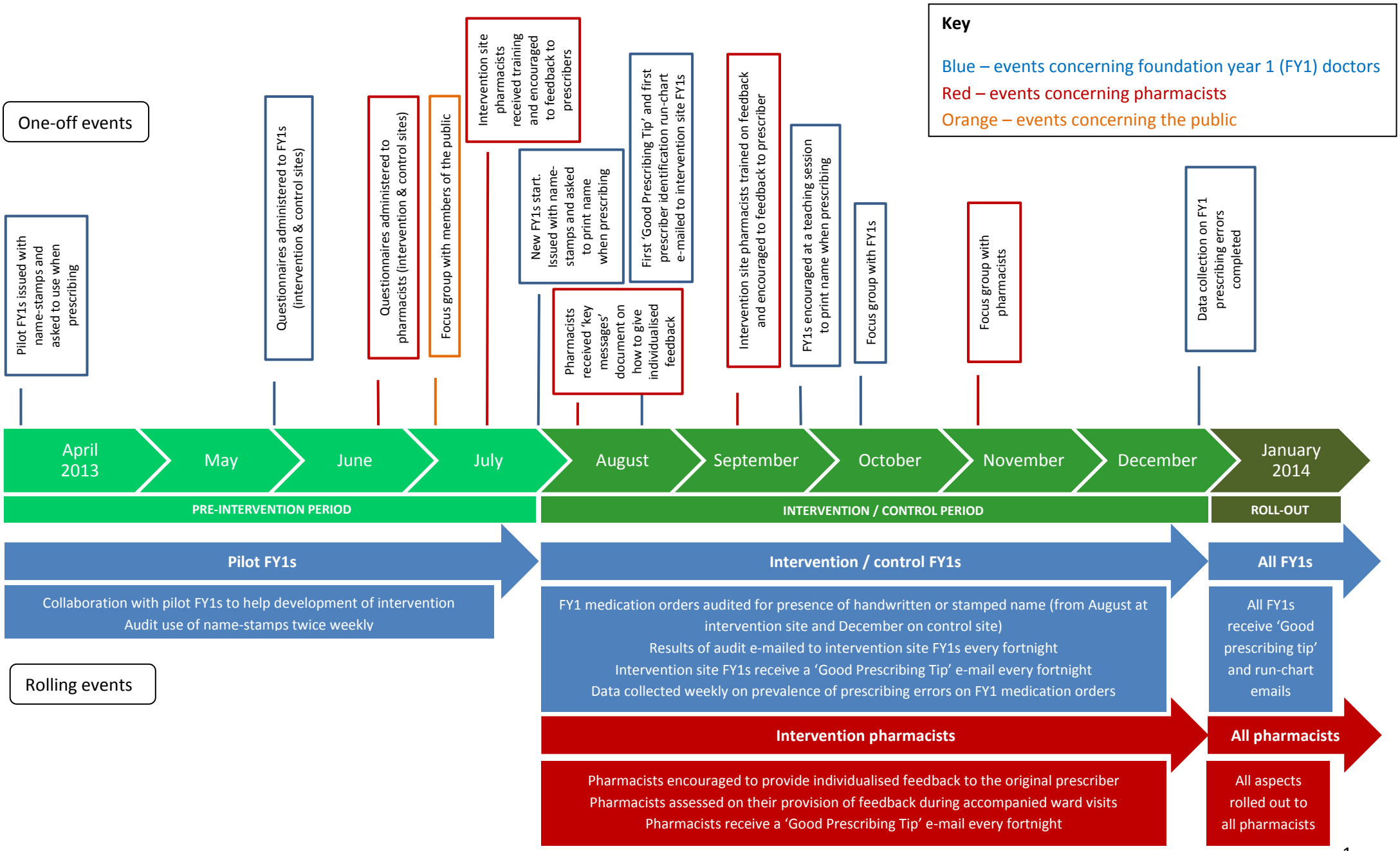
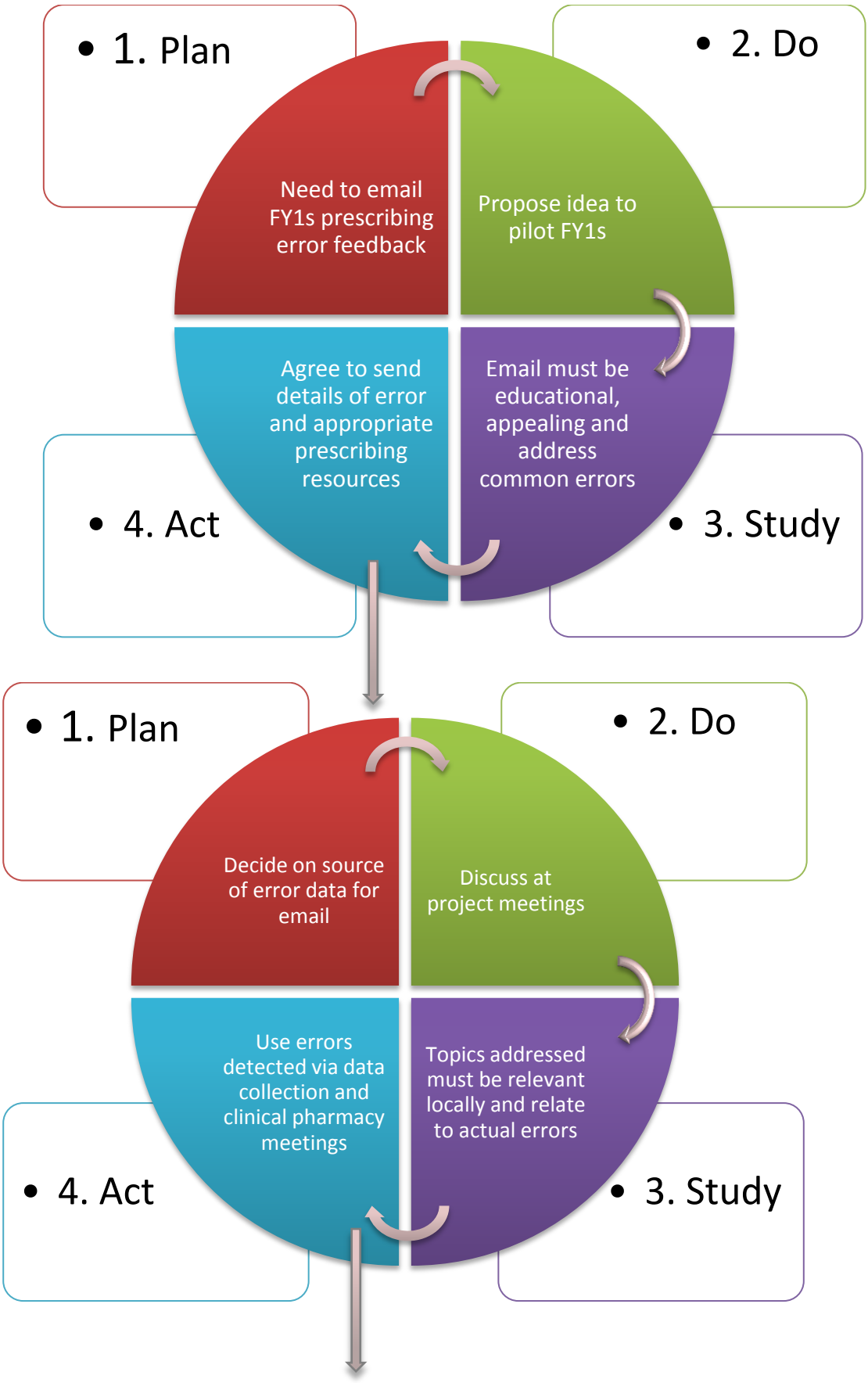
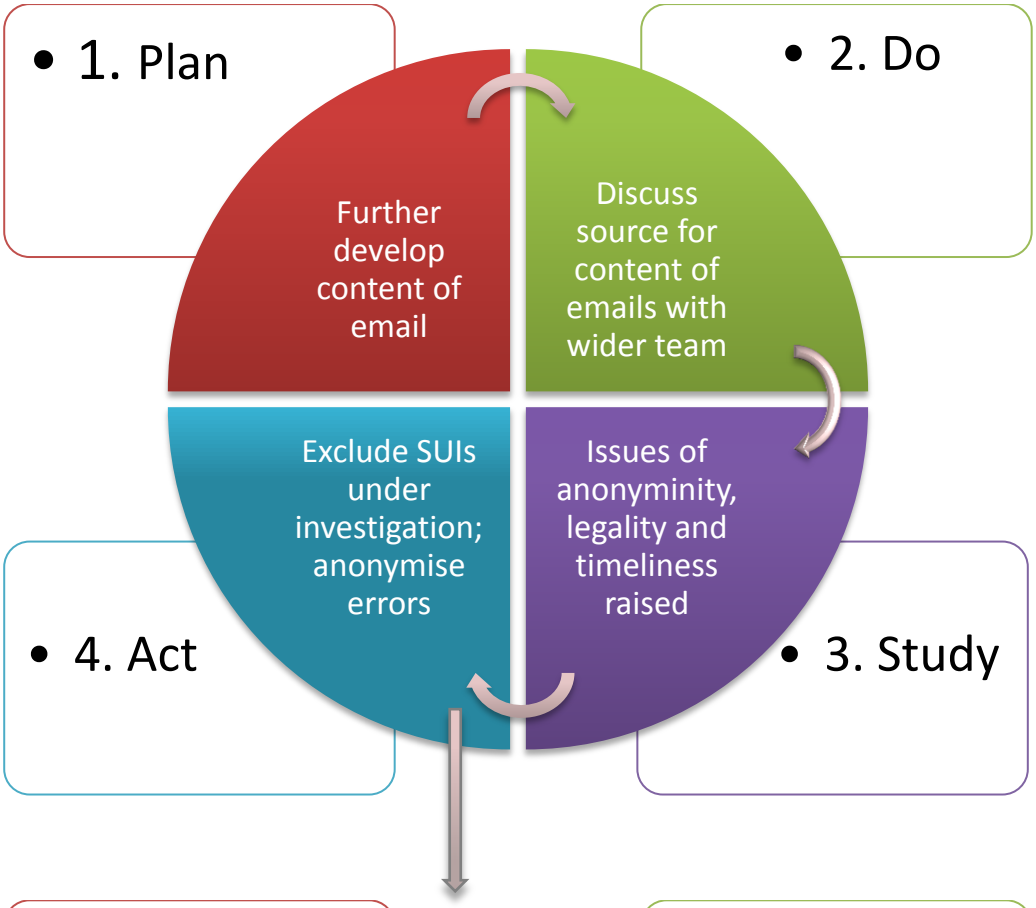
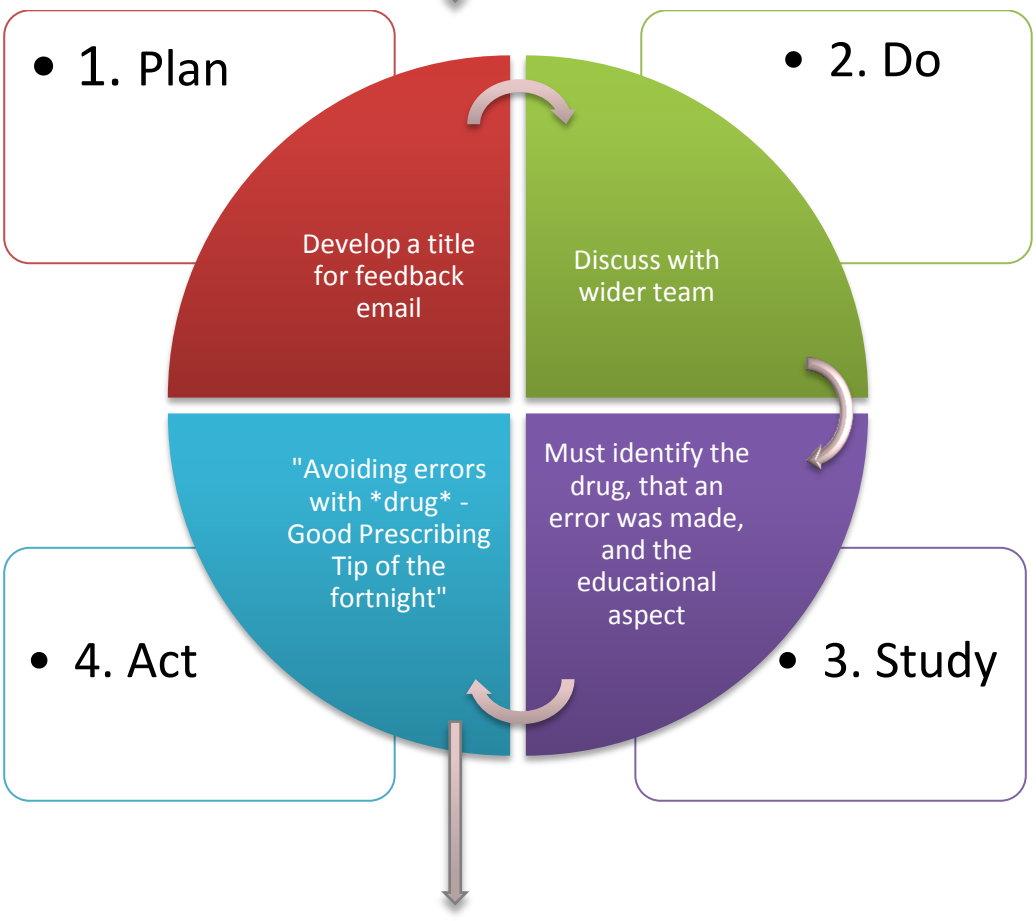
Appendix 2.1: The prescribing improvement model major event timeline

