

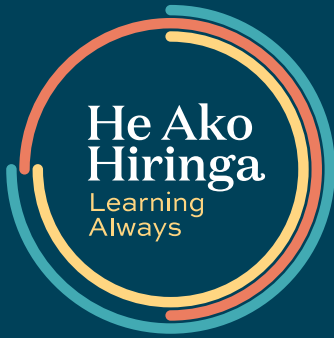
Continuous Quality Improvement
(CQI) for general practice

Antimicrobial stewardship

Activity Guide

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01 Introduction

Purpose

This CQI Activity Guide is designed to help your practice complete the Royal New Zealand College of General Practitioners (RNZCGP) Continuous Quality Improvement (CQI) module. The CQI module is one of the core modules that practices must complete to achieve Cornerstone accreditation. These modules are purchased from RNZCGP. Undertaking CQI helps align practices with the New Zealand Health Strategy and ensures patients receive care that is equitable and of high quality.

How to use this CQI Activity Guide

This guide steps you through completing a CQI activity. It aims to help you design and implement a CQI initiative in your practice and ultimately support your practice to make easy, measurable, and sustainable improvements and provide best practice care for your patients.


What does this guide contain?

- Step-by-step instructions on how to implement a CQI initiative centred around antimicrobial stewardship.
- Example CQI goals and change ideas.
- Survey and audit templates for CQI activities.
- Access to other tools and support for your CQI activities.
- An associated Data Collection Form.

You are welcome to use and adapt any of the tools that you find in this resource.



Things you need to know before you start

- As you go through this guide and build your CQI project, there will be sections where you need to document your findings. We have produced a separate Data Collection Form for this purpose.
- Look out for this icon throughout this guide – it tells you when you need to enter information into the Data Collection Form. 
- If you're using this CQI Toolkit to help you complete the Cornerstone CQI module, filling out the Data Collection Form will enable your assessor to easily review your finished project.
- The Cornerstone CQI module can be purchased from **RNZCGP** (tinyurl.com/3t9crjaa), and an **assessor** can be found from their approved list (tinyurl.com/ypye8wdj).
- Once you've completed "Step 1: the thinking part" from page 8 of this Activity Guide, you can fill out the Cornerstone CQI **pre-assessment project outline form** (tinyurl.com/3t9crjaa). This allows the assessor to check you have everything in place to successfully complete the CQI Cornerstone module.

02 Continuous Quality Improvement

What is Continuous Quality Improvement?

Continuous Quality Improvement (CQI) is a system of regularly reviewing and refining processes in order to improve them, and therefore improve the quality of care your patients receive and their health outcomes.¹ A growing body of evidence demonstrates that CQI activities lead to positive change in practices, particularly when implemented using a whole-of-team approach.

CQI in your general practice can address one or more of the following six domains:

- **Safety:** avoiding harm to patients.
- **Effectiveness:** providing evidence-based care and only providing services that are likely to be of benefit.
- **Patient-centricity:** providing care that is responsive to each individual patient's preferences, needs and values.
- **Timeliness:** reducing waiting times for care and avoiding harmful delays.
- **Efficiency:** avoiding waste.
- **Equity:** providing care of the same quality regardless of personal characteristics such as gender, ethnicity, location or socioeconomic status.

Why undertake Continuous Quality Improvement?

Improving all aspects of your primary care practice helps you deliver better care and health outcomes to your patients. CQI also makes the practice a better place to work and a stronger and more viable business. Benefits and outcomes of CQI are often categorised into the following four areas:

- **Patient experience:** improving patient's access to care, quality and safety, and outcomes.
- **Care team wellbeing:** improving staff satisfaction, morale, team-work, and workforce sustainability.
- **Population health:** reducing the burden of disease and health inequalities across your region.
- **Reducing costs:** reducing unnecessary hospital admissions; improving the return on innovative investments; and managing the cost of providing care to the population.

Consider equity in every CQI initiative – using the Triple Aim framework

A critical area for health system improvement is to achieve equitable health outcomes for all New Zealand population groups. Underpinning this is the requirement to meet standards of practice and engage in CQI so that those health services achieve the best possible health outcomes for all populations.

The Triple Aim framework, developed by the Health Quality and Safety Commission, provides a structure for improving health services. The three aims of this framework are:



When an improvement affects all the three areas listed above, we say that it has achieved the 'triple aim'. When developing ideas for CQI in your practice, you should identify how each proposed improvement would affect each of the three areas, and whether it would affect all three and therefore achieve the triple aim.

03 Conducting quality improvement activities

A CQI activity is any activity your practice undertakes as part of your CQI process.

Quality improvement – Plan, Do, Study, Act (PDSA)²

A quality improvement methodology is a proven approach for developing, testing and implementing changes. These strategies help you to break down your change into manageable pieces, which are then tested to ensure that the change results in measurable improvements, and that minimal effort is wasted.

A commonly used and recommended method for CQI is the Plan-Do-Study-Act (PDSA) cycle. A CQI initiative using a PDSA cycle focuses on setting aims and building a team to achieve change. Using this method in a work setting enables these small-scale changes to be tested quickly, refined and then deployed if successful. Multiple short cycles enable this to happen over a shorter time frame.

Using PDSA allows you to build on the learning from each test cycle in a structured way before wholesale implementation. This gives everyone the opportunity to see if the proposed change will succeed and is a tool for learning from ideas that do and don't work. This way, the process of change is safer and less disruptive for patients and staff.

The benefits of using a quality improvement methodology

- It is a method to plan, develop and implement change that anyone can apply.
- It reduces risk by testing small changes before wider implementation.
- By starting small, there is less resistance to change.
- You can achieve team unity on common goals.
- It encourages individual creativity and ideas from team members.

PDSA is a two-step process comprised of 'thinking' and 'doing' parts

The 'thinking part' prompts you to answer the following questions:

THE GOAL: What are we trying to accomplish?

What is the problem we are trying to improve? How do we know this is a problem eg, implicit knowledge, data, anecdotal, incidents? And why do we want to improve this?

THE MEASURE: How will we know that a change is an improvement?

It is important to be able to measure the problem in some way so that we understand the extent of the problem to begin with (baseline), the effect of our changes (better, worse, no change) and if improvement is sustained over time.

THE IDEA: What changes can we make that will result in an improvement?

This is about doing things differently to try to improve the problem.

The aim of these questions is to help you develop a relevant goal, and the measures and ideas that will form the basis of your activity plan and move you on to the 'doing part'.

During the doing part, you work through PDSA cycles that will:

- help you test the ideas
- help you assess whether you are achieving your desired objectives
- enable you to confirm which changes you want to adopt permanently.

Implementations of improvement methodologies have shown that it will work best when you:

- define the problem
- think small and test
- use a whole team approach
- share success and lessons learned.

