- Peer supervisor: senior pharmacists recruited and trained for 2 days</li> <li>- Administrator: research staff trained for 2 days</li> </ul> | <ul style="list-style-type: none"> <li>- First visit:               <ol style="list-style-type: none"> <li>1) Online individual meeting with each pharmacist participant</li> <li>2) Online group meetings using the Zoom platform</li> </ol> </li> <li>- Second visit:               <ol style="list-style-type: none"> <li>1) In-person visits to each pharmacy</li> <li>2) Face-to-face group meetings</li> </ol> </li> </ul> | <ul style="list-style-type: none"> <li>- First visit:               <ol style="list-style-type: none"> <li>1) Online individual meetings: discussion on changes and barriers in antibiotic dispensing practices, experiences of participating pharmacists in educating other pharmacy staff, and knowledge on regulations on antibiotic dispensing</li> <li>2) Online group meeting: development of action plans to improve antibiotic dispensing in their pharmacy</li> </ol> </li> <li>- Second visit:               <ol style="list-style-type: none"> <li>1) In-person visit to pharmacy: discussion on the implementation of action plans to address barriers to implementation</li> <li>2) Group meeting: joint pledge to use antibiotics responsibly</li> </ol> </li> </ul> | <ul style="list-style-type: none"> <li>- First visit:               <ol style="list-style-type: none"> <li>1) Online individual meeting: 3 months after Component 1</li> <li>2) Online group meeting: after all online individual meetings completed</li> </ol> </li> <li>- Second visit:               <ol style="list-style-type: none"> <li>1) 3 months after the first visit</li> <li>2) Group meeting: after all in-person visits completed</li> </ol> </li> </ul> |
| Component 4:<br>Branding and Certification | Participating pharmacists | - Facilitators, administrators, and PINTAR research team                                                                                                                             | <ul style="list-style-type: none"> <li>- Weekly posting of educational messages on social media</li> <li>- Displaying a PINTAR banner</li> <li>- Live talks on radio</li> <li>- Podcast streaming</li> </ul>                                                                                                                                                                                                                     | Educational messages about the prudent use of antibiotics and the threat of AMR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | For 3 months, commencing after first supervision visit                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                            | Participating pharmacists | PINTAR research team                                                                                                                                                                 | Engagement across all intervention components was assessed by the research team using a scoring criteria form                                                                                                                                                                                                                                                                                                                    | Credit points and certificates awarded to participating pharmacists who completed all activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | At completion of intervention (7 months)                                                                                                                                                                                                                                                                                                                                                                                                                                |

## Appendix 5. Timeline of intervention



**Appendix 6. Scenarios for educational sessions**

| Time   | Module                                                                                | Scenario                                                                                                                                                                                                                                                                                                                                                                                                | Question/Instruction                                                                                                                        |
|--------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Week 1 | Module 1: Antibiotic Resistance                                                       | Scenario 1<br>A female client came to your pharmacy with a complaint of pain and dissatisfaction when urinating. She asked for antibiotics because she was suggested by her family to get antibiotics.                                                                                                                                                                                                  | What advice will you tell the client? What will you offer?                                                                                  |
|        |                                                                                       | Scenario 2<br>One day you receive a WhatsApp message or call from a client informing that he has been confirmed positive for COVID-19 and is currently self-isolating. The client asked if your pharmacy could deliver drugs such as favipiravir and azithromycin. How will you respond to the request?<br>Client asks for advice on what to do at home so he immediately can be negative from COVID-19 | What do you do if you find this case? Why?<br>What suggestions do you have for things patients can do at home?                              |
| Week 2 | Module 2: Principles of Prudent Use of Antibiotics and Self-medication by Pharmacists | Scenario 1<br>A client came to a doctor because of fever and sore throat and was prescribed antibiotics by the doctor for 5 days. However, when presenting the prescription to the pharmacist he asked for only 3 days of dosage because he still had some remaining drugs at home. The pharmacist agreed with the request.                                                                             | What advice will you tell the client? What will you offer?                                                                                  |
|        |                                                                                       | Scenario 2<br>A client comes to your pharmacy with diarrhea that lasts for 3 days and asks for cotrimoxazole.<br>When going home, the client asks for advice on what to do at home to reduce the frequency of diarrhea.                                                                                                                                                                                 | What advice will you tell the client? What will you offer?<br>What suggestions would you give and write in a notepad to give to the client? |
| Week 3 |                                                                                       | Scenario 1                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                             |