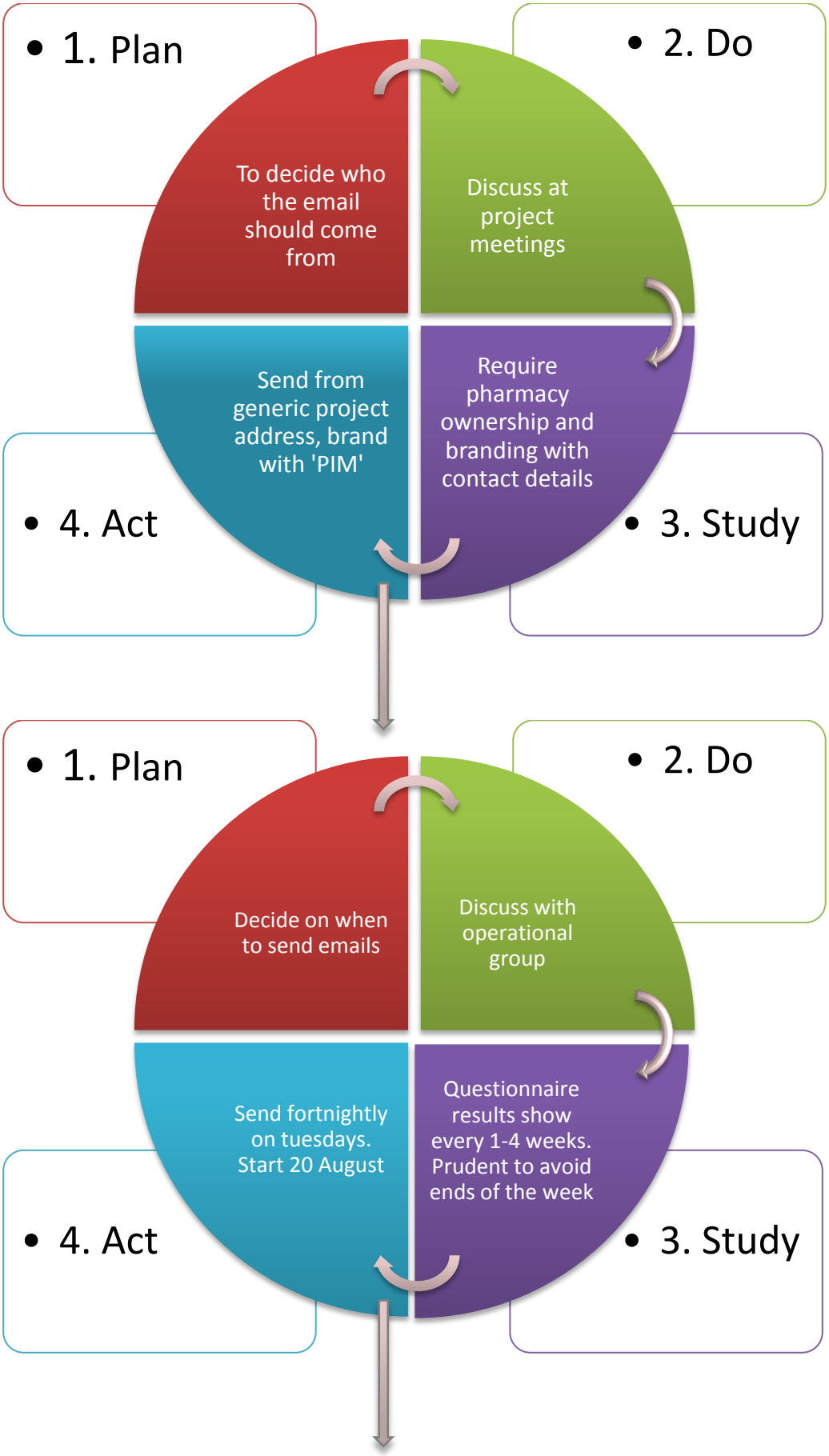


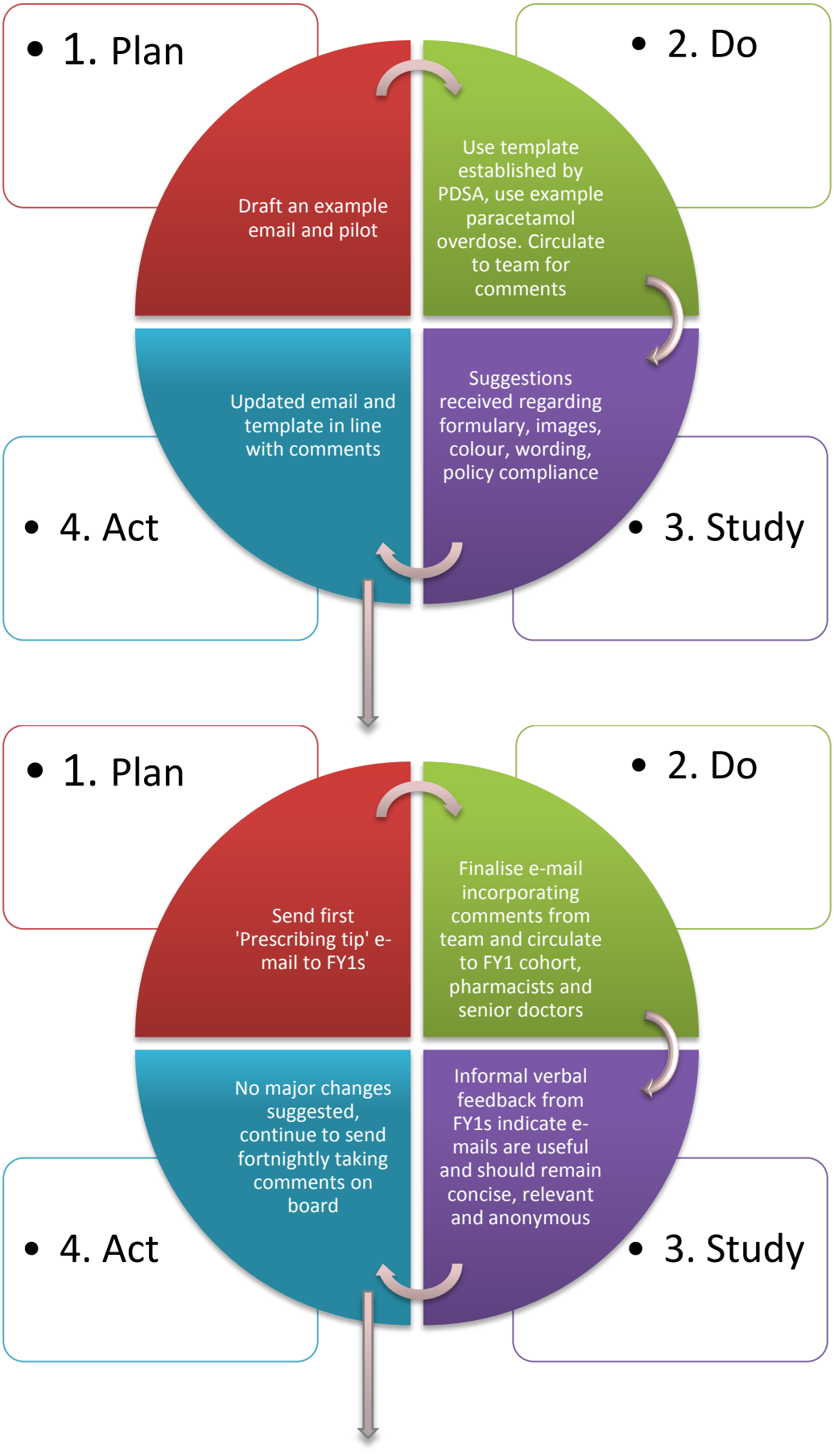
Appendix 2.2: PDSA cycles used to design 'Good Prescribing Tip' e-mails

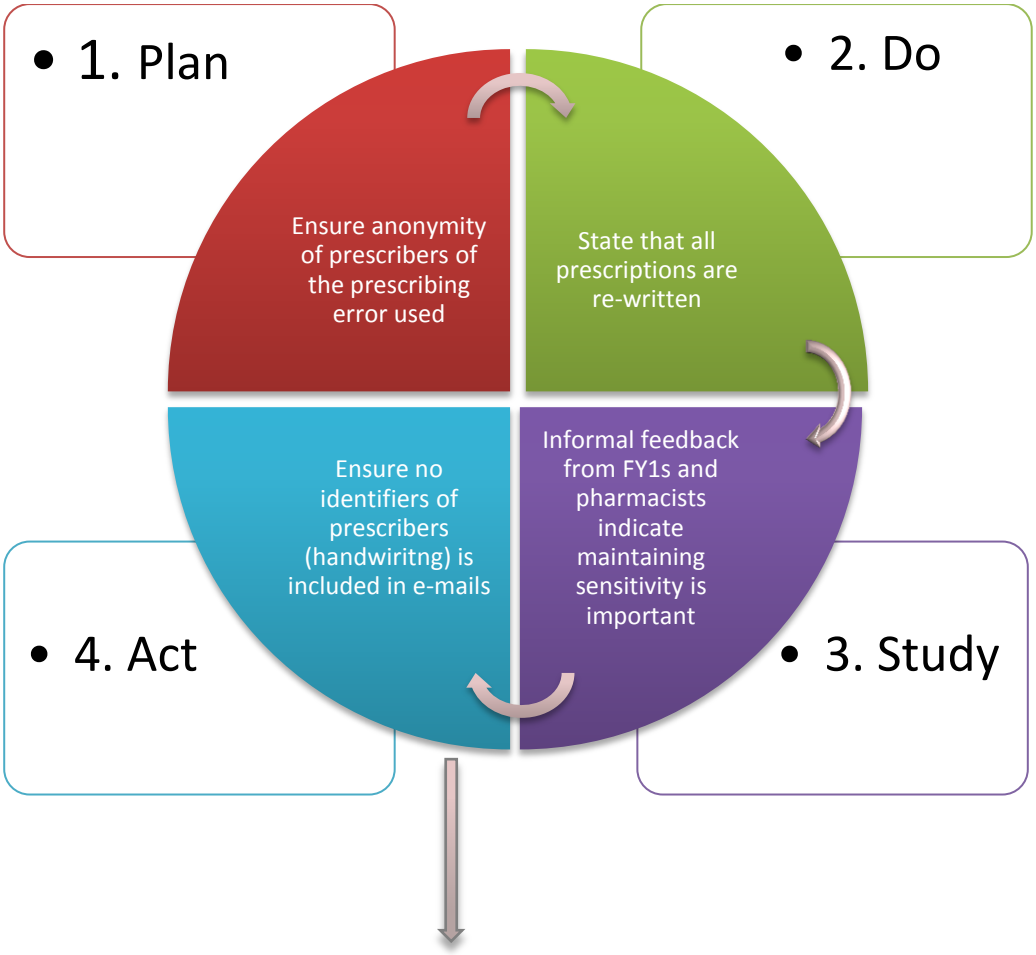


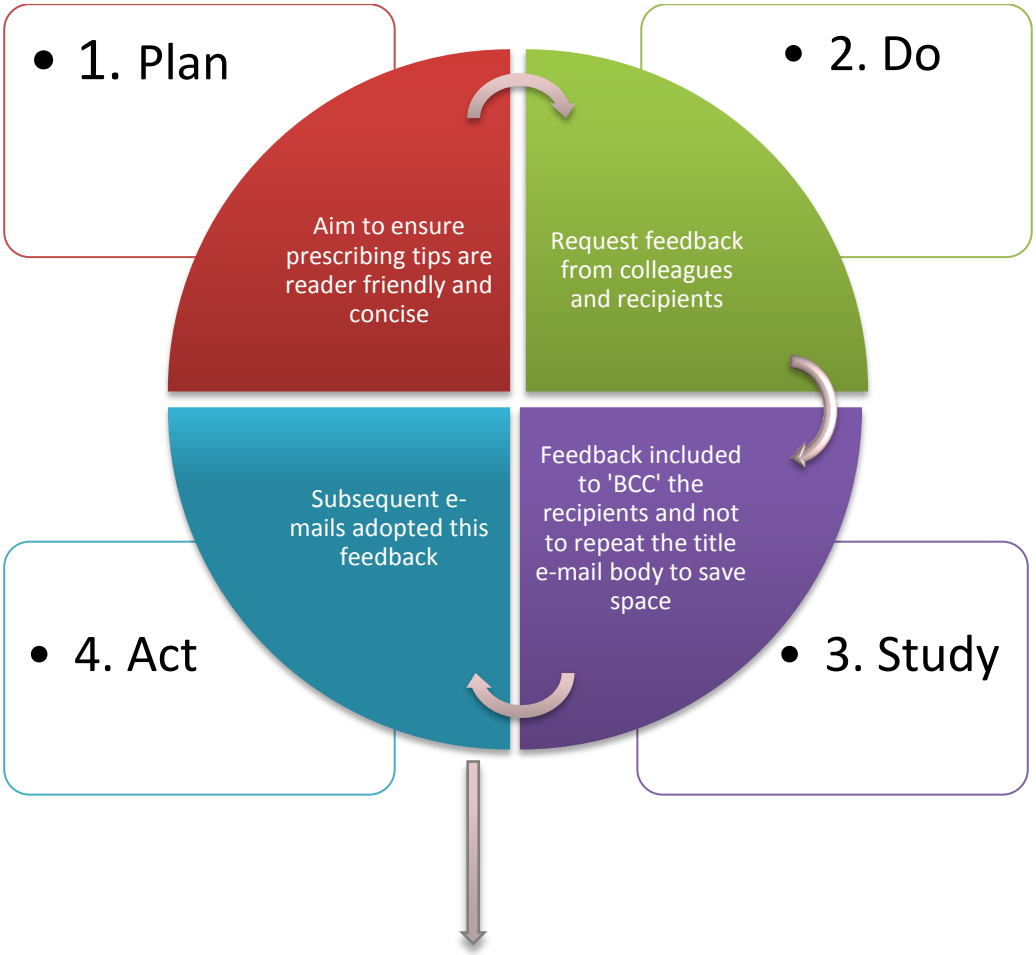

• 1. Plan
• 2. Do
Further develop content of email
Discuss source for content of emails with wider team
Exclude SUIs under investigation; anonymise errors
Issues of anonyminity, legality and timeliness raised
• 4. Act
• 3. Study

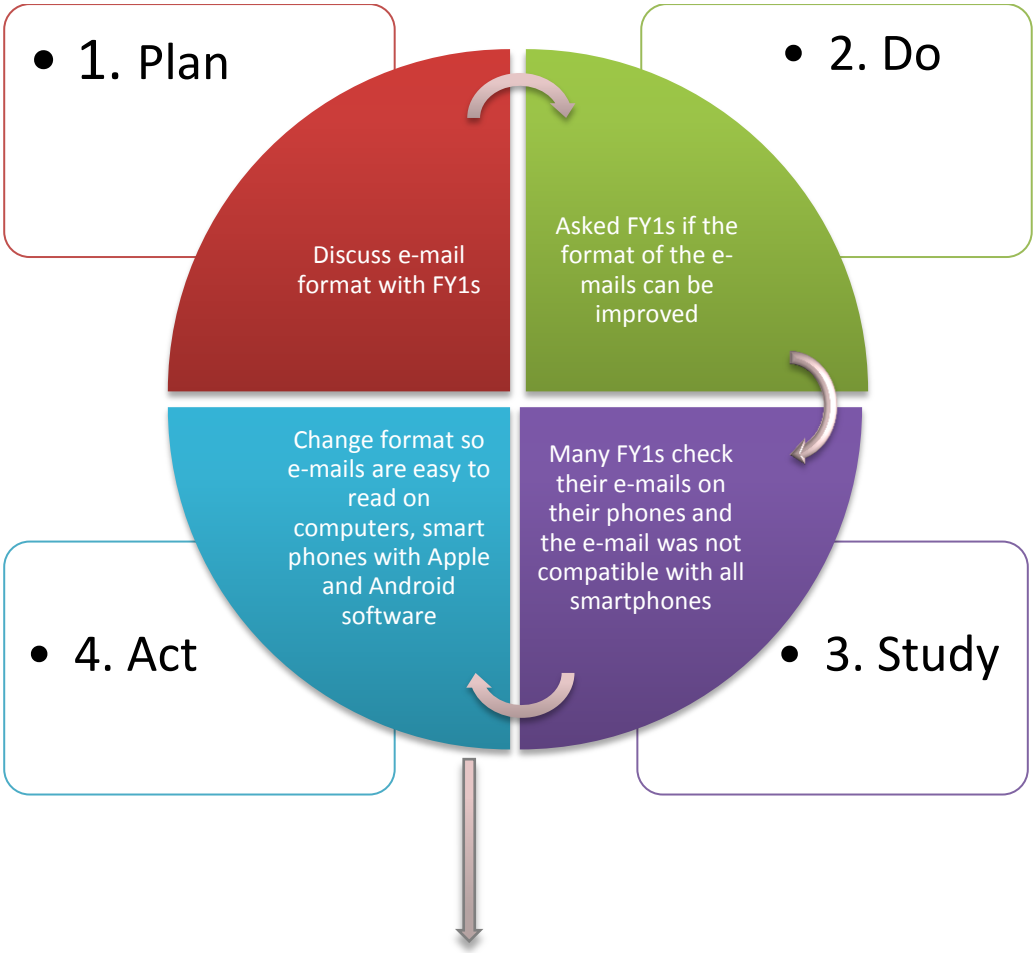

• 1. Plan
• 2. Do
Develop a title for feedback email
Discuss with wider team
"Avoiding errors with *drug* - Good Prescribing Tip of the fortnight"
Must identify the drug, that an error was made, and the educational aspect
• 4. Act
• 3. Study

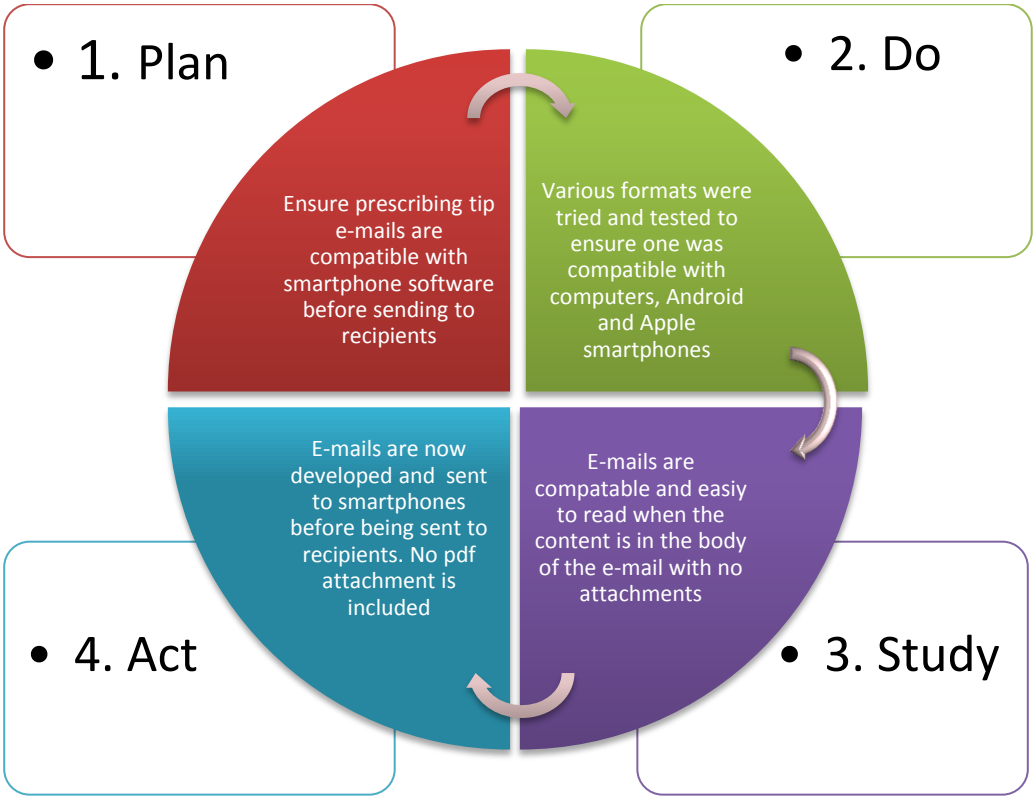

• 1. Plan
• 2. Do
To decide who the email should come from
Discuss at project meetings
Send from generic project address, brand with 'PIM'
Require pharmacy ownership and branding with contact details
• 4. Act
• 3. Study
• 1. Plan
• 2. Do
Decide on when to send emails
Discuss with operational group
Send fortnightly on tuesdays. Start 20 August
Questionnaire results show every 1-4 weeks. Prudent to avoid ends of the week
• 4. Act
• 3. Study