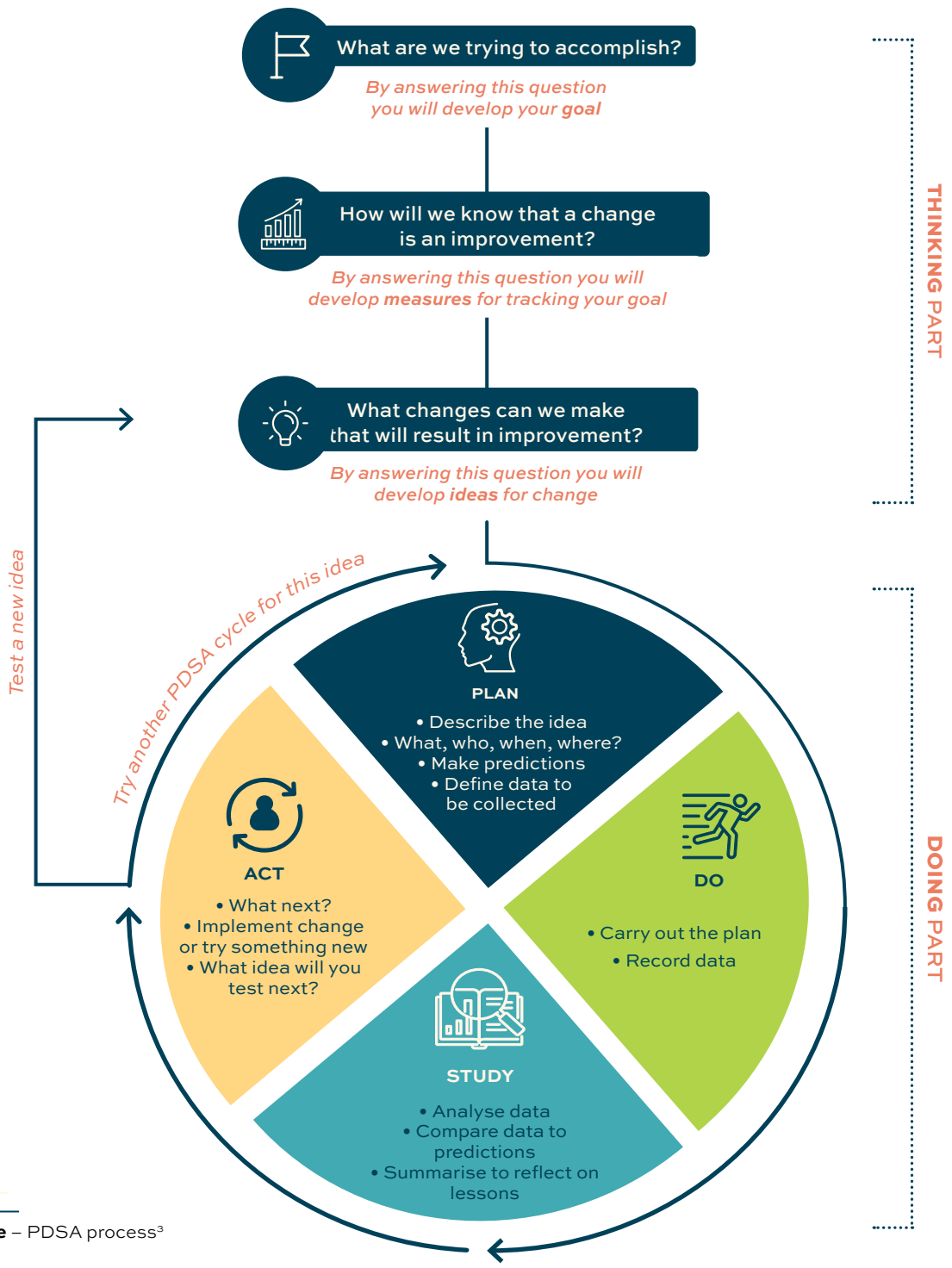
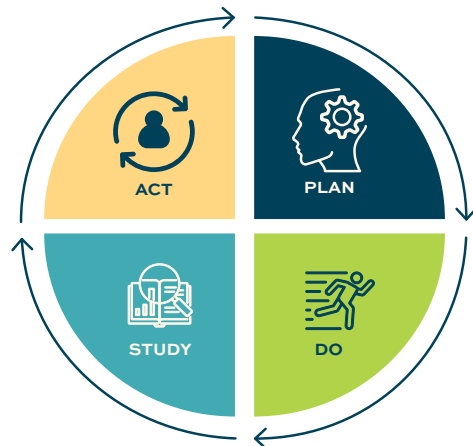


Figure – PDSA process³

The four stages of the PDSA cycle

- Plan** – decide on the change to be tested or implemented and how it will be tested.
- Do** – carry out the test or change.
- Study** – based on the measurable outcomes agreed before starting out, collect data before and after the change and reflect on the impact of the change and what was learned.
- Act** – plan the next change cycle or full implementation.



04 Step 1: The thinking part



Identify an area for change – Antibiotic prescribing

Avoid inappropriate antimicrobial use to reduce the risk of antimicrobial resistance

Human consumption of antimicrobials in Aotearoa New Zealand is very high compared with other developed countries. This high use is in part driven by inappropriate use of antimicrobials – for example, the use of antibiotics for viral infections.

EPiC data

EPiC is a prescribing data analytics tool that can be used to explore individual prescribing behaviours and how they relate to national problems of prescribing practice.

Prescribers can compare their own prescribing, over time, to prescribing for all patients within their practice and to patients nationally, using age, gender, ethnicity and socioeconomic deprivation quintile filters.

Any inaction on efforts to minimise the threat posed by antimicrobial resistance will disproportionately affect Māori and Pacific peoples, who are at greater risk of acquiring many infectious diseases, developing health complications, and being admitted to hospital compared with other people in Aotearoa New Zealand. Under-prescribing is also a concern for Māori and Pacific peoples, and is particularly problematic when antimicrobials are required in a timely manner to avoid disease progression. Attempts to decrease our use of antimicrobial drugs should ensure that those decreases occur in the right places (ie, where antimicrobial drugs are being used inappropriately), not among people who could benefit from greater access.



Using EPiC, we have identified that antibiotic prescribing is an area where nationally we need to make an improvement and change practice – this will be the focus of this CQI project.

Using the PDSA model will aim to improve the prescribing of antibiotics while applying the Triple Aim framework.

Select quality improvement tools

Now that we have identified a change area, you may like to use some quality improvement tools to help you brainstorm why this problem is occurring and some ideas for change (don't worry, we also have some ideas below!)

Organisations such as the **Health Quality & Safety Commission (HQSC)** ([tinyurl.com/c3sr97fr](https://www.tinyurl.com/c3sr97fr)) and **The Institute for Healthcare Improvement (IHI)** ([tinyurl.com/67hx8fpu](https://www.tinyurl.com/67hx8fpu)) have tools available to help you successfully complete your project. These are free to log into and/or download.

There are two different types of tools.

1. Tools that will help you examine why this trend in antibiotic prescribing is occurring in your practice – this will then ultimately help you pick ideas for change.