|  |                                                                              |                                                                                                                                                                                                            |                                                                                                         |
|--|------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
|  | Module 3: Counselling Guide to the Prudent use of Antibiotics by Pharmacists | A man comes to your pharmacy and asks for medicine to lower his fever.                                                                                                                                     | Can you demonstrate how to respond to the request? show the answer via voice note                       |
|  |                                                                              | Scenario 2<br>A client came to your pharmacy and asked for amoxicillin for a cough that had been ongoing for 3 days. The pharmacist provided the counseling steps to serve the client's request.           | Can you demonstrate how to respond to the request? Demonstrate via video using the right IEC materials. |
|  |                                                                              | Role play<br>A man in his 20s came to the pharmacy and showed a positive COVID-19 rapid antigen result but no symptoms were felt. He asked for azithromycin and oseltamivir so it can be negative quickly. | Can you demonstrate how to respond to the request? Please show by role playing it                       |



## Appendix 7. Case scenarios for standardised patient (SP) surveys

| Case | Scenarios                                                                                                                                                                                                                                                         | Additional information (if requested)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Rationale                                                                                                                                                                   | Guideline-based care                                                                                                                                                                                     |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UTI  | SP is a local resident who lives nearby and complains of discomfort when urinating and frequent urination. During the conversation, SP changes their facial expressions to demonstrate the feeling of pain on passing urine. Asks for medicine to treat symptoms. | <ol style="list-style-type: none"> <li>1. Burning sensation when urinating since the last week</li> <li>2. Urination frequency has increased since the last week</li> <li>3. No fever, no smelly urine, no vaginal discharge, no blood in the urine, or sudden urge to urinate</li> <li>4. Previously suffered from the same disease, then bought medicine at the pharmacy and was cured</li> <li>5. Symptoms do not get better or worse, still the same</li> <li>6. Has taken analgesics, symptoms have decreased but recurred</li> <li>7. No visit to a doctor or clinic</li> <li>8. No allergies</li> <li>9. Has no prescription</li> </ol> | Previous studies show that dispensing antibiotics without a prescription to treat UTIs is common among community pharmacies <sup>35</sup> .                                 | Antibiotic is not given. SP is advised to use analgesics and to see a doctor <sup>36</sup> .                                                                                                             |
| URTI | SP asks for medicine for their brother (30 years old) who complains of a runny nose, cough, sneezing and mild fever.                                                                                                                                              | <ol style="list-style-type: none"> <li>1. Feels pain when swallowing, but can still drink</li> <li>2. Experienced symptoms for 2-3 days</li> <li>3. Feverish</li> <li>4. No difficulty breathing</li> <li>5. Symptoms do not get better or worse, still the same</li> <li>6. No previous history of the same disease or family history</li> <li>7. No medication previously consumed</li> <li>8. No visit to a doctor or clinic</li> <li>9. No allergies</li> <li>10. Has no prescription</li> </ol>                                                                                                                                           | Studies using SPs show that most community pharmacies dispense antibiotics without a prescription for suspected viral upper respiratory tract infections <sup>37-39</sup> . | Antibiotic is not given. SP is advised to use antipyretics, such as paracetamol, get adequate rest, and to visit a doctor if the condition does not improve or worsens within a few days <sup>40</sup> . |

|                 |                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                        |                                                                                                                                                                                                                   |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Child diarrhoea | SP asks for medicine for her/his niece (2 years old) who has had diarrhoea for several days. The diarrhoea is watery without blood or mucus. Asks for medicine for the patient as her/his mother cannot leave home. | <ol style="list-style-type: none"> <li>1. No vomiting and still able to drink</li> <li>2. No longer breastfeeding, drinks milk from a bottle</li> <li>3. Has had diarrhoea for the last 2 days</li> <li>4. Diarrhoea occurs 3-4 times a day</li> <li>5. First-time experiencing diarrhoea, and no one at home has experienced diarrhoea at the same time</li> <li>6. No medications previously consumed</li> <li>7. Has never been taken to a doctor or clinic</li> <li>8. Has no prescription</li> </ol> | Previous studies demonstrate high rates of non-prescription antibiotic dispensing for child diarrhoea in community pharmacies <sup>37,38,41,42</sup> . | Antibiotic is not given. SP is advised to use oral rehydration solutions, maintain hygiene, such as hand washing, and to visit a doctor if his/her nephew's condition does not improve or worsens <sup>43</sup> . |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

SP: standardised patient; UTI: urinary tract infection, URTI: upper respiratory tract infections