• 1. Plan
Draft an example email and pilot
• 2. Do
Use template established by PDSA, use example paracetamol overdose. Circulate to team for comments
• 4. Act
Updated email and template in line with comments
• 3. Study
Suggestions received regarding formulary, images, colour, wording, policy compliance
• 1. Plan
Send first 'Prescribing tip' e-mail to FY1s
• 2. Do
Finalise e-mail incorporating comments from team and circulate to FY1 cohort, pharmacists and senior doctors
• 4. Act
No major changes suggested, continue to send fortnightly taking comments on board
• 3. Study
Informal verbal feedback from FY1s indicate e-mails are useful and should remain concise, relevant and anonymous


• 1. Plan
• 2. Do
Ensure anonymity of prescribers of the prescribing error used
State that all prescriptions are re-written
Ensure no identifiers of prescribers (handwiritng) is included in e-mails
Informal feedback from FY1s and pharmacists indicate maintaining sensitivity is important
• 4. Act
• 3. Study


• 1. Plan
• 2. Do
Aim to ensure prescribing tips are reader friendly and concise
Request feedback from colleagues and recipients
Subsequent e-mails adopted this feedback
Feedback included to 'BCC' the recipients and not to repeat the title e-mail body to save space
• 4. Act
• 3. Study


• 1. Plan
• 2. Do
Discuss e-mail format with FY1s
Asked FY1s if the format of the e-mails can be improved
Change format so e-mails are easy to read on computers, smart phones with Apple and Android software
Many FY1s check their e-mails on their phones and the e-mail was not compatible with all smartphones
• 4. Act
• 3. Study


• 1. Plan
• 2. Do
Ensure prescribing tip e-mails are compatible with smartphone software before sending to recipients
Various formats were tried and tested to ensure one was compatible with computers, Android and Apple smartphones
E-mails are now developed and sent to smartphones before being sent to recipients. No pdf attachment is included
E-mails are compatable and easiy to read when the content is in the body of the e-mail with no attachments
• 4. Act
• 3. Study

Appendix 2.3: Key messages document for pharmacists

Imperial College Healthcare NHS
NHS Trust

The Health Foundation Inspiring Improvement | Shine

IMPROVING PATIENT SAFETY THROUGH PROVIDING FEEDBACK TO JUNIOR DOCTORS ON PRESCRIBING ERRORS: THE PRESCRIBING IMPROVEMENT MODEL

Did you know?

Doctors don't always realise that they've made a prescribing error when pharmacists ask them to amend something on a drug chart. Doctors want to know about the errors they make. However as they are often unidentifiable from their signatures, it's very difficult to feedback errors to the prescriber responsible. We would like to change that!

➡ On 1 August, we will issue all CXH FY1s with name-stamps to use when prescribing.

What we would like you to do

➡ **When you introduce yourself to the new FY1s starting on your ward, we would also like you to let them know that:**

1) Using the name-stamp is helpful for them and the whole team to identify the prescriber
2) You will attempt to contact them personally to feed back prescribing errors and provide advice on how to avoid re-occurrence
3) They will receive a fortnightly "Good Prescribing Tip" email from pharmacy

➡ **If you detect a prescribing error we would like you to:**

1) Contact the specific prescriber wherever possible to give them some feedback
2) Tell them that they have made an error and suggest how to avoid re-occurrence
3) Ask the doctor if they any have suggestions to stop future errors
4) If the specific prescriber is unavailable, ensure the chart is corrected as per usual clinical practice

Feedback tips: It is preferable to provide verbal, face-to-face feedback as soon as possible after the event. Please continue to ensure your feedback is non-threatening.

We will reinforce your feedback by sending a fortnightly email to CXH FY1s detailing important or common errors, discussed in more depth. We will also incorporate prescribing errors into FY1 teaching sessions at CXH.

We are hoping that notifying the prescriber of their own mistakes and informing them of the prescribing resources available, will make them less likely to repeat the error.

Please let us know your experiences of feedback to the FY1s and provide us with examples of the errors you have identified so we can include them in the teaching sessions.

Matthew.reynolds@imperial.nhs.uk; prescribingfeedback@imperial.nhs.uk, extension 30521

Bryony Dean Franklin, Matt Reynolds and Seetal Jheeta, vfinal 29th July 2013

Imperial College Healthcare NHS Trust

The Health Foundation Inspiring Improvement | Shine

Improving patient safety through providing feedback to junior doctors on prescribing errors: The Prescribing Improvement Model

Supporting information

Selected FY1s' questionnaire results:

"I believe I am aware of all major prescribing errors I make" – 77% agreed / strongly agreed

"I believe I am aware of all minor prescribing errors I make" – 54% agreed / strongly agreed

"Receiving feedback is a valuable use of my time" – 98% agreed / strongly agreed

Selected pharmacists' questionnaire results:

"I believe FY1s are aware of all major prescribing errors they make" – only 31% agreed / strongly agreed

"I believe FY1s are aware of all minor prescribing errors they make" – only 23% agreed / strongly agreed

"I want to inform FY1s of all major prescribing errors they make" – 98% agreed / strongly agreed

How to provide feedback:

For effective feedback please consider: giving feedback face-to-face, as soon as possible after the event with the drug-chart to hand if possible. Include an explanation of what the error was (including how it could affect the patient and other staff), why it was an error, and how to avoid repeating the error.

Further points to consider:

- Ask your FY1s how they would like to be contacted and agree a plan with them at the start of their rotation
- Time your feedback well e.g. avoid a busy ward-round, or public areas
- Avoid confrontational statements when providing feedback
- Use your professional discretion and feed back errors when feasible

Language

Our FY1s told us that pharmacists do not always make it clear that an error has occurred, and although they are often asked to amend drug charts, the manner of the request does not make it clear that an error has been made. They said it is important to let the prescriber know it is an error so they register that it has to be done differently the next time. Some suggested phrases for giving feedback:

- *"I'd like to highlight that there was an error made on this prescription. The correct way to prescribe it is ….."*
- *"I am flagging this up for your learning…"*
- *"I just wanted to give some feedback on this prescription that was written for this patient. The dose is incorrect. I'll show you how to obtain the correct dosing information so you know where to look next time."*

Our FY1s told us that positive feedback was not always necessary but that the following phrase was suitable for providing positive feedback, as well as highlighting an error:

- *This drug was prescribed incorrectly; the correct way to prescribe it is …. , everything else you have prescribed is spot on."*

Our FY1s told us that our pharmacists are approachable and helpful. They have positive experiences of feedback, they just want more of it, overwhelmingly FY1s think pharmacists provide feedback in a non-threatening manner, please continue this!

Pharmacists' concerns from our recent questionnaire:

It is currently difficult to identify the prescriber from the drug chart – hopefully the name-stamps will help this!

Pharmacists would like more time on the ward – by providing feedback, we hope it will reduce errors and therefore workload in the future.

Many suggested that pharmacists are more involved in FY1 teaching – we are working to get more pharmacy led sessions, or sessions with greater pharmacy content.

How to feedback errors to doctors not on the ward – we are currently exploring methods to feed back when the prescriber is unavailable.

Matt Reynolds, Bryony Dean Franklin and Seetal Jheeta

Matthew.reynolds@imperial.nhs.uk; prescribingfeedback@imperial.nhs.uk, extension 30521

Appendix 2.4: 'Good Prescribing Tip' e-mails

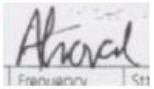
Avoid Errors Because of Unclear Handwriting: Good Prescribing Tip of the Fortnight

Can you answer the following questions? (see answers below – no cheating!)

1) What is the prescribed drug?

a)

b)



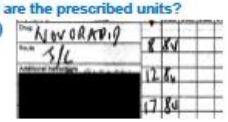
2) What is the prescribed dose?

a)

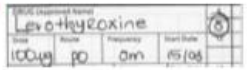
b)

3) What are the prescribed units?

a)



b)



Answers

1a) **Aciclovir** was intended, however co-amoxiclav was administered (as it was mistaken for **Augmentin®**)
1b) **Atrovent®** (ipratropium bromide) was intended
2a) **12.5mg** was the intended dose, although **125mg** was administered
2b) **7.5mg** was intended
3a) **'Units'** has been abbreviated to 'u' which can easily be mistaken for '0' – the dose could be interpreted as '80'
3b) **'Micrograms'** has been abbreviated to **'µg'** which is easily mistaken for **'mg'**

These types of errors happen regularly and are entirely avoidable. Help your nurses administer what you intend by writing clearly.

Prescribing tips

- Prescriptions should be **clear** and **legible**
- **Decimal places** must be clearly marked
- Always write **micrograms, nanograms** or **units in full**

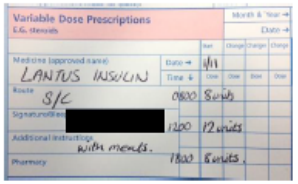
Remember to use your name-stamp or print your name when prescribing

Do you find this feedback useful? Email prescribing.feedback@imperial.nhs.uk and let us know your thoughts
Have you lost your name-stamp? Email prescribing.feedback@imperial.nhs.uk to order a replacement
Do you need an ink refill for your name-stamp? Email prescribing.feedback@imperial.nhs.uk to order one
Matt Reynolds on behalf of the Pharmacy Good Prescribing Team
This work forms part of the Prescribing Improvement Model (PIM) project (6/1/14 vfinal)

The Health Foundation inspiring improvement | Shine

Avoid Errors when Prescribing Insulin: Good Prescribing Tip of the Fortnight
(this prescription has been re-written to maintain the anonymity of the prescriber)

Can you spot the error?



The errors

1. Lantus® (insulin glargine) has been prescribed TDS with meals. **Lantus® is a long-acting insulin and is usually prescribed OD or BD.** The intended prescription was for Novorapid® (insulin aspart) which is a rapid acting insulin suitable to prescribe TDS with meals.

2. No insulin device was specified. The **device must be stated** to ensure the appropriate preparation is used in hospital and on discharge.

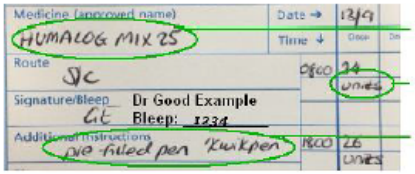
Administration of an incorrect insulin can cause inadequate control of blood sugar and lead to life threatening hypo- or hyper- glycaemic episodes

Prescribing tips:

- Prescribing insulin can be difficult, familiarise yourself with commonly used insulin preparations:

Insulin type	Brand name	Approved name	Typical S/C dosing schedule	Comments
RAPID acting insulin analogues	NovoRapid®	Insulin aspart	Usually TDS	Within 15 minutes of food May be used in continuous s/c infusion pump
	Humalog®	Insulin lispro		
SHORT acting insulins	Actrapid®	Human soluble insulin	Usually TDS	30 minutes before food Used for sliding scale continuous infusion IV or S/C
	Humulin S®			
INTERMEDIATE acting insulins	Insulatard®	Isophane insulin	OD or BD	-
	Humulin I®			
LONG acting insulin analogues	Levemir®	Insulin detemir	OD or BD	-
	Lantus®	Insulin glargine		
BIPHASIC insulin analogues (contains rapid AND Intermediate acting insulins)	NovoMix30®	Biphasic insulin aspart	BD or TDS	The number after the name of insulin refers to the percentage of rapid acting insulin
	Humalog Mix25®	Biphasic insulin lispro		
	Humalog Mix50®			
BIPHASIC insulin (contains short AND Intermediate acting insulins)	Humulin M3®	Soluble & Isophane insulin	BD	Contains 30% short acting insulin and 70% intermediate acting insulin

- When prescribing insulin, remember to:



Remember to use your name-stamp or print your name when prescribing

Do you find this feedback useful? Email prescribing.feedback@imperial.nhs.uk and let us know your thoughts
Have you lost your name-stamp? Email prescribing.feedback@imperial.nhs.uk to order a replacement
Do you need an ink refill for your name-stamp? Email prescribing.feedback@imperial.nhs.uk to order one
Matt Reynolds on behalf of the Pharmacy Good Prescribing Team
This work forms part of the Prescribing Improvement Model (PIM) project (11/11/13 v6)

The Health Foundation inspiring improvement | Shine

Avoid errors when prescribing drugs with unusual frequencies: good prescribing tip of the fortnight

(this prescription has been re-written to maintain the anonymity of the prescriber)

Can you spot the error?

The error:

This adult patient erroneously received a dose of alendronic acid on **two consecutive** days instead of **once a week** because the dose administration section of the chart had not been clearly marked.

Not indicating the dosing frequency on the administration section of the drug chart can result in a patient receiving an incorrect dose. An overdose of alendronic acid may cause hypocalcaemia, hypophosphataemia or upper gastro-intestinal adverse events.

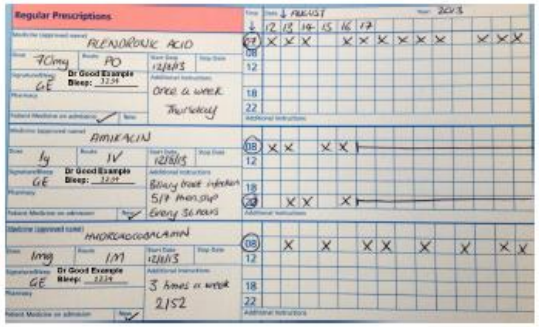
Prescribing tips:

- Explicitly indicate when the **dose is due** by **marking** the **whole** of the dose administration section of the chart, to ensure the drug is administered at the **intended times** only.
- Some examples of prescribing drugs with unusual frequencies:

Once a week

Every 36 hours

3 times a week



Remember to use your name-stamp or print your name when prescribing

Do you find this feedback useful? Email prescribing.feedback@imperial.nhs.uk and let us know your thoughts

Have you lost your name-stamp? Email prescribing.feedback@imperial.nhs.uk to order a replacement
Do you need an ink refill for your name-stamp? Email prescribing.feedback@imperial.nhs.uk to order one

Matt Reynolds on behalf of the Pharmacy Good Prescribing Team
This work forms part of the Prescribing Improvement Model (PIM) project (1/10/2013 vfinal) (modified 14/1/14)

The Health Foundation Inspiring Improvement | Shine

Avoid errors in penicillin sensitive patients: good prescribing tip of the fortnight

(this prescription has been re-written to maintain the anonymity of the prescriber)

Can you spot the error?

The error

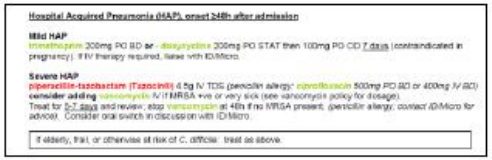
1) This patient has a **documented allergy** to flucloxacillin, a type of penicillin.
2) This patient has been prescribed Tazocin® (piperacillin/ tazobactam) which contains **penicillin** and is therefore **contra-indicated** as this patient had a **severe adverse reaction** to another penicillin.

Always check a patient's allergy status before prescribing any medicine.

Administration of a penicillin based drug to a patient with a history of hypersensitivity reactions to penicillin can be fatal.

Prescribing tips:

- Always **establish the nature of any allergy and document it on the chart and notes.** It is important to confirm whether the allergy is severe, less severe or an intolerance/ side effect. The nature of the reaction will guide prescribing decisions.
- For information related to penicillin allergies, refer to the document Documented Penicillin Sensitivity, antibiotic prescribing in a penicillin sensitive patient on the intranet. This document uses a 'traffic-light' system: **RED drugs are contraindicated** for penicillin allergic patients, **AMBER drugs are to be used with caution, GREEN drugs are safe** for penicillin-allergic patients.
- The Adult Treatment of Infection Policy gives an alternative treatment option for patients with an allergy to penicillin.



- Information on penicillin allergies can also be found in the Antibiotic App (download onto a smartphone here or scan the QR code).
- Be aware of commonly used brand names for combination drugs which contain penicillin e.g. **Augmentin®** (co-amoxiclav), **Tazocin®** (piperacillin/ tazobactam), **Timentin®** (ticarcillin/ clavalanic acid) and prescribe as the generic name.