Some recommended tools include:

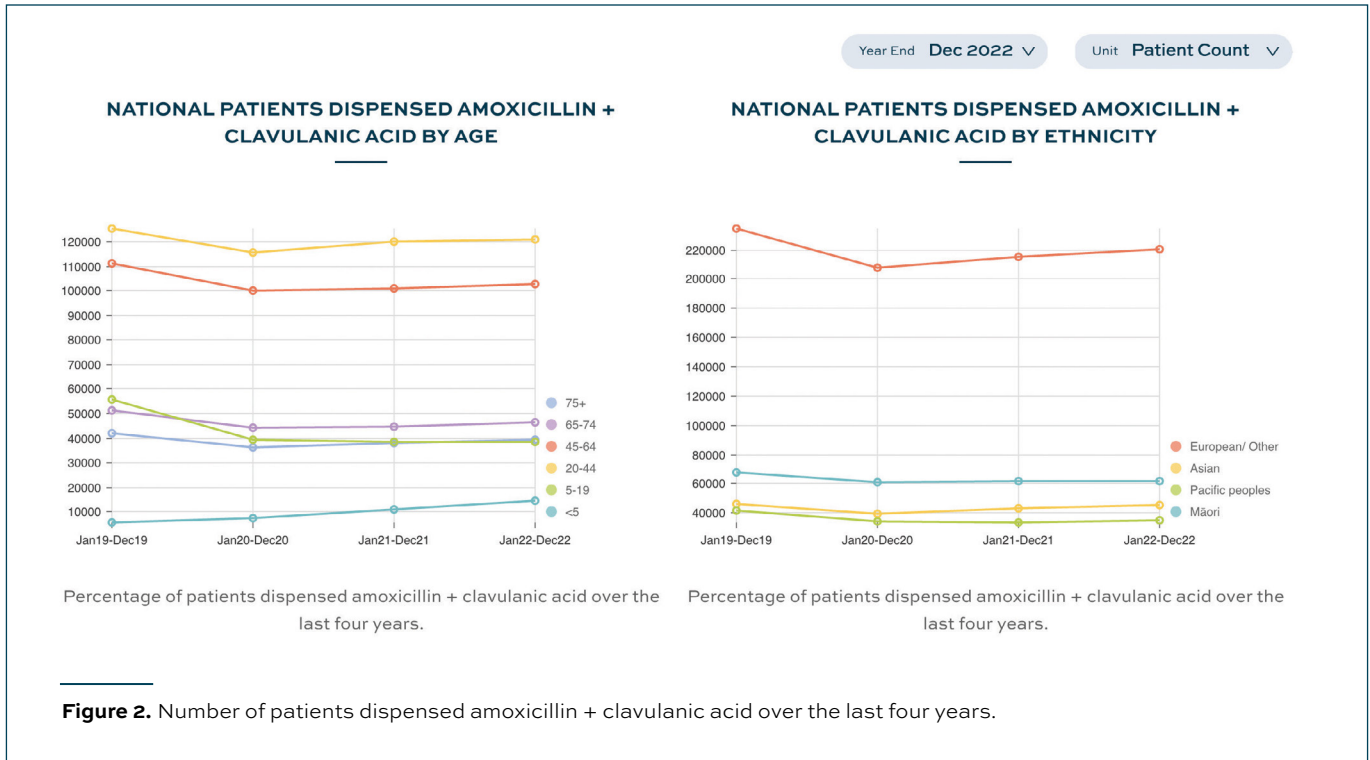
- **Five whys** ([tinyurl.com/3eycz5z7](https://www.tinyurl.com/3eycz5z7))
- **Driver diagram** ([tinyurl.com/yvuap5p7](https://www.tinyurl.com/yvuap5p7))
- **Flow chart** ([tinyurl.com/2s3nd3vz](https://www.tinyurl.com/2s3nd3vz))
- **Cause and effect (Fishbone)** ([tinyurl.com/2s3nd3vz](https://www.tinyurl.com/2s3nd3vz))

2. Tools that will help you monitor performance over time – these will help to identify trends or shifts in process over your project and assess if you are improving or reducing use of antibiotics. Some **examples** ([tinyurl.com/2s3nd3vz](https://www.tinyurl.com/2s3nd3vz)) include:

- a run chart
- scatter diagram.



IMAGE:
iStock.com
/ shapecharge



Define a problem statement

Next, we need to answer our first question:

What are we trying to accomplish?

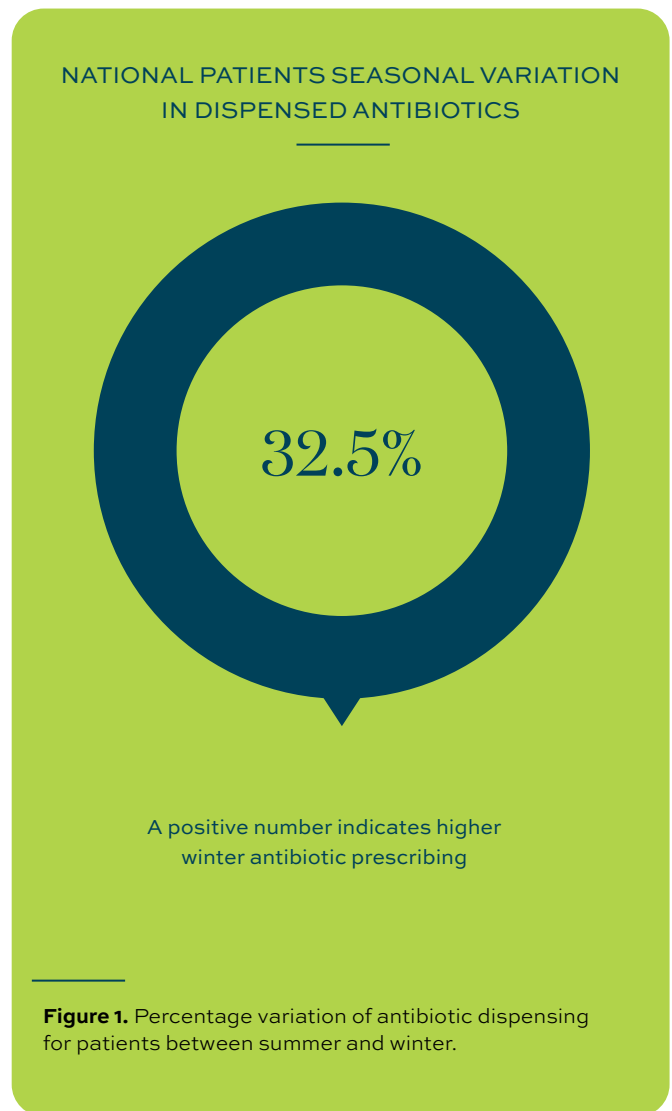
The figures on this page show two problems of practice with regard to antibiotic prescribing:

1. Nationally our seasonal variation in antibiotic prescribing is too high – with 32.5% difference between antibiotic prescribing in the winter compared to the summer (Figure 1).
2. Despite limited indications for its use, over 300,000 patients received amoxicillin + clavulanic acid in the 12 months ending December 2022 (Figure 2). This makes it the second most used antibiotic in Aotearoa New Zealand after amoxicillin.

These data from EPiC can help us to define our problem statement and develop our aim.

Nationally, common inappropriate uses of antimicrobials in primary care include:

- The use of amoxicillin + clavulanic acid. There are very few clinical indications in primary care where amoxicillin + clavulanic acid is recommended and therefore, there should be low levels of amoxicillin + clavulanic acid dispensing in the community.
- The use of antibiotics for viral infections – these offer no benefit to the patient but confer a risk of adverse effects.
- Māori and Pacific peoples are dispensed amoxicillin + clavulanic acid at a higher rate than people of European or Asian ethnicity.



04

Investigate your practice data

Sign up/log in to EPiC to investigate the data for your practice [EPiC Dashboard](https://www.akoiringa.co.nz) (akohiringa.co.nz) – navigate to the antibiotic theme to see data related to your practice (and your own data if you are a prescriber).

Depending on what your practice data demonstrates, the following problem statement may apply:

Inappropriate use of antimicrobials in primary care contributes to antimicrobial resistance and is associated with adverse effects, including Clostridioides difficile.

Minimising inappropriate use of amoxicillin + clavulanic acid, particularly for Māori and Pacific peoples, and avoiding the use of antibiotics for viral infections are key to avoiding adverse effects for patients.

Develop an aim statement

An aim statement needs to be specific, clear, well-defined, and at a minimum describe the target population, the desired improvement, and the intended time frame. The example below shows an appropriate aim based on the national EPiC data.



Use this template to develop your practice’s aim. If your data are a little different to these trends, then you are welcome to choose a slightly different aim.

Aim statement template

| | |
|-----------------------|--|
| What? | Reduce the use of antibiotics for viral infections and reduce the inappropriate use of amoxicillin + clavulanic acid |
| For whom? | Practice patients, in particular Māori and Pacific peoples |
| By when? | 6–12 months from now |
| How much? | Decrease seasonal variation in antibiotic dispensing in the practice from 33% to 10% and decrease amoxicillin + clavulanic acid dispensing to Māori and Pacific patients from 10% to 5% |
| Full statement | To decrease seasonal variability from 33% to 10% (by 12 months from start date) in all practice patients and to decrease amoxicillin clavulanic acid use from 10% to 5% (by 12 months from start date) in Māori and Pacific patients |

Select measures for improvement

This section is about answering the question:

How will we know that a change is an improvement?

Throughout the CQI project, you need to monitor and evaluate your progress towards the overall goal, using the measures you decided on during the planning stage. You also need to assess processes and evaluate the outcomes and impacts of change activities you undertake.

You can collect a variety of data in different ways and from a variety of sources, including:

- EPiC
- PHO data
- manual measure worksheets
- clinical audits
- patient feedback or surveys, patient experience survey results
- staff surveys.

Begin collecting baseline data

Begin collecting data while you are developing insight so that you can set a realistic and relevant goal. For example, if you are aiming to decrease the use of amoxicillin + clavulanic acid, you should know how often it was prescribed inappropriately before the beginning of the project. You can then compare this baseline data with results during and after the project. Identifying the long-term goal will help you determine what baseline data you might need to collect.

You can pick one or more of the following suggestions for baseline measures:¹

- 1. Audit a selection of consultations for likely infections.**
 - This will identify common antibiotic choices and indications for use in your practice (Appendix 4).
 - Review the audit as a team and discuss any possible inappropriate use of antibiotics, dose or duration of treatment.
 - Complete two cycles of audit – one at baseline and one after the intervention to allow changes to be tracked over the duration of the CQI initiative.
- 2. Audit a selection of consultations where amoxicillin + clavulanic acid was prescribed.**
 - This will identify common indications for the use of amoxicillin + clavulanic acid in your practice – (Appendix 5).
 - Review the audit as a team and discuss any indications where amoxicillin + clavulanic acid was possibly used incorrectly and then decide whether additional learning around accepted indications and alternatives for amoxicillin + clavulanic acid is required.

- Complete two cycles of audit, one at baseline and one after the intervention to allow changes to be tracked over the duration of the CQI initiative.
- 3. Pre-start knowledge quiz for the practice staff**
- This will help to identify any gaps in knowledge and areas where the team might want to upskill (Appendix 6). Upskilling for your practice could involve learning more about both antimicrobial stewardship and quality improvement activities.

Types of measures

In your CQI project, you need to monitor and evaluate your progress towards the overall goal. There are different types of measures that assess processes, and evaluate the outcomes and impacts of the change activities you undertake.

Outcome measures

Outcome measures are used to evaluate if aims are met. Practices should select measures using data they are able to collect. These measures are used to show the overall effectiveness of the changes made to practice. EpiC data can be used as outcome measures. Other data sources can be added to this, such as nationally collected patient experience data.

Process measures

Process measures track outcomes that occur as part of the CQI process and are taken at regular intervals during the project via PDSA cycles. This helps to refine the project over time, tracking which interventions are working towards achievement of intended outcomes and whether you need to change your plan.

Balancing measures

These determine whether changes designed to improve one part of the system are causing new problems in other parts of the system. For example, does this new quality improvement increase staff satisfaction but worsen patient experience?

We have included some measures that you might like to use for your PDSA cycles – ideally you should use a mixture of outcome, process and balance measures.



05 Step 2: The doing part



Prepare your team

Adopt a **whole-of-team approach** from the outset (with members from different areas across your practice). The best way to ensure a successful and sustainable CQI initiative is to do it as a team, starting with gathering willing team members and then defining roles and responsibilities. This helps things run smoothly and increases the likelihood of success. One of the first activities for a CQI team is to develop a plan, which includes clarifying roles to ensure that members are clear about their commitment.

1. Establish a CQI project team that includes representatives of all stakeholders (eg, the practice manager, reception and other administrative staff, nursing staff, GPs, allied health practitioners).
2. Assign at least two project leads:
 - a lead clinician to inform any clinical content
 - another person in your team capable of managing the project, to whom you give protected time so that they can complete the work required.
3. Choose key roles for the team and identify a team leader for each project. The resource linked [here](https://tinyurl.com/2x4c5kut) (tinyurl.com/2x4c5kut) may be helpful.

The Improvement Foundation’s **Team Health Check Score Sheet** (tinyurl.com/bde68n28) may help you assess your team culture and identify roles and responsibilities. This will help you to identify:

- team members who might resist or influence change
- issues that could arise during the project
- concerns that need to be addressed before you begin an activity.

Get the practice ready

You may want to think about how you can get everyone involved and communicate the ideas of your CQI activity. Some ideas for an antimicrobial CQI initiative include:

- Hang posters about antimicrobial stewardship and the need to avoid use of antibiotics for viral infections in the waiting room. World Antimicrobial Awareness Week resources can be found at:
 - **PSNZ:** tinyurl.com/yckshbp7 and tinyurl.com/2v68uvue
 - **World Health Organisation** (editable options): tinyurl.com/329by9vf.
- Explore He Ako Hiringa resources on antimicrobial stewardship (articles, podcasts, video) at tinyurl.com/2mtzv2dm.
- Create an antibiotic stewardship policy for the practice (these are part of the Foundation Standard 12.1 Infection Control) – for example, **AMS toolkit sample** (tinyurl.com/yc7stbwb).
- Assign an interested, motivated person to the role of antimicrobial steward for the practice.



05

Select change ideas

This section is about answering the question: What changes can we make that will result in improvement?

As a team, determine what changes can be made that will result in an improvement and will help you to achieve your aim statement.

Ideas for change may come from multiple sources and/or from the experience of others who have successfully implemented improvements. The team agreeing on the changes they think will be effective, helps with buy-in from people that are actioning these

changes. Remember you can have more than one PDSA cycle and these can run at the same time or after each other.

In the table below we have made some suggestions for change ideas that you might like to implement at your practice. We have included appropriate measures and resources to help you complete these.

As a team, decide which of these change ideas or interventions you would like to undertake – once you have decided, head to the Data Collection Form and complete Table 2: the planning table.