Remember to use your name-stamp when prescribing

Have you lost your name-stamp? Click here to order a replacement
Do you need an ink refill for your name-stamp? Click here to order one
Do you find this feedback useful? Email us and let us know your thoughts

Matt Reynolds on behalf of the Pharmacy Good Prescribing Team
This work forms part of the Prescribing Improvement Model (PIM) project (2/9/2013 vfinal)

The Health Foundation Inspiring Improvement | Shine

Appendix 2.5: FY1 and pharmacist questionnaires

The Health Foundation Inspiring Improvement | Shine | Imperial College Healthcare NHS Trust

The Prescribing Improvement Model
Prescribing Questionnaire for Foundation Year 1 Doctors

This questionnaire is part of a study helping us improve how pharmacists give feedback on prescribing errors to prescribers: your views on prescribing errors are **important**.

Current site: CXH ☐; HH ☐; SMH ☐ Gender: Male ☐; Female ☐

Previous sites worked at: CXH ☐; HH ☐; SMH ☐ Undergraduate medical school: Imperial ☐; Other ☐

Please circle the number which best represents your agreement with the statement. Replies are anonymous.

Understanding prescribing errors	Strongly disagree							Strongly agree
1. I feel there is an open culture in this organisation with respect to discussing prescribing errors.	1	2	3	4	5	6	7	8
2. I understand why doctors make prescribing errors	1	2	3	4	5	6	7	8
3. When I have made prescribing errors in the past, I understand why I made them	1	2	3	4	5	6	7	8
4. I am aware of the conditions under which I am likely to make a prescribing error	1	2	3	4	5	6	7	8
5. I believe I am aware of all **major** prescribing errors I make	1	2	3	4	5	6	7	8
6. I believe I am aware of all **minor** prescribing errors I make	1	2	3	4	5	6	7	8
7. I think knowing about the prescribing errors **I** make is important	1	2	3	4	5	6	7	8
8. I think knowing about the prescribing errors **others** make is important	1	2	3	4	5	6	7	8
Evaluation of the current feedback you receive from pharmacists on prescribing errors	Strongly disagree							Strongly agree
9. The feedback I currently receive is useful in improving my prescribing	1	2	3	4	5	6	7	8
10. I feel I receive **verbal** feedback **often** enough for it to be useful	1	2	3	4	5	6	7	8
11. I feel I receive **written** feedback **often** enough for it to be useful	1	2	3	4	5	6	7	8
12. I receive **verbal** feedback **soon** enough after the event to be useful	1	2	3	4	5	6	7	8
13. I receive **written** feedback **soon** enough after the event to be useful	1	2	3	4	5	6	7	8
14. The feedback I receive on prescribing errors is highly relevant to my personal practice	1	2	3	4	5	6	7	8
15. I believe that the information I receive on prescribing errors from pharmacists is accurate	1	2	3	4	5	6	7	8
16. I believe that the information I receive on prescribing errors is from a trusted source	1	2	3	4	5	6	7	8
17. The feedback I receive from pharmacists on prescribing errors is provided in a constructive manner	1	2	3	4	5	6	7	8
18. Receiving feedback is a valuable use of my time	1	2	3	4	5	6	7	8

Please continue overleaf

How is pharmacists' feedback on prescribing errors received?	Strongly disagree							Strongly agree
19. I am always receptive to feedback I receive from pharmacists on my prescribing errors	1	2	3	4	5	6	7	8
20. The feedback I receive from pharmacists on prescribing errors is non-threatening	1	2	3	4	5	6	7	8
Response to receiving feedback on prescribing errors from pharmacists	Strongly disagree							Strongly agree
21 Receiving feedback on prescribing errors has caused me to reflect on my prescribing practice	1	2	3	4	5	6	7	8
22 I have made changes to my prescribing practice in response to feedback received from pharmacists	1	2	3	4	5	6	7	8
23 I am happy to discuss prescribing errors with my peers	1	2	3	4	5	6	7	8
24 I think receiving formal feedback on prescribing errors means I would make fewer errors in the future	1	2	3	4	5	6	7	8
What kind of prescribing error feedback would you like to receive?	Strongly disagree							Strongly agree
25 I want to be told of all **major** prescribing errors I make	1	2	3	4	5	6	7	8
26. I want to be told of **all** prescribing errors I make, however minor	1	2	3	4	5	6	7	8
27. I would like to have feedback by pharmacists which includes examples of specific errors I make	1	2	3	4	5	6	7	8
28 Feedback by pharmacists which includes generic guidance on prescribing practice would be useful	1	2	3	4	5	6	7	8
29 Feedback which includes statistical comparison with my peers would be useful	1	2	3	4	5	6	7	8
30 I prefer to receive feedback on prescribing errors from pharmacists rather than senior doctors	1	2	3	4	5	6	7	8

Do you have any comments or suggestions that would help pharmacists to provide better feedback?

What is the best format for pharmacists to provide feedback on prescribing errors to you? Consider mode of delivery, content, format, frequency etc.

Thanks for completing this questionnaire! Please return the questionnaire to the person who handed them out, or to Matthew Reynolds, Pharmacy, CXH *prescribingfeedback@imperial.nhs.uk*

The Health Foundation Inspiring Improvement | Shine | Imperial College Healthcare NHS Trust

The Prescribing Improvement Model Questionnaire for Pharmacists

This questionnaire is part of a study being conducted by Imperial College Healthcare NHS Trust and Imperial College on prescribers' and pharmacists' views on feedback of prescribing errors. We want to support **safe** prescribing, increase doctors' **confidence**, enhance **learning** and make pharmacists' feedback more **effective** - your views are **important**.

Please only complete this questionnaire if you provide a ward pharmacy service

Which site do you most often provide **weekday** ward cover on: 1st_____; 2nd_____; 3rd_____.

Gender: Male ☐; Female ☐ Band: 6 ☐; 7 ☐; 8 ☐

Please circle the number which best represents your agreement with the statement. Replies are anonymous.

Understanding prescribing errors	Strongly disagree							Strongly agree
1. I feel there is an open culture in ICHT with respect to discussing prescribing errors	1	2	3	4	5	6	7	8
2. I understand why doctors make prescribing errors	1	2	3	4	5	6	7	8
3. I am aware of the conditions under which doctors are likely to make a prescribing error	1	2	3	4	5	6	7	8
4. I believe FY1s are aware of all **major** prescribing errors they make	1	2	3	4	5	6	7	8
5. I believe FY1s are aware of all **minor** prescribing errors they make	1	2	3	4	5	6	7	8
6. I think it is important that FY1s know about prescribing errors **other FY1s** make	1	2	3	4	5	6	7	8
Evaluation of the current feedback FY1s receive from pharmacists on their prescribing errors	Strongly disagree							Strongly agree
7. In this trust pharmacy support FY1s in learning from their prescribing errors	1	2	3	4	5	6	7	8
8. Robust processes are in place in this trust for monitoring and feeding back information about prescribing errors	1	2	3	4	5	6	7	8
9. When I identify a prescribing error I always make a doctor aware that an error has been made	1	2	3	4	5	6	7	8
10 The feedback I currently give is useful in improving FY1s' prescribing	1	2	3	4	5	6	7	8
11 I am able to give **verbal** feedback **often** enough for it to be useful to FY1s	1	2	3	4	5	6	7	8
12 I am able to give **written** feedback (e.g. in medical notes) **often** enough for it to be useful to FY1s	1	2	3	4	5	6	7	8
13 I am able to give **verbal** feedback to FY1s **soon** enough after detecting an error for it to be useful	1	2	3	4	5	6	7	8
14 I am able to give **written** feedback (e.g. in medical notes) to FY1s **soon** enough after detecting an error for it to be useful	1	2	3	4	5	6	7	8

PLEASE CONTINUE OVERLEAF

15 I believe that the information FY1s receive on prescribing errors is accurate	1	2	3	4	5	6	7	8
16 I believe that FY1s find the feedback they receive on prescribing errors to be trustworthy	1	2	3	4	5	6	7	8
17 I believe that I provide feedback to FY1s on prescribing errors in a constructive manner	1	2	3	4	5	6	7	8
18 I always identify the specific prescriber who makes a prescribing error	1	2	3	4	5	6	7	8
19 Whenever I identify a prescribing error I give feedback to the specific prescriber who made the error	1	2	3	4	5	6	7	8
20 I feel comfortable talking to FY1s about prescribing errors	1	2	3	4	5	6	7	8
21 I feel comfortable informing FY1s they have made a prescribing error	1	2	3	4	5	6	7	8
22 Giving feedback is a valuable use of pharmacists' time	1	2	3	4	5	6	7	8
How is pharmacists' feedback on prescribing errors received by doctors?	Strongly disagree							Strongly agree
23. FY1s are always interested in and engaged with the feedback they receive on their prescribing errors	1	2	3	4	5	6	7	8
24. I believe that FY1s find the feedback they receive to be non-threatening	1	2	3	4	5	6	7	8
Support for giving feedback on prescribing errors to FY1s	Strongly disagree							Strongly agree
25 I feel supported by my organisation to give feedback to FY1s on their prescribing errors	1	2	3	4	5	6	7	8
What kind of prescribing error feedback would you like to give to the FY1s?	Strongly disagree							Strongly agree
26 I want to inform FY1s of all **major** prescribing errors they make	1	2	3	4	5	6	7	8
27 I want to inform FY1s of **all** prescribing errors they make, however minor	1	2	3	4	5	6	7	8
28 I would like to give feedback to individual FY1s which includes examples of specific errors they have personally made	1	2	3	4	5	6	7	8
29. Feedback to FY1s which includes generic guidance on prescribing practice would be useful	1	2	3	4	5	6	7	8
30. Feedback to FY1s which includes statistical comparison with their peers would be useful	1	2	3	4	5	6	7	8

Do you have any comments or suggestions that would help pharmacists to provide better feedback?

What is the best format for pharmacists to provide feedback to FY1s on prescribing errors? Consider mode of delivery, content, format, frequency etc.

Thanks for completing this questionnaire! Please return the questionnaire to Matt Reynolds or Seetal Jheeta, or place in the box in the pharmacy tea room, CXH prescribingfeedback@imperial.nhs.uk

Appendix 2.6: Instructions for pharmacist data collectors

The Health Foundation Inspiring Improvement | Shine

Imperial College Healthcare NHS Trust

The Prescribing Improvement Model
Data collection: From 19th June 2013

What are we doing?

We are collecting data to measure the prevalence of prescribing errors made by Foundation Year 1 (FY1) doctors. This data will be used as part of the Prescribing Improvement Model (PIM) project.

What would we like you to do?

We would like you to record brief details of prescriptions **written by FY1** doctors and any prescribing errors identified once weekly on Wednesdays.

Which prescriptions should be included?

During your ward visit on 5 SOUTH, record the first 8 prescription items written by FY1s that you encounter. Please record data on the following:

- Discharge prescriptions (EDCs or paper TTAs)
- These sections of the **current inpatient** drug chart:
  - ✓ Once only medicines / surgical antibiotic prophylaxis (**'stat'** medication)
  - ✓ **Regular** prescriptions (this includes DVT/PE prophylaxis, warfarin and variable dose prescriptions)
  - ✓ **As required** ('prn') prescriptions
- Please include the following prescriptions written in the **last 7 days:**
  - ✓ All **active** prescriptions
  - ✓ **Cancelled** prescriptions where at least **one dose** was administered or a nurse has documented a code for not administering
  - ✓ Prescriptions that are both **unscreened** and **previously screened** by a pharmacist
- Medication that has been erroneously omitted is a prescribing error and should be included as an error if an FY1 has prescribed the other regular medication on admission or has transcribed the new chart

Which medication orders should be excluded?

- Exclude prescriptions on these sections of the drug chart:
  - ✗ Oxygen prescriptions
  - ✗ Insulin sliding scale section of drug chart
  - ✗ Infusions and blood products

How to record the data?

- Use the data collection forms provided
- Provide a brief description of the error, for example: *Furosemide 1 tablet OD prescribed, strength not specified*
- Complete one line per prescribed item even if you identify more than one error in the prescription, for example: *Alendronic acid 70 micrograms OD prescribed, should be 70mg once a week*

What is a prescribing error?

We are using the following definition:

"A prescribing error occurs when, as a result of a prescribing decision or prescription-writing process, there is an unintentional, significant: reduction in the probability of treatment being timely and effective *or* increase in the risk of harm when compared to generally accepted practice."

Some notes on this definition:

1. All prescribing errors that meet the definition should be included, regardless of their perceived severity (this includes incomplete prescriptions e.g. no date, route etc.)
2. Prescribing errors can originate both in the prescribing decision (e.g. deciding to prescribe a certain dose without taking into account the patient's renal function) and in the prescription writing process (e.g. not signing).
3. If a prescribing error is detected (i.e. the error meets the above criteria) and an intervention is made by the pharmacist but does not result in the doctor changing the erroneous prescription, this should still be counted as a prescribing error.

All prescribing errors should be included - if in doubt as to whether it is an error, please record it!

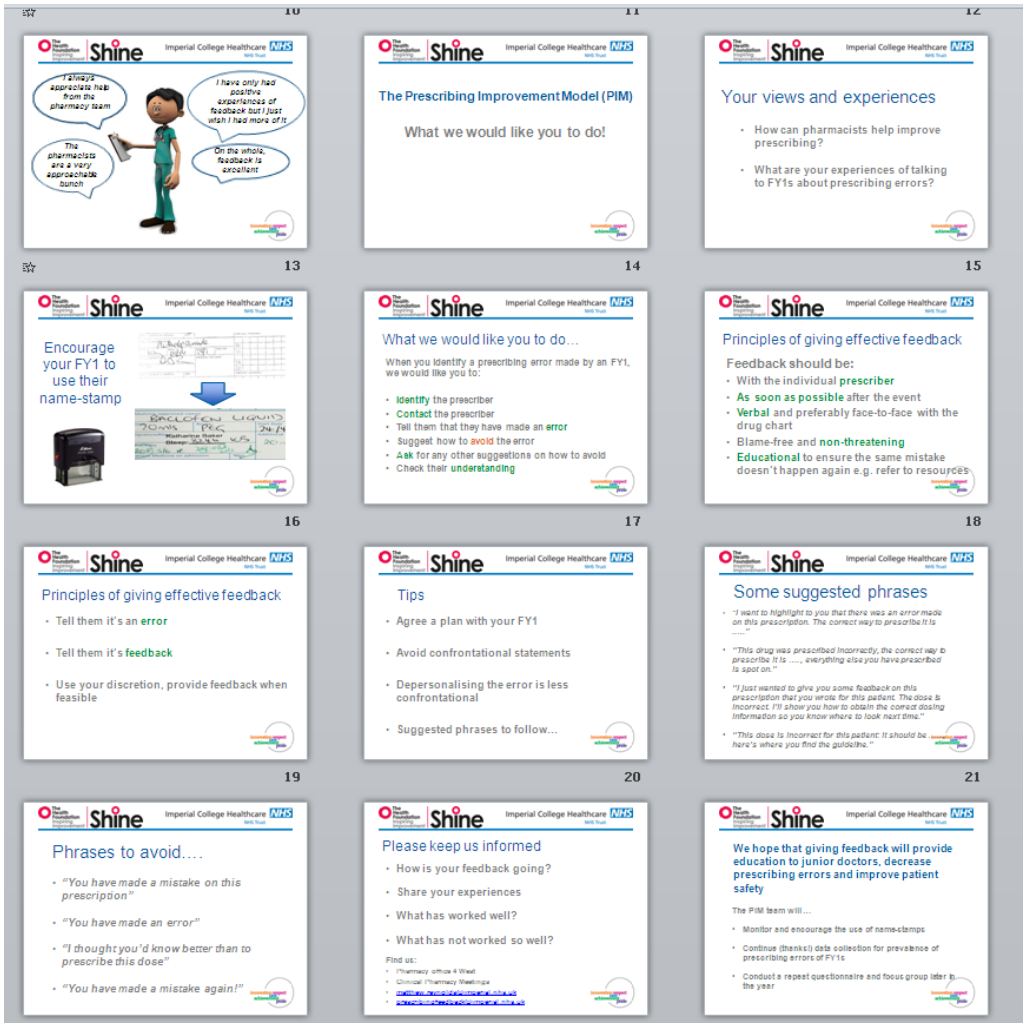
Please do not hesitate to contact us if you have any further questions or require clarification on any aspects of data collection

Please return completed data collection forms to Matt Reynolds or Seetal Jheeta in the pharmacy department

Thank you for your participation

SJ 5SOUTH VFINAL 14/6/13

Appendix 2.7: Presentation for pharmacist engagement



Appendix 2.8: Publicity posters

Imperial College Healthcare NHS Trust

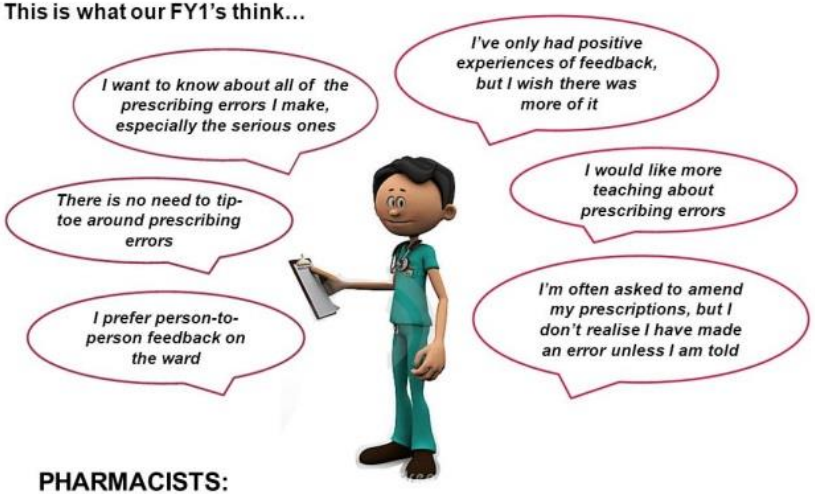
The Health Foundation Inspiring Improvement

PROVIDING FEEDBACK ON PRESCRIBING ERRORS TO JUNIOR DOCTORS

The Prescribing Improvement Model (PIM)

Prescribing errors occur in up to 15% of UK inpatient medication orders and 1% of patients are harmed. Foundation year 1 (FY1) doctors are often unaware of making errors and receive little feedback on how to prevent them.

This is what our FY1's think…



PHARMACISTS:

When you identify a prescribing error made by a FY1, we would like you to:

- **Identify** the prescriber (encourage your FY1s to use their name-stamps)
- **Contact the prescriber**, preferably in person
- **Tell them** that they have made an **error**
- Provide **feedback** and **explain** how to prescribe the drug correctly
- Check their **understanding** so they do it right the next time

We hope this change will provide education to junior doctors, decrease prescribing errors and improve patient safety.

26/6/13 V7

Imperial College Healthcare NHS Trust

The Health Foundation Inspiring Improvement

PROVIDING FEEDBACK ON PRESCRIBING ERRORS TO JUNIOR DOCTORS

The Prescribing Improvement Model (PIM)

Prescribing errors occur in up to 15% of UK inpatient medication orders and 1% of patients are harmed. Foundation year 1 (FY1) doctors are often unaware of making errors and receive little feedback on how to prevent them.

We realise that it is not always possible to identify or contact the original prescriber when an error is made…

…so all FY1 doctors will be issued with a name-stamp to use when prescribing.

Now you can easily identify and contact the prescriber!

PHARMACISTS:

When you identify a prescribing error made by a FY1, we would like you to:

- **Identify** the prescriber (encourage your FY1s to use their name-stamps)
- **Contact the prescriber**, preferably in person
- **Tell them** that they have made an **error**
- Provide **feedback** and **explain** how to prescribe the drug correctly
- Check their **understanding** so they do it right the next time

We hope this change will provide education to junior doctors, decrease prescribing errors and improve patient safety.

26/6/13 v7

The Health Foundation
Inspiring Improvement

PROVIDING FEEDBACK ON PRESCRIBING ERRORS TO JUNIOR DOCTORS

The Prescribing Improvement Model (PIM)

What's in it for you?

Increase pharmacists' profile on the wards

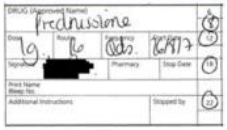
Professional Development

continuing professional DEVELOPMENT

Opportunity for Mini-CEX

JOINT PROGRAMMES BOARD

Reduce prescribing errors



"...it's OK to screw up once but there ought to be a process that says you've screwed up once and we're going to correct it so that it doesn't happen again. What's unforgivable is if you've got the ability to go on screwing up time and time again."
- Quote from patient affected by error

Improve Patient Safety

FY1s and pharmacists value it

	FY1s' responses	Pharmacists' responses
	% agree / strongly agree	% agree / strongly agree
Receiving / giving feedback is a valuable use of my time	98%	95%
I want to be told / tell FY1s of all major prescribing errors I / they make	92%	98%

Better working relationships

PHARMACISTS:

When you identify a prescribing error made by a FY1, we would like you to:

- **Identify** the prescriber (encourage your FY1s to use their name-stamps or print their name)
- **Contact the prescriber**, preferably in person
- **Tell them** that they have made an **error**
- Provide **feedback** and **explain** how to prescribe the drug correctly
- Check their **understanding** so they do it right the next time

Imperial College Healthcare NHS
NHS Trust

18 October 2013 vFinal

Appendix 2.9: Instructions for FY1s on how to use their name-stamp

Imperial College Healthcare NHS
NHS Trust

Prescribing name-stamp

What is it?

This name stamp is to be used when you prescribe medication on a drug chart. It is designed to be attached to your ID badge, lanyard, belt loop, small bag etc.

How do I use it?

In addition to signing your prescription, please stamp your name and insert your bleep number in the 'signature and bleep' section of the prescription.

Why do I need it?

The Trust prescribing policy states that all prescriptions must be signed by the prescriber and, for each signature, the prescriber must print their name and bleep or contact details. As it is time-consuming to print your name each time, we encourage you to use your name stamp instead. Using the name stamp will make it easier for your colleagues to identify you.

Who has provided the name-stamp?

It has been provided by the Centre for Medication Safety and Service Quality at Imperial College Healthcare NHS Trust as part of a project to improve patient safety.

Where can I find more information or suggest changes?

All comments and suggestions are welcome. Please let your ward pharmacist know, email or call us.

What do I do if I lose my name-stamp or run out of ink?

If you have misplaced your name stamp, or require an ink refill, please let us know and we can order a replacement for you.

Our contact details:

Matthew.reynolds@imperial.nhs.uk
Prescribingfeedback@imperial.nhs.uk
Phone number 020 33130521 or extension 30521

V.final, July 30th 2013 Centre for Medication Safety and Service Quality ext. 30521

Appendix 2.10: Accompanied ward visit summary

Criteria	Pharmacist: 1	06/11/2013	Pharmacist: 2	12/11/2013	Pharmacist: 3	22/11/2013	Pharmacist: 4	02/01/2014	Pharmacist: 5	13/01/2014
	Classification	Comments	Classification	Comments	Classification	Comments	Classification	Comments	Classification	Comments
Attempts to contact the initial prescriber whenever possible	Mostly	Quite difficult [to do this] in A&E Ward, [but] could have asked Dr. if he was original prescriber	Always	None	Mostly	For one of the errors the pharmacist asked who the prescriber was (but more than one error was identified)	Always	Dr. said they had not seen patient before	Always	Asked doctor at start whether they were looking after the patient
Provides feedback on prescribing errprs in a professional manner	Mostly	Be more confident, direct with feedback, did do in a professional manner however	Always	None	Always	Confident and assertive	Always	none	Mostly	Seemed quite nervous
Informs doctor of available resources to aid prescribing	Mostly	Could have informed Dr about looking at dose timings in MCA (multi-compartmental compliance aid) for future ref.	Mostly	N/a for antibiotic as Dr. aware of policy. Could have informed Dr. about checking PODs & patient for DHx dose	Rarely	Inform where Dr. can find out prescribed drug medicine times (from MCA or previous EDC etc.)	Mostly	Pharmacist explained repeat list was out of date	Never	Could have referred to SPC

Appendix 2.11: FY1 and pharmacist questionnaire results

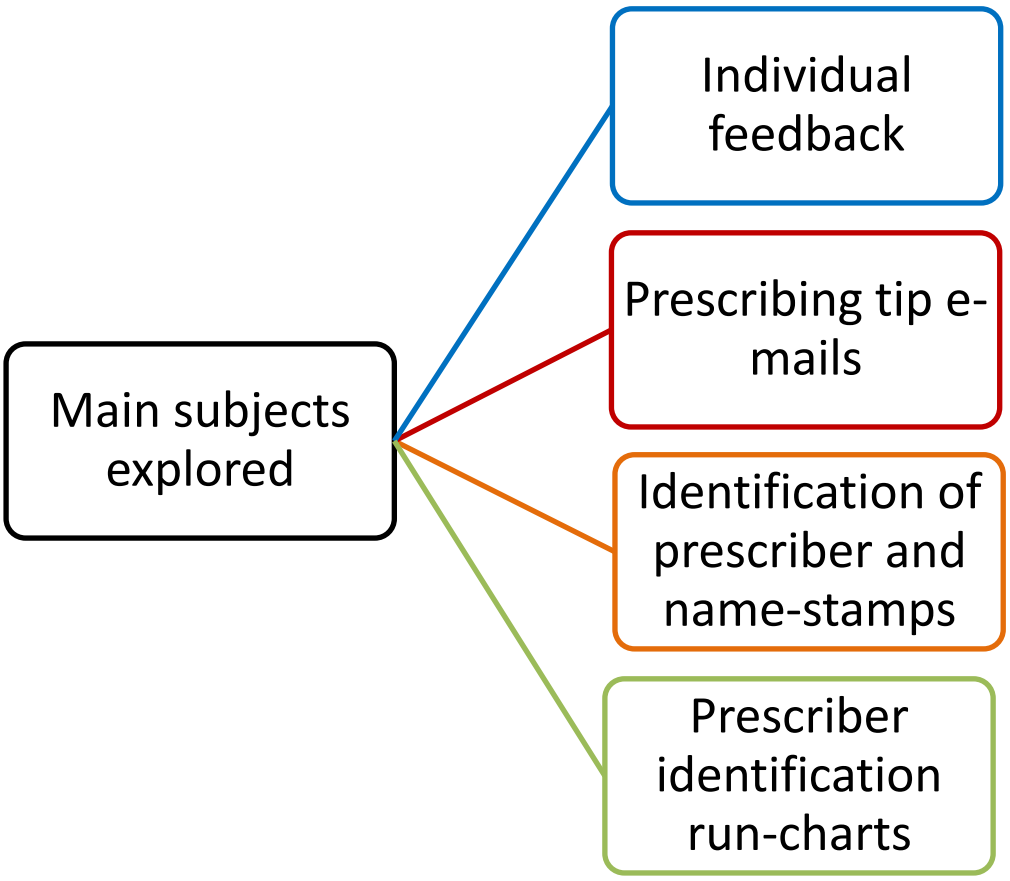
Question text	Median	Lower range	Upper range	Strongly disagree		Slightly disagree		Slightly agree		Strongly agree		Not answered	
				Count	% of responses	Count	% of responses	Count	% of responses	Count	% of responses	Count	% of responses
I feel there is an open culture in this organisation with respect to discussing prescribing errors.	6 (Slightly agree)	1	8	2	3%	13	20%	30	46%	20	31%	0	0%
I understand why doctors make prescribing errors	7 (Strongly agree)	1	8	0	0%	3	5%	26	40%	36	55%	0	0%
When I have made prescribing errors in the past, I understand why I made them	7 (Strongly agree)	1	8	0	0%	2	3%	24	37%	38	58%	1	2%
I am aware of the conditions under which I am likely to make a prescribing error	7 (Strongly agree)	1	8	0	0%	4	6%	17	26%	43	66%	1	2%
I believe I am aware of all major prescribing errors I make	6 (Slightly agree)	1	8	3	5%	12	18%	19	29%	31	48%	0	0%
I believe I am aware of all minor prescribing errors I make	5 (Slightly agree)	1	8	15	23%	15	23%	27	42%	8	12%	0	0%
I think knowing about the prescribing errors I make is important	8 (Strongly agree)	1	8	0	0%	0	0%	4	6%	61	94%	0	0%
I think knowing about the prescribing errors others make is important	7 (Strongly agree)	1	7	0	0%	0	0%	15	23%	50	77%	0	0%
The feedback I currently receive is useful in improving my prescribing	6 (Slightly agree)	1	8	1	2%	7	11%	31	48%	26	40%	0	0%
I feel I receive verbal feedback often enough for it to be useful	6 (Slightly agree)	1	8	3	5%	13	20%	28	43%	21	32%	0	0%
I feel I receive written feedback often enough for it to be useful	3 (Slightly disagree)	1	8	29	45%	22	34%	9	14%	4	6%	1	2%
I receive verbal feedback soon enough after the event to be useful	6 (Slightly agree)	1	8	3	5%	13	20%	24	37%	25	38%	0	0%
I receive written feedback soon enough after the event to be useful	3 (Slightly disagree)	1	8	24	37%	20	31%	13	20%	7	11%	1	2%
The feedback I receive on prescribing errors is highly relevant to my personal practice	7 (Strongly agree)	1	8	1	2%	2	3%	28	43%	33	51%	1	2%
I believe that the information I receive on prescribing errors from pharmacists is accurate	7 (Strongly agree)	1	8	0	0%	0	0%	15	23%	49	75%	1	2%
I believe that the information I receive on prescribing errors is from a trusted source	7 (Strongly agree)	1	8	0	0%	1	2%	24	37%	39	60%	1	2%
The feedback I receive from pharmacists on prescribing errors is provided in a constructive manner	7 (Strongly agree)	1	8	0	0%	4	6%	23	35%	36	55%	2	3%
Receiving feedback is a valuable use of my time	7 (Strongly agree)	1	8	0	0%	0	0%	19	29%	45	69%	1	2%
I am always receptive to feedback I receive from pharmacists on my prescribing errors	7 (Strongly agree)	1	8	0	0%	1	2%	15	23%	45	69%	4	6%
The feedback I receive from pharmacists on prescribing errors is non- threatening	7 (Strongly agree)	1	8	2	3%	2	3%	19	29%	38	58%	4	6%
Receiving feedback on prescribing errors has caused me to reflect on my prescribing practice	7 (Strongly agree)	1	8	1	2%	3	5%	25	38%	32	49%	4	6%
I have made changes to my prescribing practice in response to feedback received from pharmacists	7 (Strongly agree)	1	8	0	0%	2	3%	16	25%	42	65%	5	8%
I am happy to discuss prescribing errors with my peers	7 (Strongly agree)	1	8	0	0%	4	6%	16	25%	41	63%	4	6%
I think receiving formal feedback on prescribing errors means I would make fewer errors in the future	7 (Strongly agree)	1	8	0	0%	8	12%	15	23%	38	58%	4	6%
I want to be told of all major prescribing errors I make	8 (Strongly agree)	1	8	0	0%	1	2%	2	3%	58	89%	4	6%
I want to be told of all prescribing errors I make, however minor	7 (Strongly agree)	1	8	2	3%	1	2%	19	29%	39	60%	4	6%
I would like to have feedback by pharmacists which includes examples of specific errors I make	7 (Strongly agree)	2	8	0	0%	1	2%	15	23%	45	69%	4	6%
Feedback by pharmacists which includes generic guidance on prescribing practice would be useful	7 (Strongly agree)	2	8	0	0%	1	2%	17	26%	43	66%	4	6%
Feedback which includes statistical comparison with my peers would be useful	5 (Slightly agree)	1	8	10	15%	18	28%	11	17%	22	34%	4	6%
I prefer to receive feedback on prescribing errors from pharmacists rather than senior doctors	7 (Strongly agree)	2	8	1	2%	4	6%	23	35%	33	51%	4	6%