Change ideas with associated measures

| Goal | Change idea | Description | Measures |
|--|---|--|---|
| Decrease seasonal variation in antibiotic prescribing | Write the indication on all prescriptions for antibiotics | Writing the indication on all prescriptions is a recommendation from the Kotahitanga report and encourages consideration and accountability when prescribing antibiotics. ⁴ | Outcome measures |
| | | | Seasonal variation in antibiotic prescribing |
| | | | Audit a selection of consultations where an infection was likely – was an antibiotic prescribed? This helps to identify common uses for antibiotics in your practice and will determine the proportion of infections where antibiotics were used inappropriately (Appendix 4) |
| | | | Process measures |
| | | Proportion of prescriptions where indication is recorded | |
| | | The number of times the pharmacy has contacted the practice to query the indication (or lack thereof) of the antibiotic prescription | |
| | | Count the number of patient level surveys completed | |
| | | Balance measures | |
| The time taken to answer calls from pharmacy and check indications | | | |

05

| Goal | Change idea | Description | Measures |
|---|---|--|---|
| Decrease seasonal variation in antibiotic prescribing | Upskill the team in antimicrobial resistance and/or quality improvement activities | Undertake education in either antimicrobial stewardship or quality improvement activities | Outcome measures |
| | | | Seasonal variation in antibiotic prescribing |
| | | | Number of CME points or CPD hours completed by the team in antimicrobial stewardship |
| | | | Process measures |
| | | | Count the number and proportion of staff who have completed education in antimicrobial stewardship and/or quality improvement activities |
| | | | Balance measures |
| | | | Survey the practice team to gauge knowledge about the reason for a CQI initiative for antimicrobial stewardship |
| | Provide a Virus Action Plan (akohiringa.co.nz/virus-action-plans) for patients presenting with a likely viral respiratory infection | <p>The Virus Action Plan can help communication with the patient/whānau and validate their reason for attending the practice as well as giving them a plan to follow for managing symptoms and seeking review if symptoms do not resolve.</p> <p>Provide translated Virus Action Plans to patients where appropriate</p> | Outcome measures |
| | | | Seasonal variation in antibiotic prescribing |
| | | | Survey patients following a consultation where an infection was diagnosed to determine whether they were given a Virus Action Plan. Did they find this helpful? Did they feel as though their needs were met? |
| | | | Process measures |
| | | | The number of Virus Action Plans given to patients |
| | | | The number of patient experience surveys completed |
| | | | The number of staff surveys completed |
| Balance measures | | | |
| Survey prescribers to determine how they feel about giving out Virus Action Plans and how they think they are perceived by patients | | | |

05

| Goal | Change idea | Description | Measures |
|---|--|---|---|
| Decrease seasonal variation in antibiotic prescribing | Hold ‘back-pocket’ antibiotic prescriptions for patients in reception so they can return to get them if needed | Certain criteria can be listed so that reception staff know if the patient comes back that it is appropriate for the patient to pick up this prescription | Outcome measures |
| | | | Seasonal variation in antibiotic prescribing |
| | | | The number and proportion of patients who have returned to get their back-pocket prescription |
| | | | Process measures |
| | | | The number of back-pocket prescriptions held at reception. Which members of staff were providing these prescriptions? |
| | | | Balance measures |
| | Time taken for admin/reception team to sort out back-pocket prescriptions | | |
| | Schedule short appointments (with a nurse or doctor) for review if patient deteriorates | Ideally same-day appointments should be available if the patient needs them | Outcome measures |
| | | | Seasonal variation in antibiotic prescribing |
| | | | Process measures |
| Number of short appointments used in a week | | | |
| Decrease amoxicillin + clavulanic acid use | Get a “second opinion” on any amoxicillin + clavulanic acid prescription | Use a colleague to seek a “second opinion” for prescriptions of amoxicillin + clavulanic acid | Outcome measures |
| | | | Number of amoxicillin + clavulanic acid prescriptions dispensed |
| | | | Proportion of population dispensed amoxicillin + clavulanic acid |
| | | | Process measures |
| | | | Proportions of prescriptions where a second opinion was sought on prescriptions for amoxicillin + clavulanic acid |
| | | | Outcome measures |
| Audit all antibiotics used (Appendix 4). Did prescriptions for other antibiotics increase as a result of not prescribing amoxicillin + clavulanic acid? | | | |

05

| Goal | Change idea | Description | Measures |
|---|---|---|--|
| Decrease amoxicillin + clavulanic acid use | Audit a selection of consultations where amoxicillin + clavulanic acid was prescribed to identify common indications for its use in your practice | This will determine which prescriptions have approved indications or unapproved indications | Outcome measures |
| | | | Number of amoxicillin + clavulanic acid prescriptions dispensed |
| | | | Proportion of population dispensed amoxicillin + clavulanic acid |
| | | | The proportion of prescriptions for amoxicillin + clavulanic acid that were for unapproved indications |
| | | | Process measures |
| | | | The number of records audited over a week |
| | | | Balance measures |
| Audit all antibiotics used (Appendix 5). Did prescriptions for other antibiotics increase as a result of not prescribing amoxicillin + clavulanic acid? | | | |

05

PDSA cycles – time to test your change ideas

Now it's time to test your change ideas in practice. Below is an example of a PDSA planning and doing worksheet. You can find an editable version of this in the Data Collection Form.

You will need to complete one of these worksheets for EACH of your change ideas.

This form will help you think about:

- how long to work on the project (eg, 6–12 months)
- when to review the project (eg, mid-way/6 months)
- breaking the project into small tasks
- how to measure if the task is successful or completed (eg, data/feedback)
- who/when/where to allocate the tasks
- assessing the task and what to do once you have collected your data.



PDSA planning and doing worksheet

| | |
|---|---|
| PDSA title | Staff education PDSA |
| Cycle number | 1 |
| QI lead | A Smith |
| Clinical lead | N Richards |
| Team members | |
| Date to be completed | 31/4/2023 (3 months total) |
| Thinking part – complete before you start | <p>Goal – What are we trying to accomplish?</p> <p>Overall = To decrease seasonal variability from 33% to 10% by (12 months from start date) in all practice patients and to decrease amoxicillin + clavulanic acid use from 10% to 5% by (12 months from start date) in Māori and Pacific patients.</p> <p>This PDSA = Increase average staff knowledge in AMS score to $\geq 80\%$</p> |
| | <p>Measure – What measures will we track?</p> <ul style="list-style-type: none"> • Seasonal variation in antibiotic prescribing • Average score on knowledge quiz • Number/proportion of staff who have completed education in antimicrobial stewardship |
| | <p>Measure – How will we know that a change is an improvement or success?</p> <ul style="list-style-type: none"> • Seasonal variation will decrease • Average score will increase • Proportion of staff undertaking AMS education will increase |
| | <p>Idea – What can we do to achieve the goal?</p> <ul style="list-style-type: none"> • Run half-day session for all staff on AMS – delivered by PHO pharmacist • Keep a CME points tally in staff room, highest points in 3-month period gets a prize • Print education resources for reading in the staff room |