Question text	Median	Lower range	Upper range	Strongly disagree		Slightly disagree		Slightly agree		Strongly agree		Not answered	
				Count	% of responses	Count	% of responses	Count	% of responses	Count	% of responses	Count	% of responses
I feel there is an open culture in ICHT with respect to discussing prescribing errors	6 (Slightly agree)	1	8	2	4%	10	18%	28	49%	16	28%	1	2%
I understand why doctors make prescribing errors	7 (Strongly agree)	1	8	1	2%	5	9%	20	35%	31	54%	0	0%
I am aware of the conditions under which doctors are likely to make a prescribing error	6 (Slightly agree)	1	8	1	2%	4	7%	24	42%	28	49%	0	0%
I believe FY1s are aware of all major prescribing errors they make	3 (Slightly disagree)	1	8	22	39%	18	32%	12	21%	4	7%	1	2%
I believe FY1s are aware of all minor prescribing errors they make	2 (Strongly disagree)	1	8	34	60%	16	28%	4	7%	2	4%	1	2%
I think it is important that FY1s know about prescribing errors other FY1s make	7 (Strongly agree)	1	8	1	2%	1	2%	10	18%	45	79%	0	0%
In this trust pharmacy support FY1s in learning from their prescribing errors	5 (Slightly agree)	1	8	6	11%	16	28%	27	47%	8	14%	0	0%
Robust processes are in place in this trust for monitoring and feeding back information about prescribing errors	4 (Slightly disagree)	1	7	8	14%	26	46%	19	33%	4	7%	0	0%
When I identify a prescribing error I always make a doctor aware that an error has been made	6 (Slightly agree)	1	8	3	5%	11	19%	24	42%	19	33%	0	0%
The feedback I currently give is useful in improving FY1s' prescribing	6 (Slightly agree)	1	8	1	2%	10	18%	26	46%	19	33%	1	2%
I am able to give verbal feedback often enough for it to be useful to FY1s	6 (Slightly agree)	1	8	1	2%	18	32%	22	39%	16	28%	0	0%
I am able to give written feedback (e.g. in medical notes) often enough for it to be useful to FY1s	3 (Slightly disagree)	1	8	16	28%	24	42%	14	25%	3	5%	0	0%
I am able to give verbal feedback to FY1s soon enough after detecting an error for it to be useful	6 (Slightly agree)	1	8	3	5%	15	26%	18	32%	21	37%	0	0%
I am able to give written feedback (e.g. in medical notes) to FY1s soon enough after detecting an error for it to be useful	4 (Slightly disagree)	1	8	16	28%	17	30%	16	28%	8	14%	0	0%
I believe that the information FY1s receive on prescribing errors is accurate	6 (Slightly agree)	1	8	1	2%	13	23%	32	56%	10	18%	1	2%
I believe that FY1s find the feedback they receive on prescribing errors to be trustworthy	6 (Slightly agree)	1	8	4	7%	4	7%	31	54%	18	32%	0	0%
I believe that I provide feedback to FY1s on prescribing errors in a constructive manner	6 (Slightly agree)	1	8	1	2%	5	9%	30	53%	21	37%	0	0%
I always identify the specific prescriber who makes a prescribing error	5 (Slightly agree)	1	8	8	14%	17	30%	20	35%	12	21%	0	0%
Whenever I identify a prescribing error I give feedback to the specific prescriber who made the error	5 (Slightly agree)	1	8	8	14%	19	33%	15	26%	15	26%	0	0%
I feel comfortable talking to FY1s about prescribing errors	7 (Strongly agree)	1	8	1	2%	4	7%	18	32%	34	60%	0	0%
I feel comfortable informing FY1s they have made a prescribing error	7 (Strongly agree)	1	8	1	2%	3	5%	20	35%	33	58%	0	0%
Giving feedback is a valuable use of pharmacists' time	7 (Strongly agree)	1	8	1	2%	2	4%	13	23%	41	72%	0	0%
FY1s are always interested in and engaged with the feedback they receive on their prescribing errors	5 (Slightly agree)	1	8	9	16%	15	26%	27	47%	6	11%	0	0%
I believe that FY1s find the feedback they receive to be non-threatening	5 (Slightly agree)	1	8	4	7%	15	26%	27	47%	11	19%	0	0%
I feel supported by my organisation to give feedback to FY1s on their prescribing errors	6 (Slightly agree)	1	8	3	5%	12	21%	28	49%	13	23%	1	2%
I want to inform FY1s of all major prescribing errors they make	8 (Strongly agree)	1	8	1	2%	0	0%	2	4%	54	95%	0	0%
I want to inform FY1s of all prescribing errors they make, however minor	7 (Strongly agree)	2	8	2	4%	3	5%	19	33%	33	58%	0	0%
I would like to give feedback to individual FY1s which includes examples of specific errors they have personally made	7 (Strongly agree)	2	8	2	4%	1	2%	21	37%	33	58%	0	0%
Feedback to FY1s which includes generic guidance on prescribing practice would be useful	8 (Strongly agree)	1	8	1	2%	2	4%	14	25%	40	70%	0	0%
Feedback to FY1s which includes statistical comparison with their peers would be useful	7 (Strongly agree)	2	8	2	4%	8	14%	18	32%	29	51%	0	0%

Prescribing Improvement Model Project (PIM) Focus group analysis

Coding tree for FY1 focus group

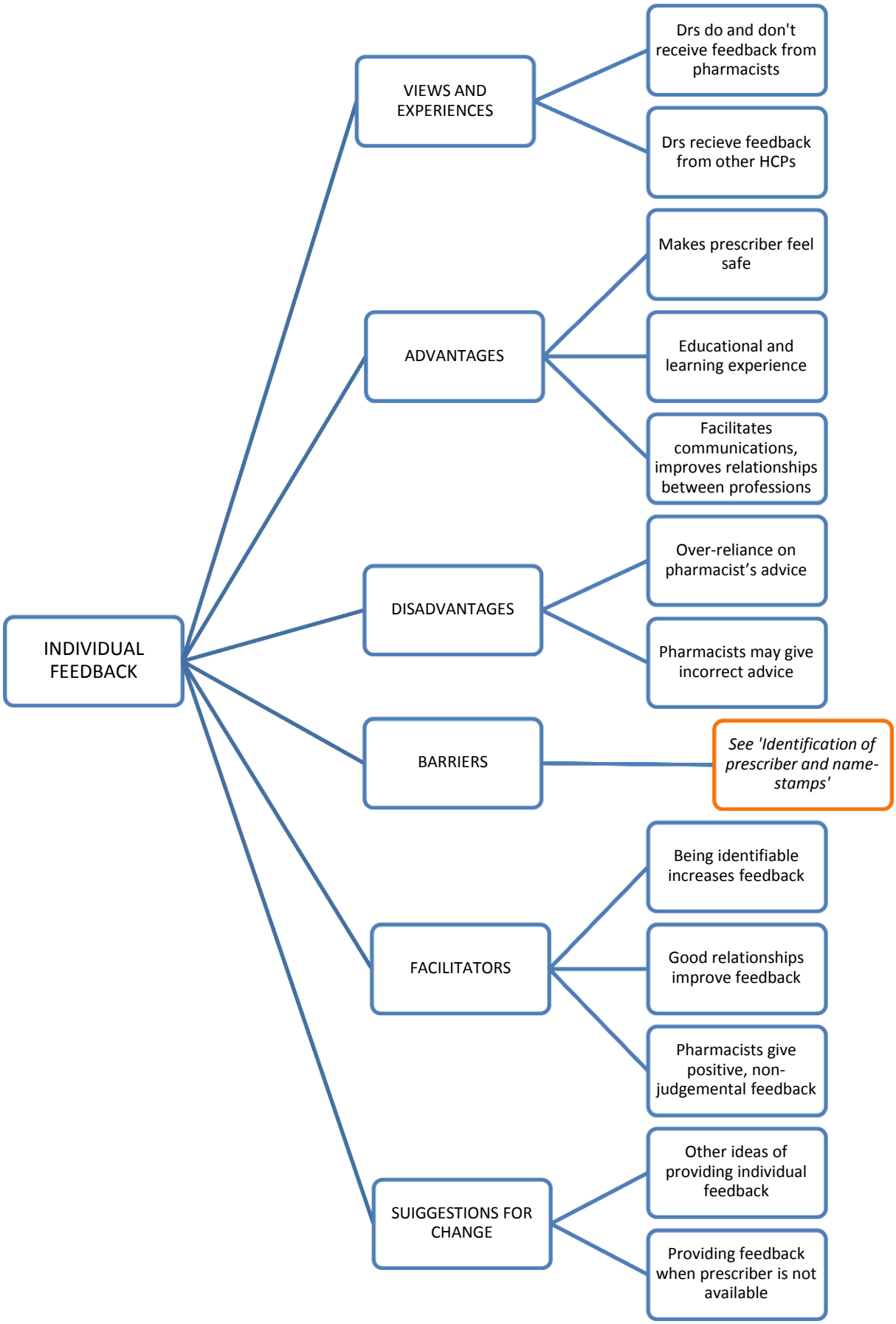
Overview of coding tree

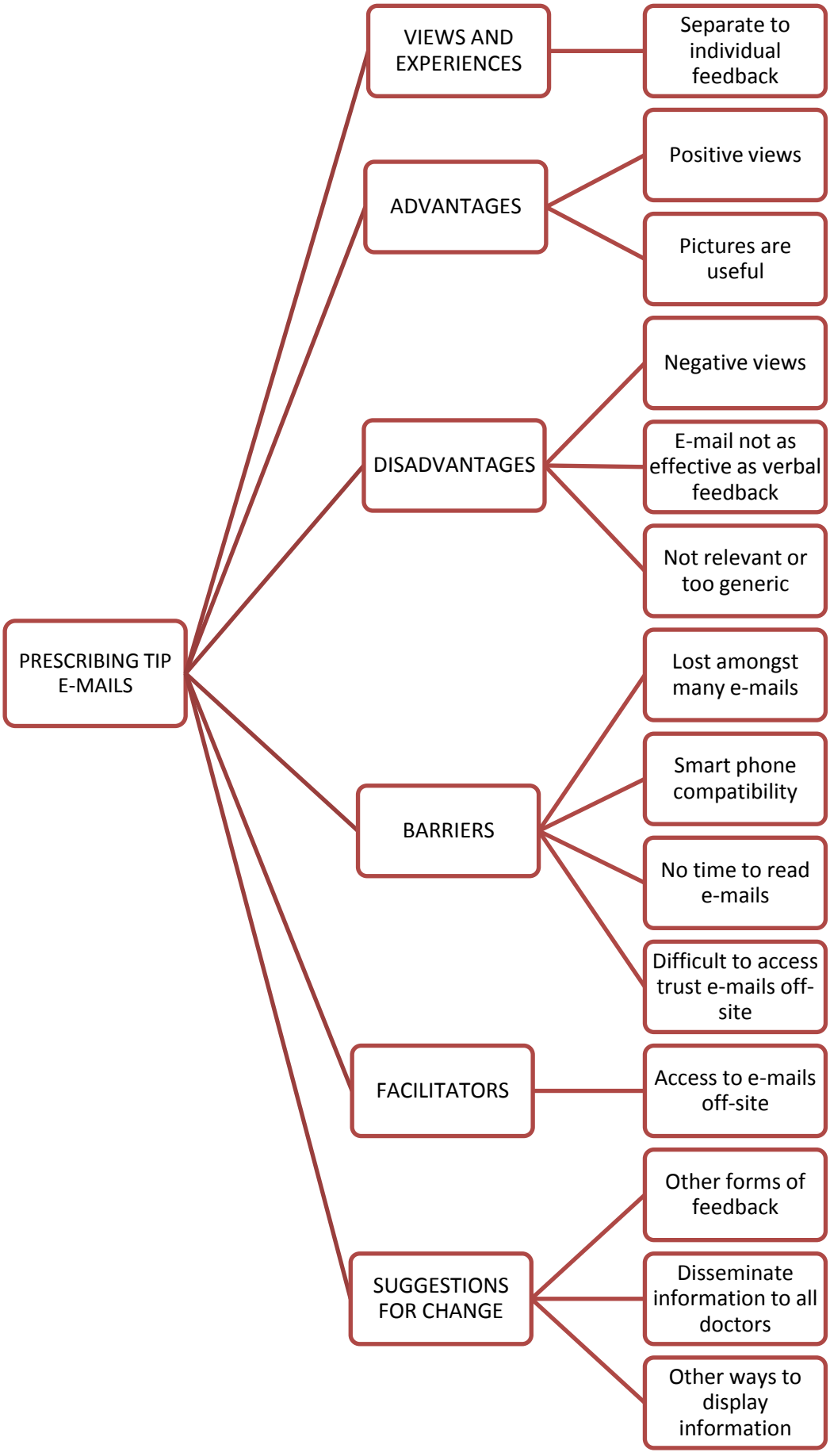


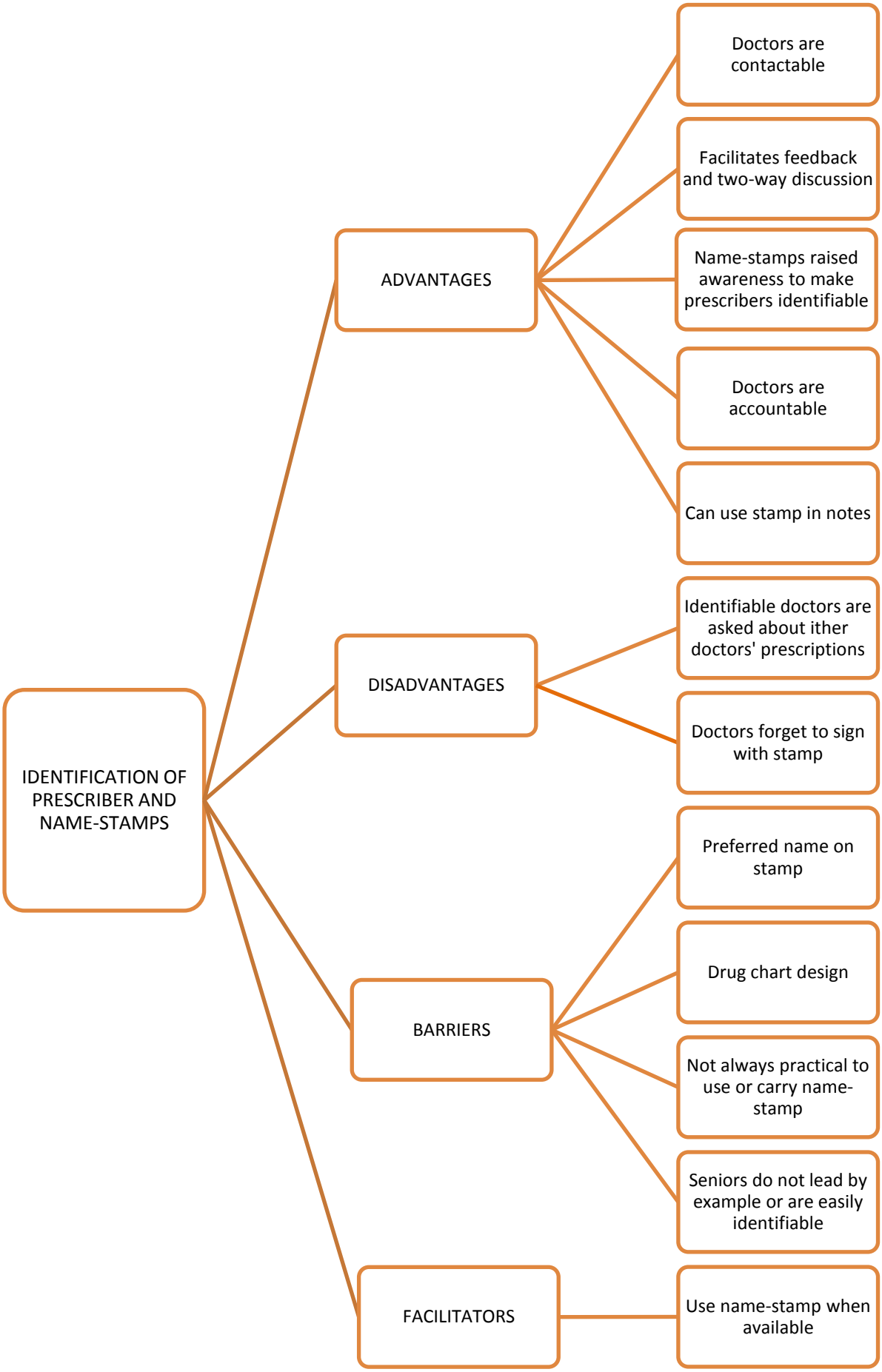
Key

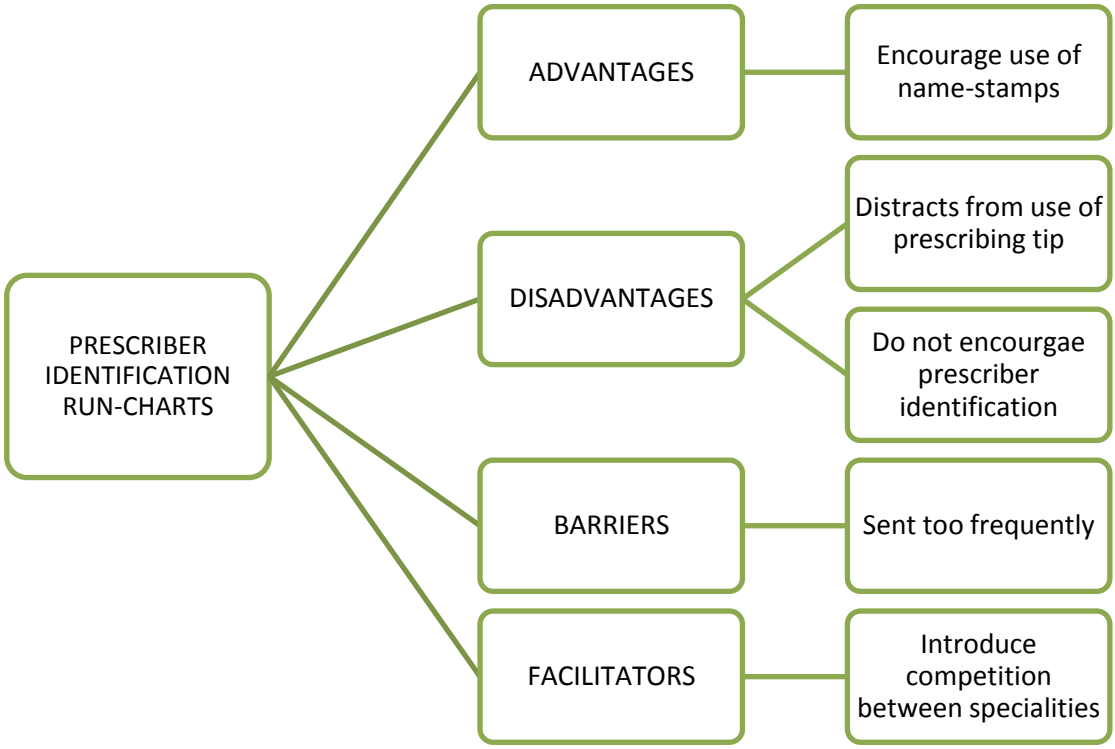
HCP = Healthcare professionals

Drs = Doctors


INDIVIDUAL FEEDBACK
VIEWS AND EXPERIENCES
Drs do and don't receive feedback from pharmacists
Drs recieve feedback from other HCPs
ADVANTAGES
Makes prescriber feel safe
Educational and learning experience
Facilitates communications, improves relationships between professions
DISADVANTAGES
Over-reliance on pharmacist's advice
Pharmacists may give incorrect advice
BARRIERS
See 'Identification of prescriber and name-stamps'
FACILITATORS
Being identifiable increases feedback
Good relationships improve feedback
Pharmacists give positive, non-judgemental feedback
SUIGGESTIONS FOR CHANGE
Other ideas of providing individual feedback
Providing feedback when prescriber is not available