05

| | | | |
|--|------|---|---|
| Thinking part – complete before you start | | Plan – Who? When? Where? Predictions? Data to be collected | |
| | | | |
| | Step | Tasks | Who |
| | 1 | Communicate to all staff about CQI activity and the need to upskill the team | To be put on agenda for staff meeting 16/3/23 |
| | 2 | Distribute baseline AMS quiz to all clinical staff and get baseline stats from EPiC | Alesha to send out via email and print by 20/3/23 |
| | 3 | Organise PHO pharmacist to deliver education session – order morning tea | Alesha to organise – session by 30/4/23 |
| | 4 | Design and print tally for CME points | Reception to do by 1/4/23 |
| | 5 | Print resources for staff room | Noni to complete by 1/4/23 |
| | 6 | Send an email reminder about education opportunities halfway through | Noni to send on 16/4/23 |
| Doing part – complete after you have made a change | | Do – Was the plan executed? Any unexpected events or problems? | |
| | | <ul style="list-style-type: none"> The team was keen to be involved and everyone except two staff members completed CME over the 3 months COVID delay meant it was hard to get a time for pharmacist to do a half-day session but ended up doing hybrid Zoom/in-person session Everyone completed the pre and post knowledge survey – half did the paper survey and the other half did the electronic survey Half of the staff participated in the tally competition Some people took the printed resources away from the staff room, making them unavailable to other staff | |
| | | Study – Analysis of actions and data. Reflection on the results | |
| | | <ul style="list-style-type: none"> Average score of knowledge quiz improved from 55% to 80% so it was successful Seasonal variation had only a small drop (decreased 5%) Need to understand why two staff didn't participate in the CME, will get practice manager to talk with them Was good to have both an electronic and paper version of the survey, putting copies by the morning tea helped to get the good response rate The half day was good as all staff were together and focused but this meant the practice couldn't see patients during this time – this was a loss of revenue to the practice, the other costs associated with the activities were small For those participating, the tally chart was motivating - need to look for other motivating methods for those who didn't do this, will ask for feedback at staff meeting Staff were enthusiastic about the improvement in knowledge scores and seasonal variation but felt they need more resources to help sustain the change toward using fewer antibiotics | |

05



Act – What will we take forward, what is the next step or cycle?

Next step – we will continue to print new resources to put in the staff room. We will put these into a bound book to ensure they stay in the room for everyone to use. We will check our measures again in 3 months.

We will now undertake the introduction of the Virus Action Plans as round two of PDSA.

Change/improve = next time we want to run a team workshop, it would be better to break into two or three groups so there is less impact on practice flow and loss of appointments

06 Where to next?

Present your evidence

Once you have some data (positive or negative) from your PDSA cycles, you need to be able to present these in a meaningful way. Presenting evidence of an improvement is an effective way of:

- informing your team about the project
- demonstrating outcomes
- providing relevant evidence for your CQI report.

Using graphs and diagrams is a great way to display information visually, so that people can quickly and easily understand the data. When deciding which information to present, consider the following questions:

- what are the data telling you?
- what story are you trying to tell?
- how should it be summarised?
- can it be used to motivate or influence?

Provide regular updates on how the project is tracking. This is often key for sustainability and engagement, and contributes to building intrinsic motivation; when staff know the change is being measured, they are more likely to make it a priority.

You now need a way to communicate your plan and changes to everyone. We have included some ideas below.

| Communication ideas | How to do | Impact |
|--|---|---|
| Update and share storyboards, posters, emails or flyers | Post or distribute to all the practice team on a predetermined, regular basis to keep awareness on sustaining the change | Communicates outcomes of improvement efforts; shows progress and shares reason for effort |
| Improvement huddles | <ul style="list-style-type: none"> • Improvement huddles are short (10–15 min), regular check-ins among staff to anticipate problems, review performance, and support a culture of improvement • Should be consistent (weekly, monthly or quarterly depending on your stage of implementation) • Can be done as a standard agenda item at regular staff meetings | Keeps change at front of minds; allows staff to address barriers and problems quickly and ask questions |
| Staff shout-outs and encouragements | <ul style="list-style-type: none"> • Share good stories from improvements or words of encouragement • Could be done in-person via individual conversations or at staff meetings, as well as email | Builds intrinsic motivation |
| Keep the change visible | <ul style="list-style-type: none"> • Remind people of the change at consistent intervals: include a clear description of what to do, who to ask if you have questions, the reason for the effort, and what progress has already been made • Can be done via email, at staff meetings, or other formats | Sustains the project and keeps people motivated |

06

Implement/spread any identified improvements

After repeated cycles of PDSA tests, you will hopefully have selected a change idea that has seen improvements in the use of antibiotics – now it's time to roll it out to people who were not originally involved with your PDSA improvement activities, or perhaps to another site.

Change is a process; individuals may have different reactions to your change idea. You will want to plan strategies that provide support to implementing change.



We have provided you with some considerations when planning for implementation and spread of your selected change; you'll find these in the Data Collection Form

Sustain change

To sustain change, you need to make the new way of doing things a part of the practice culture and flow, that is, make it the standard way to do the work.

Having a team approach from the beginning is a necessary foundation for any quality improvement work. You will be more successful in implementing quality improvement if your whole team is engaged and participates in the journey. Building an effective team is an ongoing process and an evolving journey. Even if you don't have all willing participants from the beginning, gathering people into the team along the way is a great strategy.

Points to consider:

- Attempting any quality improvement activity without building and engaging the whole team is unlikely to lead to substantial change.
- Providing continuous feedback on what the quality improvement team is currently working on will result in less resistance to change as the whole team will understand the reason for change.
- By assigning small responsibilities to different staff members, they can take ownership of that task and become more involved and valued by the team.

The team needs to work together to: share ideas, test changes before implementing them within the whole practice, monitor improvement, and celebrate successes!



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2. Kennedy S, Ryan Jackson K. (2022). PDSA Cycles: Improvement and Implementation. <https://nirn.fpg.unc.edu/practicing-implementation/pdsa-cycles-improvement-and-implementation>
3. North Western Melbourne Primary Health Network. (2018). Quality Improvement Guide & Tools For General Practice. https://nwmpnhn.org.au/wp-content/uploads/2018/10/QI-Toolkit_Pip-2018-.pdf
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5. Health Service Executive. (2023). Antibiotic prescribing. Antimicrobial stewardship. Accessed April 2023. <https://www.hse.ie/eng/services/list/2/gp/antibiotic-prescribing/antibicrobial-stewardship-audit-tools/>

AI Appendix 01

Professional development resources

Tick all of the resources you use in your CQI activity.

| Resource | Type of resource |
|--|----------------------|
| Antimicrobial stewardship as a goal | |
| <input type="checkbox"/> Antimicrobial stewardship: It's time for collective action. tinyurl.com/yc7zjuh9 | Webinar |
| <input type="checkbox"/> Kotahitanga Uniting Aotearoa against infectious disease and antimicrobial resistance. tinyurl.com/mup6str4 | Report |
| <input type="checkbox"/> Antimicrobial stewardship in human healthcare in Aotearoa New Zealand: urgent call for national leadership and co-ordinated efforts to preserve antimicrobial effectiveness. tinyurl.com/4e4afre3 | Article |
| <input type="checkbox"/> Antimicrobial Resistance: An imminent threat to Aotearoa, New Zealand. tinyurl.com/4zhrd7bk | Report |
| <input type="checkbox"/> Antimicrobial resistance – resources for patients. tinyurl.com/yxv3xeft | Videos/ brochures |
| <input type="checkbox"/> World Health Organization (WHO) resources. tinyurl.com/nsan9bhp | |
| <input type="checkbox"/> Which antibiotic are you? Evaluation of a global antibiotic awareness personality quiz. tinyurl.com/42447kvn | Quiz |
| Reducing antibiotic prescribing for viral infections | |
| <input type="checkbox"/> Managing patients' antibiotic expectations. tinyurl.com/bs47zxd6 | Case study |
| <input type="checkbox"/> Virus Action Plan (adult). akohiringa.co.nz/virus-action-plans | Patient handout |
| <input type="checkbox"/> Virus Action Plan (child over 6 months). akohiringa.co.nz/virus-action-plans | Patient handout |
| Reducing inappropriate use of amoxicillin + clavulanic acid | |
| <input type="checkbox"/> The Augmentin-free office. tinyurl.com/2p8fvkyh | Opinion article |
| <input type="checkbox"/> Prescribing amoxicillin clavulanate appropriately. tinyurl.com/566s5ybh | Audit |