PRESCRIBING TIP E-MAILS
VIEWS AND EXPERIENCES
Separate to individual feedback
ADVANTAGES
Positive views
Pictures are useful
DISADVANTAGES
Negative views
E-mail not as effective as verbal feedback
Not relevant or too generic
BARRIERS
Lost amongst many e-mails
Smart phone compatibility
No time to read e-mails
Difficult to access trust e-mails off-site
FACILITATORS
Access to e-mails off-site
SUGGESTIONS FOR CHANGE
Other forms of feedback
Disseminate information to all doctors
Other ways to display information

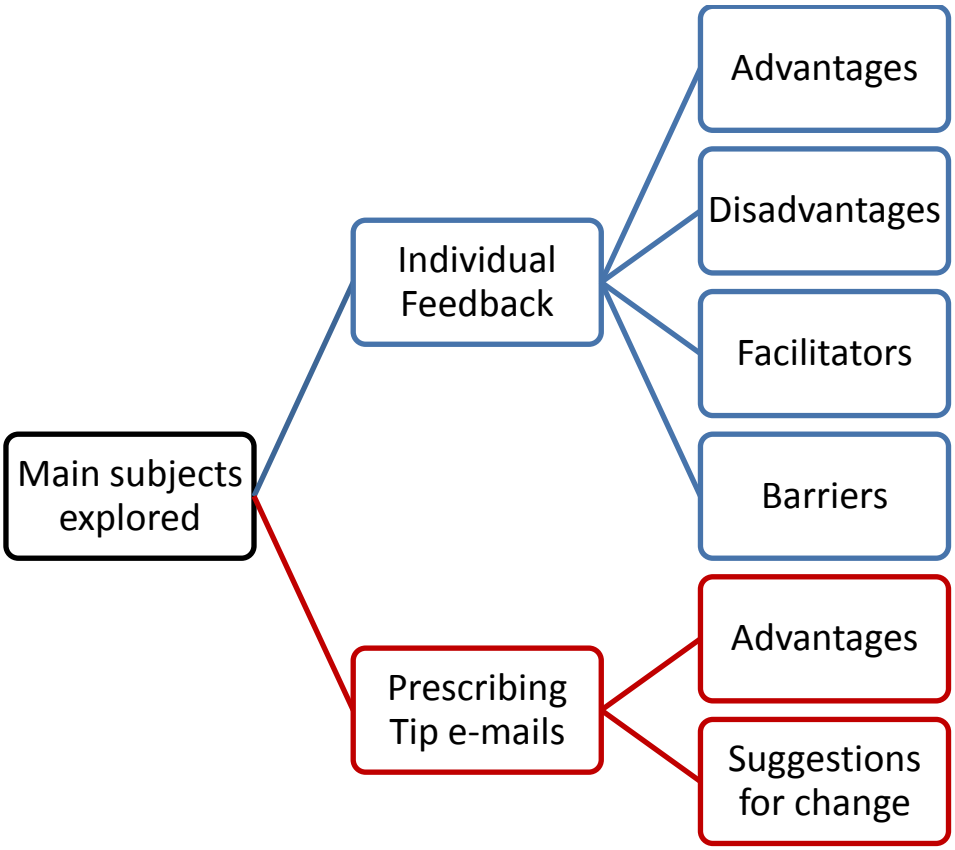

IDENTIFICATION OF PRESCRIBER AND NAME-STAMPS
ADVANTAGES
Doctors are contactable
Facilitates feedback and two-way discussion
Name-stamps raised awareness to make prescribers identifiable
Doctors are accountable
Can use stamp in notes
DISADVANTAGES
Identifiable doctors are asked about ither doctors' prescriptions
Doctors forget to sign with stamp
BARRIERS
Preferred name on stamp
Drug chart design
Not always practical to use or carry name-stamp
Seniors do not lead by example or are easily identifiable
FACILITATORS
Use name-stamp when available

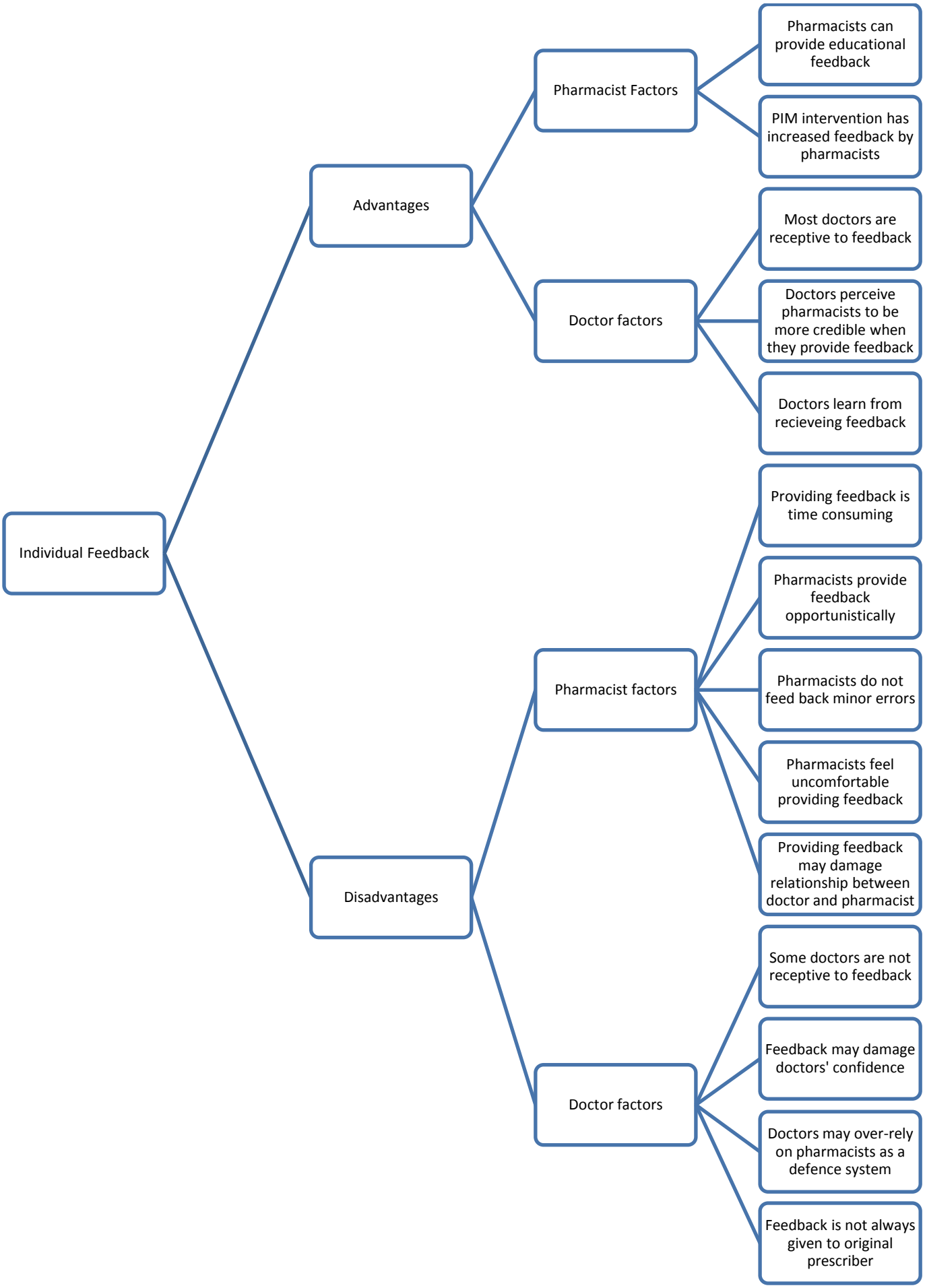

PRESCRIBER IDENTIFICATION RUN-CHARTS
ADVANTAGES
Encourage use of name-stamps
DISADVANTAGES
Distracts from use of prescribing tip
Do not encourgae prescriber identification
BARRIERS
Sent too frequently
FACILITATORS
Introduce competition between specialities

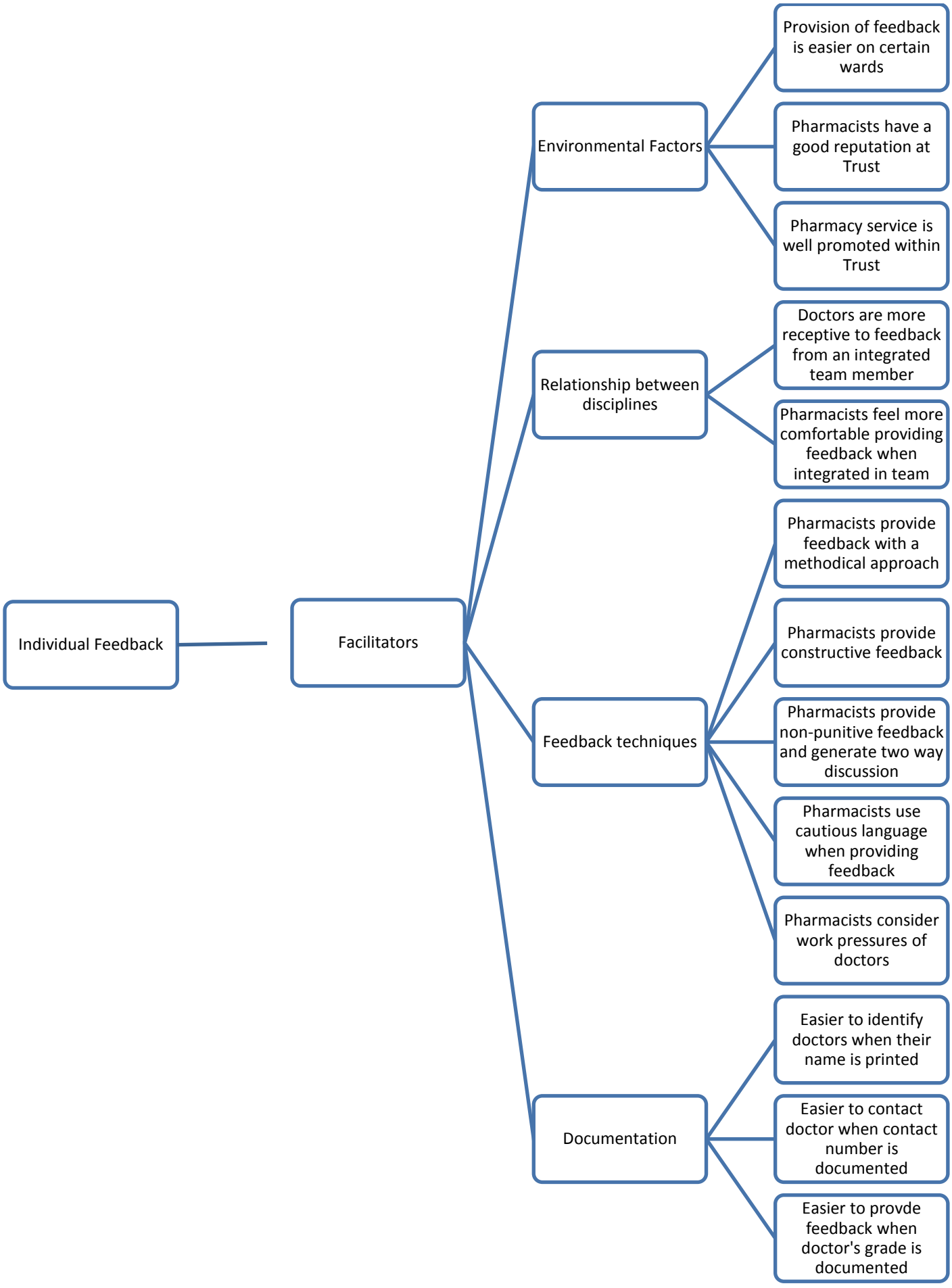
Prescribing Improvement Model Project (PIM) Focus group analysis

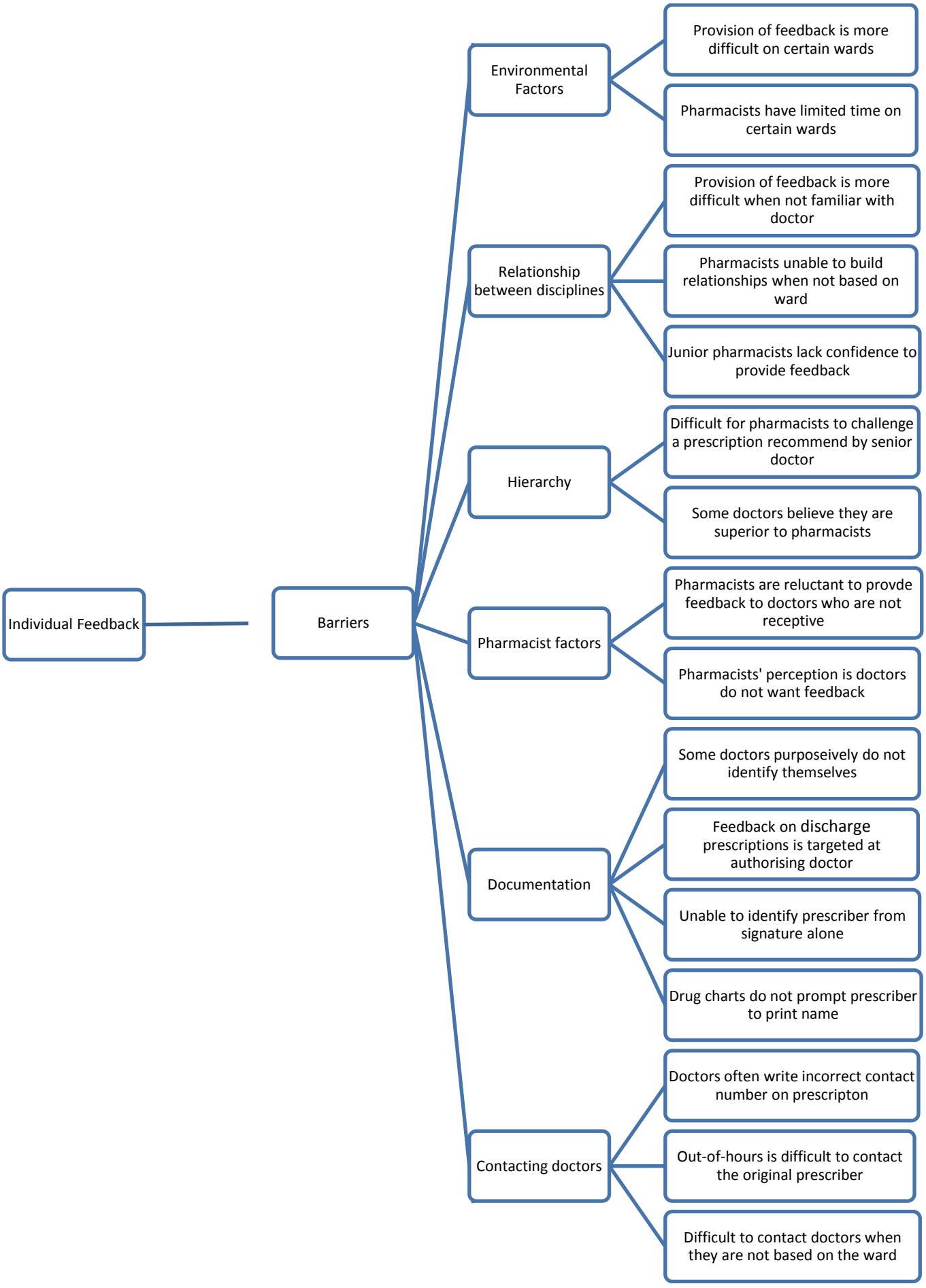
Coding tree for pharmacist focus group

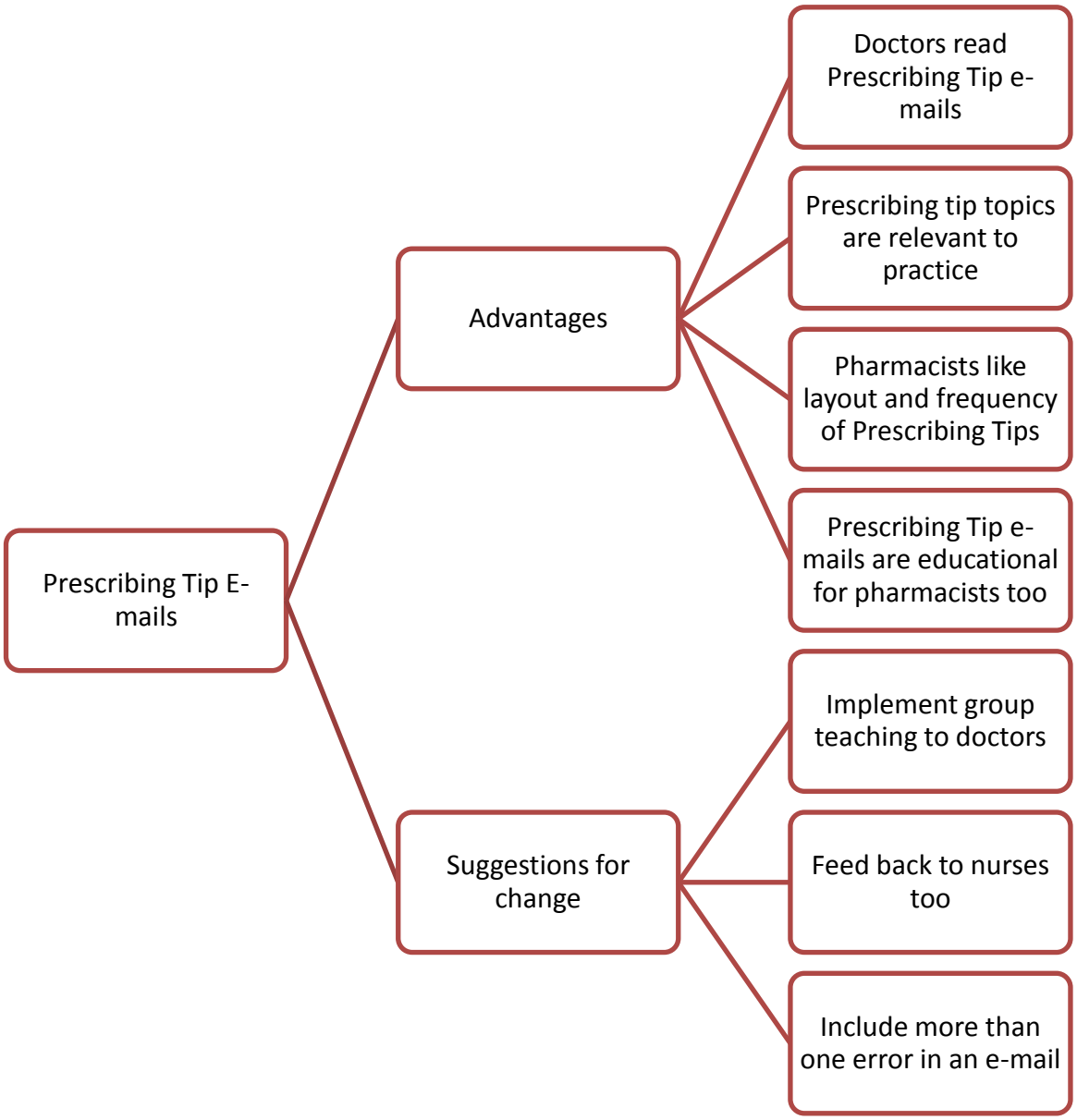
Overview of coding tree




Individual Feedback
Advantages
Pharmacist Factors
Pharmacists can provide educational feedback
PIM intervention has increased feedback by pharmacists
Doctor factors
Most doctors are receptive to feedback
Doctors perceive pharmacists to be more credible when they provide feedback
Doctors learn from recieveing feedback
Disadvantages
Pharmacist factors
Providing feedback is time consuming
Pharmacists provide feedback opportunistically
Pharmacists do not feed back minor errors
Pharmacists feel uncomfortable providing feedback
Providing feedback may damage relationship between doctor and pharmacist
Doctor factors
Some doctors are not receptive to feedback
Feedback may damage doctors' confidence
Doctors may over-rely on pharmacists as a defence system
Feedback is not always given to original prescriber


Individual Feedback
Facilitators
Environmental Factors
Provision of feedback is easier on certain wards
Pharmacists have a good reputation at Trust
Pharmacy service is well promoted within Trust
Relationship between disciplines
Doctors are more receptive to feedback from an integrated team member
Pharmacists feel more comfortable providing feedback when integrated in team
Feedback techniques
Pharmacists provide feedback with a methodical approach
Pharmacists provide constructive feedback
Pharmacists provide non-punitive feedback and generate two way discussion
Pharmacists use cautious language when providing feedback
Pharmacists consider work pressures of doctors
Documentation
Easier to identify doctors when their name is printed
Easier to contact doctor when contact number is documented
Easier to provde feedback when doctor's grade is documented


Individual Feedback
Barriers
Environmental Factors
Provision of feedback is more difficult on certain wards
Pharmacists have limited time on certain wards
Relationship between disciplines
Provision of feedback is more difficult when not familiar with doctor
Pharmacists unable to build relationships when not based on ward
Junior pharmacists lack confidence to provide feedback
Hierarchy
Difficult for pharmacists to challenge a prescription recommend by senior doctor
Some doctors believe they are superior to pharmacists
Pharmacist factors
Pharmacists are reluctant to provde feedback to doctors who are not receptive
Pharmacists' perception is doctors do not want feedback
Documentation
Some doctors purposeively do not identify themselves
Feedback on discharge prescriptions is targeted at authorising doctor
Unable to identify prescriber from signature alone
Drug charts do not prompt prescriber to print name
Contacting doctors
Doctors often write incorrect contact number on prescripton
Out-of-hours is difficult to contact the original prescriber
Difficult to contact doctors when they are not based on the ward


Prescribing Tip E-mails
Advantages
Doctors read Prescribing Tip e-mails
Prescribing tip topics are relevant to practice
Pharmacists like layout and frequency of Prescribing Tips
Prescribing Tip e-mails are educational for pharmacists too
Suggestions for change
Implement group teaching to doctors
Feed back to nurses too
Include more than one error in an e-mail

Appendix 2.14: Prescribing error prevalence data collection form

The Health Foundation inspiring improvement | Shine

The Prescribing Improvement Model: Data Collection Form

Imperial College Healthcare NHS

Recording Pharmacist:_____ Date:_____ Ward:_____

FY1 Medication Order	A: Details of medication order						B: **Name stamp** used? Please specify (n/a for discharge prescription)	C: **Bleep number** present Please specify	D: **Signature** present? Please specify	E: **Error(s) detected?** Please specify	F: Details of error(s) if applicable (one line per medication order)		
	Tick ONE box				Tick ONE box						Prescribed / omitted drug name, dose and frequency	Route	Details of prescribing error(s)
	Discharge	Stat	Regular / Variable	PRN	Previously screened	Unscreened / Omissions							
E.g. 1		✓			✓		(Y) / N n/a	Y / (N)	(Y) / N	(Y) / N	*Vancomycin 500mg BD*	*IV*	*Dose should be 500mg OD due to poor renal function & date is missing*
1							Y / N n/a	Y / N	Y / N	Y / N			
2							Y / N n/a	Y / N	Y / N	Y / N			
3							Y / N n/a	Y / N	Y / N	Y / N			
4							Y / N n/a	Y / N	Y / N	Y / N			
5							Y / N n/a	Y / N	Y / N	Y / N			
6							Y / N n/a	Y / N	Y / N	Y / N			

Please continue overleaf

FY1 Medication Order	A: Details of medication order						B: **Name stamp** used? Please specify (n/a for discharge prescription)	C: **Bleep number** present Please specify	D: **Signature** present? Please specify	E: **Error(s) detected?** Please specify	F: Details of error(s) if applicable (one line per medication order)		
	Tick ONE box				Tick ONE box						Prescribed / omitted drug name, dose and frequency	Route	Details of prescribing error(s)
	Discharge	Stat	Regular / Variable	PRN	Previously screened	Unscreened / Omissions							
7							Y / N n/a	Y / N	Y / N	Y / N			
8							Y / N n/a	Y / N	Y / N	Y / N			

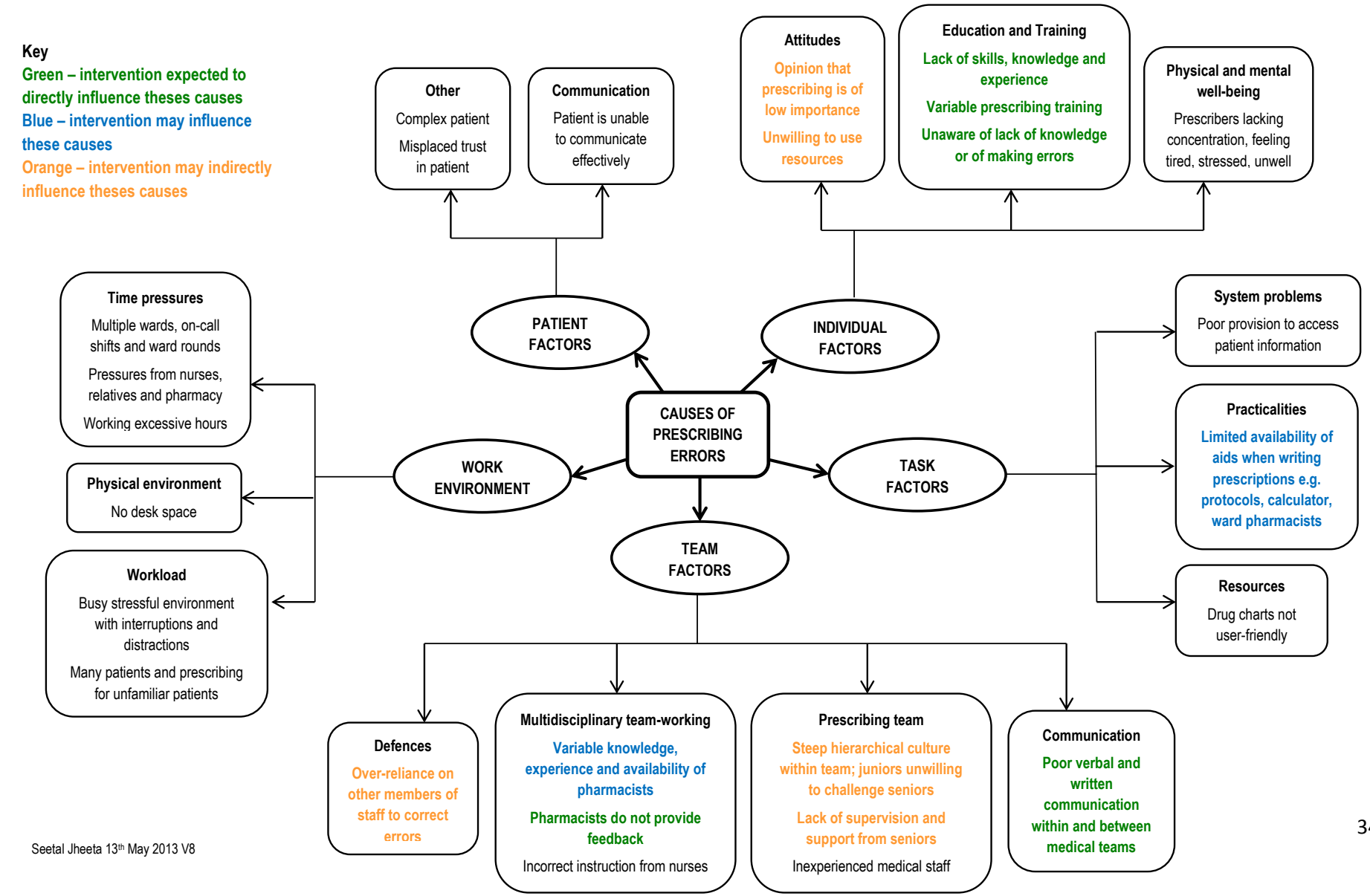
Please return completed forms to Matt Reynolds or Seetal Jheeta in the pharmacy department at CXH (in the pharmacy office on 4 West or in the pigeon hole on the ground floor).

Appendix 2.15: Classification of errors

Error description	Technical Errors (% error rate)		Error description	Clinical Errors (% error rate)	
	CXH	SMH		CXH	SMH
Missing drug name	0 (0.0%)	0 (0.0%)	Incorrect drug	15 (0.6%)	15 (0.6%)
Missing dose	5 (0.2%)	14 (0.6%)	Incorrect dose	96 (4.0%)	79 (3.2%)
Missing duration of treatment	2 (0.1%)	1 (0.0%)	Incorrect duration of therapy	5 (0.2%)	11 (0.5%)
Missing frequency or dosing schedule	10 (0.4%)	7 (0.3%)	Incorrect frequency or dosing schedule (but correct daily dose)	22 (0.9%)	15 (0.6%)
Missing route	7 (0.3%)	0 (0.0%)	Incorrect route	9 (0.4%)	3 (0.1%)
Missing formulation or brand name where relevant or required	6 (0.2%)	4 (0.2%)	Incorrect formulation	20 (0.8%)	27 (1.1%)
Missing signature	15 (0.6%)	31(1.3%)	Medication omitted when clinically indicated	67 (2.8%)	105 (4.3%)
Missing date	22 (0.9%)	9 (0.4%)	Drug prescribed is not indicated for patient	26 (1.1%)	8 (0.3%)
Missing patient information	0 (0.0%)	1 (0.0%)	Failure to take into account a drug interaction	2 (0.1%)	4 (0.2%)
Incorrect patient information	0 (0.0%)	0 (0.0%)	Drug prescribed is contra-indicated	6 (0.2%)	0 (0.0%)
Inappropriate abbreviation	3 (0.1%)	8 (0.3%)	Duplicated therapy	20 (0.8%)	21 (0.9%)
Illegible or unclear prescription	1 (0.0%)	2 (0.1%)	Prescribing a drug to which the patient is allergic	1 (0.0%)	1 (0.0%)
Missing instructions for use or administration	0 (0.0%)	4 (0.2%)	Incorrect instructions for use or administration	5 (0.2%)	7 (0.3%)
Missing stop or review date for antibiotic therapy	13 (0.5%)	7 (0.3%)	Clinical total	294 (12.2%)	296 (12.2%)
Missing indication stated for antibiotic therapy	11 (0.5%)	6 (0.2%)			
Incorrect spelling of drug name (excludes minor misspelling of a drug name)	1 (0.0%)	1 (0.0%)			
Technical total	96 (4.0%)	95 (3.9%)	Overall total (errors / medication orders checked. includes omitted prescriptions in the denominator)	390 (16.2%)	391 (16.1%)

Appendix 2.16: Causes of prescribing errors

The Causes of Prescribing Errors



Seetal Jheeta 13th May 2013 V8

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1. Dean B, Schachter M, Vincent C, *et al*. Causes of prescribing errors in hospital patients: a prospective study. Lancet 2002;359:1373-8

2. Dornan T, Ashcroft D, Heathfield H, *et al*. *An in-depth investigation into causes of prescribing errors by foundation trainees in relation to their medical education: EQUIP study.* Final report to the General Medical Council. University of Manchester: School of Pharmacy and Pharmaceutical Sciences and School of Medicine, 2009

3. Franklin BD, Reynolds M, Shebl NA, *et al*. Prescribing errors in hospital inpatients: a three-centre study of their prevalence, types and causes. *Postgrad Med J* 2011;87:739-45

4. Ross S, Ryan C, Duncan EM, *et al*. Perceived causes of prescribing errors by junior doctors in hospital inpatients: a study from the PROTECT programme. Quality and Safety in Health Care 2013;22:97-102

5. Tully M, Ashcroft D, Dornan T, *et al*. The causes of and factors associated with prescribing errors in hospital inpatients. A systematic review. Drug Safety 2009;32:819-36

Themes and categories based on those identified by Ross et al and Tully et al (see above)