AI

| Resource | Type of resource |
|--|-------------------------|
| Antibiotic prescribing for Māori and Pacific peoples | |
| <input type="checkbox"/> Reduced community antibiotic dispensing in New Zealand during 2015–2018: marked variation in relation to primary health organisation. tinyurl.com/y76tyxr7 | Article |
| <input type="checkbox"/> Ethnic disparities in community antibacterial dispensing in New Zealand—is current antibacterial dispensing for Māori and Pacific people insufficient or excessive, or both? tinyurl.com/ae39h685 | Article |
| <input type="checkbox"/> Over and under? Ethnic inequities in community antibacterial prescribing. tinyurl.com/ymzkrfx6 | Article |
| Continuous quality improvement | |
| <input type="checkbox"/> Health NZ – Improving together. tinyurl.com/ycy932k2 | Free online course |
| <input type="checkbox"/> HQSC – Tools for quality improvement. tinyurl.com/32xhfr2a | Resource library |
| <input type="checkbox"/> HQSC – Quality improvement toolkit: Improved, safer care for you and your patients. tinyurl.com/3jjkf9yb | Toolkit |
| <input type="checkbox"/> IHI – Quality Improvement Essentials Toolkit. tinyurl.com/2s3nd3vz | Toolkit |
| Antimicrobial stewardship policy | |
| <input type="checkbox"/> Antimicrobial Stewardship in New Zealand. tinyurl.com/bdekpthm | Resource library |
| <input type="checkbox"/> NZ Antimicrobial Resistance Action Plan. tinyurl.com/2yuxth29 | National action plan |
| <input type="checkbox"/> AMS Implementation Toolkit. tinyurl.com/mr2xa7re | Toolkit |
| <input type="checkbox"/> Developing an AMS Policy. tinyurl.com/kj4fsrjf | Template for AMS policy |
| Other resources | |
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A2 Appendix 02

Patient survey

Thank you for agreeing to complete this survey. We will use the results to help improve how we do things at the practice and improve our use of antibiotics. Your answers will be kept anonymous.

If you are doing this survey for someone else, please answer the questions from the patient's point of view.

1. Which of the following conditions best describes why you came to the medical centre today?
(Please circle all that apply)
 - a. Cold
 - b. Flu
 - c. Sinusitis
 - d. Earache
 - e. Other concern

2. Have you previously visited the medical centre for this reason (in the last 10 days)?
 - a. Yes
 - b. No

3. What was the main reason you came to the medical centre today?
 - a. To get antibiotics
 - b. To get other medicine(s) to manage your symptoms
 - c. For reassurance that you do not need medicine(s) to treat your symptoms
 - d. You were concerned your symptoms have gone on too long
 - e. Other

4. Did you receive antibiotics today?
 - a. Yes
 - b. No

5. If you did not receive antibiotics, did you receive a Virus Action Plan today?
 - a. Yes
 - b. No

6. I understand how to manage my symptoms using the Virus Action Plan
 - a. Strongly agree
 - b. Agree
 - c. Neither agree nor disagree
 - d. Disagree
 - e. Strongly disagree

7. How satisfied were you with the outcome of this appointment?
 - a. Very satisfied
 - b. Somewhat satisfied
 - c. Neither satisfied nor dissatisfied
 - d. Somewhat dissatisfied
 - e. Very dissatisfied

Please place your completed form in the box provided

A3 Appendix 03

Prescriber survey

After a consultation with someone with a suspected infection (not COVID-19):

1. Did you provide antibiotics?
 - a. Yes, an immediate prescription to take with them
 - b. Yes, as a back-pocket prescription to take with them
 - c. Yes, as a back-pocket prescription left at reception
 - d. No, I did not prescribe antibiotics

2. Did you provide a Virus Action Plan?
 - a. Yes
 - b. No
 - c. N/A

3. If you provided the patient with a Virus Action Plan, please answer the following questions by circling the appropriate number (1–5) in the rating scale

| Question | Rating | | | | |
|---|-----------------------|---|---|---|------------------------|
| How easy was it to explain the Virus Action Plan to the patient? | 1 Very easy | 2 | 3 | 4 | 5 Very difficult |
| How effective do you think providing a Virus Action Plan was for managing their expectations in this visit? | 1 Very effective | 2 | 3 | 4 | 5 Not effective |
| How comfortable did you feel with giving the patient the Virus Action Plan? | 1 Very comfortable | 2 | 3 | 4 | 5 Not comfortable |
| How likely are you to incorporate the Virus Action Plan into your consultations? | 1 Very likely | 2 | 3 | 4 | 5 Not likely at all |

4. How satisfied do you think the patient was with the option provided?
 - a. Very satisfied
 - b. Somewhat satisfied
 - c. Neither satisfied nor dissatisfied
 - d. Somewhat dissatisfied
 - e. Very dissatisfied

A4 Appendix 04

Audit sheet: Managing infections

How to use the audit:

- Select the 20 most recent consultations where an infection was a likely diagnosis.
- Record the details of the consultations as described in the columns. We have provided some examples for you to follow.
- Review local treatment guidelines (eg, your local HealthPathways) and in the last column (appropriateness) indicate whether the guidelines for treatment of suspected or confirmed infection were followed or, if not, that the treatment selected can be justified. For example, where the first-line empirical antibiotic has been selected for a bacterial infection or where an antibiotic has not been prescribed for a likely viral infection. These examples can be recorded as ‘Y’.
- Before you start your PDSA cycle, undertake this audit to gain some baseline data.
- A second audit can be done later to measure improvement.

The 20 most recent consultations where an infection was a likely diagnosis

| | Prescriber name | Consult date | Patient age | Patient ethnicity | Type of infection | Name of antibiotic prescribed (if any) | Duration of antibiotic (days) | Justification for antibiotic eg, Empirical – 1st line Empirical – 2nd line Confirmed infection – 1st line Confirmed infection – 2nd line | Prescribing method eg, immediate or delayed, telehealth, in person | Comments (add any relevant details) | Appropriate? Y/N |
|-----|-----------------|--------------|-------------|-------------------|--------------------|--|-------------------------------|---|--|--|------------------|
| eg. | Smith | 21/01/2023 | 62 | Māori | Cellulitis | Flucloxacillin | 5 | Empirical – 1st line | Immediate – in person | | Y |
| eg. | Smith | 25/01/2023 | 29 | European | Sinusitis/ Cold | No Rx | N/A | N/A - Viral infection | N/A | | Y |
| eg. | Smith | 02/03/2023 | 35 | European | Cough | Amoxicillin | 7 | N/A | Delayed | Back-pocket prescription for someone with asthma | N |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 6 | | | | | | | | | | | |

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| 7 | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | |

| | |
|--|--|
| Appropriate uses = number of Y | |
| Total number of consultations reviewed | |
| % | |



Record the % in Table 1 of your Data Collection Form

Preferred antibiotics in primary care

In many cases in primary care, the preferred antibiotic is no antibiotic. Consult local guidelines (eg, HealthPathways) for specific treatment recommendations in your location.

- Antibiotics to be avoided first-line in primary care⁵**
- Amoxicillin + clavulanic acid (unless animal or human bite, diabetic foot ulcer, mastitis in males and non-lactating females)
 - Ciprofloxacin
 - Most third generation cephalosporins
 - Clindamycin
 - Azithromycin – only on advice of consultant or if treating sexually transmitted infections
 - Macrolides (unless true penicillin allergy or specific indication eg, mycoplasma, helicobacter eradication).

A5 Appendix 05

Audit sheet: Amoxicillin + clavulanic acid

How to use the audit:

- Select the most recent 10 consultations where amoxicillin + clavulanic acid was prescribed.
- Record the details of the consultations as described in the columns. We have provided an example for you to follow.
- Review recommended indications for amoxicillin + clavulanic acid (see red box in Appendix 4, and see local HealthPathways for second-line indications). In the last column (appropriateness) indicate whether amoxicillin + clavulanic acid was the appropriate antibiotic. This can be recorded as ‘Y’ if amoxicillin + clavulanic acid was appropriate for this indication or otherwise justified, ie, used for a second-line indication based on clinical factors.
- Before you start your PDSA cycle, undertake this audit to gather baseline data.
- A second audit can be done later to measure improvement.

The 10 most recent consultations where amoxicillin + clavulanic acid was prescribed

| | Prescriber name | Consult date | Patient age | Patient ethnicity | Indication for treatment | Duration of treatment | Justification for antibiotic eg, Empirical – 1st line Empirical – 2nd line Confirmed infection – 1st line Confirmed infection – 2nd line | Prescribing method eg, immediate or delayed, telehealth, in person | Appropriate? Y/N |
|-----|-----------------|--------------|-------------|-------------------|--------------------------|-----------------------|---|--|------------------|
| eg. | Smith | 02/02/2022 | 5 | European | Otitis media | 7 days | No justification | Delayed back pocket | N |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |

| | |
|--|--|
| Appropriate uses = number of Y | |
| Total number of consultations reviewed | |
| % | |



Record the % in Table 1 of your Data Collection Form

A6 Appendix 06

Practice team quiz: Antimicrobial stewardship

Try this quiz at the beginning of the CQI project to gauge general knowledge around antibiotics and antimicrobial stewardship (AMS) and see where any gaps may be, and direct education in these areas. You could also use this at the end of the project to measure knowledge gained during the project.

1. Antibiotics should not be started unless there is clinical evidence of bacterial infection
 - a. True
 - b. False
2. Broad spectrum antibiotic use promotes *C. difficile* infections
 - a. True
 - b. False
3. Unnecessary or inappropriate antibiotic prescribing increases the emergence and spread of resistant bacteria
 - a. True
 - b. False
4. Amoxicillin + clavulanic acid is a broad spectrum antibiotic
 - a. True
 - b. False
5. Which antibiotic(s) can be used in a patient who has had an anaphylactic reaction to penicillin?
Circle all that apply
 - a. Cefalexin
 - b. Erythromycin
 - c. Doxycycline
 - d. Clarithromycin
6. Which of the following are NOT effective in preventing the emergence or spread of antibiotic resistant pathogens?
 - a. Adherence to hand hygiene
 - b. Contact isolation during hospitalisation for patients colonised with MRSA
 - c. Avoiding the use of antibiotics for viral infections
 - d. Treating infections with antibiotics for a longer duration
7. Which of these conditions have become harder to treat because of antibiotic resistance?
Circle all that apply
 - a. Gonorrhoea
 - b. Staphylococcal infections
 - c. Meningitis
 - d. Streptococcal infections

A6

8. In adult patients who are not immunosuppressed and not pregnant, which of the following conditions should generally be treated with antibiotics?
 - a. Acute bronchitis
 - b. Asymptomatic urinary tract infection
 - c. Cellulitis
 - d. Otitis media

9. For which indication would amoxicillin + clavulanic acid be considered a FIRST LINE option?
 - a. Sinusitis
 - b. Diabetic foot ulcers
 - c. Mastitis in lactating females
 - d. Otitis media

10. Which TWO statements are correct about the addition of clavulanic acid to amoxicillin?
 - a. It extends activity of amoxicillin to include gram-negative bacteria
 - b. It does NOT extend the spectrum of activity of amoxicillin
 - c. Clavulanic acid enhances the action of amoxicillin by protecting amoxicillin against the hydrolysis of its beta-lactam ring, making it effective against beta-lactamase producing bacteria
 - d. Clavulanic acid enhances the action of amoxicillin because it also has significant antibacterial properties

Baseline scoring

| How many staff completed the quiz? | % of staff who completed the quiz | Average score |
|------------------------------------|-----------------------------------|---------------|
| | | |



Record these data in Table 1 of your Data Collection Form

Follow-up scoring

| How many staff completed the quiz? | % of staff who completed the quiz | Average score |
|------------------------------------|-----------------------------------|---------------|
| | | |



Record these data in Table 1 of your PDSA table in the Data Collection Form

Quiz answers

A6

Correct answers in red.

- Antibiotics should not be started unless there is clinical evidence of bacterial infection
a. True
b. False
- Broad spectrum antibiotic use promotes *C. difficile* infections
a. True
b. False
- Unnecessary or inappropriate antibiotic prescribing increases the emergence and spread of resistant bacteria
a. True
b. False
- Amoxicillin + clavulanic acid is a broad spectrum antibiotic
a. True
b. False
- Which antibiotic(s) can be used in a patient who has had an anaphylactic reaction to penicillin?
a. Cefalexin
b. Erythromycin
c. Doxycycline
d. Clarithromycin
- Which of the following are **NOT** effective in preventing the emergence or spread of antibiotic resistant pathogens?
a. Adherence to hand hygiene
b. Contact isolation during hospitalisation for patients colonised with MRSA
c. Avoiding the use of antibiotics for viral infections
d. Treating infections with antibiotics for a longer duration
- Which of these conditions have become harder to treat because of antibiotic resistance?
a. Gonorrhoea
b. Staphylococcal infections
c. Meningitis
d. Streptococcal infections
- In adult patients who are not immunosuppressed and not pregnant, which of the following conditions should generally be treated with antibiotics?
a. Acute bronchitis
b. Asymptomatic urinary tract infection
c. Cellulitis
d. Otitis media
- For which indication would amoxicillin + clavulanic acid be considered a FIRST LINE option?
a. Sinusitis
b. Diabetic foot ulcers
c. Mastitis in lactating females
d. Otitis media
- Which TWO statements are correct about the addition of clavulanic acid to amoxicillin?
a. It extends activity of amoxicillin to include gram-negative bacteria
b. It does NOT extend the spectrum of activity of amoxicillin
c. Clavulanic acid enhances the action of amoxicillin by protecting amoxicillin against the hydrolysis of its beta-lactam ring, making it effective against beta-lactamase producing bacteria
d. Clavulanic acid enhances the action of amoxicillin because it also has significant antibacterial properties

