Supplementary Figure S1: Example Campaign to reduce opioid prescribing feedback report

NHS Leeds North Clinical Commissioning Group
NHS Leeds West Clinical Commissioning Group
NHS Leeds South and East Clinical Commissioning Group
UNIVERSITY OF LEEDS
NHS Bradford Districts Clinical Commissioning Group
NHS Bradford City Clinical Commissioning Group
NHS Airedale Wharfedale and Craven Clinical Commissioning Group
NHS Calderdale Clinical Commissioning Group
NHS Greater Huddersfield Clinical Commissioning Group
NHS North Kirklees Clinical Commissioning Group
NHS Wakefield Clinical Commissioning Group

CROP Campaign to Reduce Opioid Prescribing

Can your practice review and reduce opioid prescribing?

Dear Practice Manager and colleagues,

Many doctors and professional bodies are concerned about rising opioid prescribing in general practice. Much of this prescribing is for chronic non-cancer pain, which is often difficult to treat. However, there is little evidence for the effectiveness of opioids in chronic pain but accumulating research indicating that the harms of opioids to patients can outweigh benefits As well as addiction, prescribed opioids are associated with higher risks of hospitalisation and premature death.

Therefore, we are undertaking a major Campaign for the Reduction of Opioid Prescribing (CROP) across West Yorkshire to reduce opioid prescribing for chronic pain. We recommend that all general practices review and, where clinically appropriate, reduce opioid prescribing. You will receive regular feedback to your practice on your current levels of opioid prescribing. This is the first report for your practice.

We invite you to review your practice's prescribing of opioids and ways of avoiding initiation of long term opioid prescribing.

Please distribute this report to all prescribers within your practice team and identify a time to discuss it at a practice meeting.

> Doctors' prescriptions are killing people, and this is an international problem, with rapid increases in opioid prescriptions in Canada, Australia, Germany, and the UK.
>
> We could blame the marketing of big pharma, but the truth is that these deaths are the responsibility of doctors. We must put it right.
>
> Des Spence, GP. The painful truth: deaths and misuse of prescribed drugs BMJ 2011; 343 :d7403

The CCG will provide ten copies of this report for your team, if you require more please contact [Name CCG contact email and telephone number]

Yours sincerely,

[Insert names and signatures of leaders of all partner organisations supporting the campaign]

What are the troubling trends in opioid prescribing?

- 110 general practices from Bradford and Leeds took part in a recent study.(1) This showed a marked increase in all opioid prescribing – even after excluding patients with known cancer or drug dependence.
- The proportion of all adult patients prescribed a weaker opioid at least once almost **doubled** over seven years whilst the proportion prescribed a stronger opioid has increased over **six-fold**. (1)
- There was a **10-fold variation** in opioid prescribing between practices which could not be explained away by many patient or practice factors (e.g. deprivation).(1)
- Long-term prescribing may follow hospitalisation or a secondary care consultation but usually starts in primary care.(2)

Why review opioid prescribing?

Whilst opioids provide useful and effective analgesia in the short term for acute pain following trauma (including surgery) and cancer pain, the safety and efficacy of opioids for chronic non-cancer pain is uncertain. They can cause problems of tolerance, dependence and addiction.(3)

There is concern that patients with chronic pain are being moved up the World Health Organisation 'analgesic ladder,' originally developed for cancer pain, towards potent opioids inappropriately and without considering alternatives to medication.(4) The benefits of opioid treatment for your patients must be balanced against burdens of long term use as prescribing for chronic pain often continues for months or years.(5)

Prescribing

Comprehensive assessment is important; patients with depression, anxiety, or other psychiatric or psychological co-morbidity will need additional support and monitoring to avoid problem drug use.

There is considerable scope to reduce new prescribing, and prescribing in selected patients. **Think twice** before prescribing an opioid.

Goals of therapy should be agreed before a trial of opioids; complete pain relief is unlikely, and treatment success is demonstrated by the patient becoming able to do things that the pain currently prevents. Agree a **trial period** with the patient and **review treatment regularly**, especially if there are any concerns.

Efficacy and **adverse effects are similar** for all opioids, though patients may tolerate one drug better than another.

Requests for **dose increase** need careful evaluation. For the problem of chronic pain; more difficult and complex patients still require more time intensive or **specialist input**.

Potential harms

80% of patients taking opioids will experience at least one **adverse effect** e.g. constipation, nausea, itching, dizziness, hospitalisation and death.

Prescribed opioids are associated with increased **psychosocial problems, hospitalisation and mortality.**

Opioid toxicity (sedation, slow respiration) is more likely with increasing age, co-morbidity, co-prescribing, and if taken with alcohol or illicit drugs.

Opioids have **long term** endocrine and immunological effects e.g. reduced libido, depression, susceptibility to infections.

Withdrawal symptoms occur if opioid is stopped/ dose reduced abruptly e.g. sweating, yawning, abdominal cramps. This is common with Tramadol even after a short course.

Addiction is characterised by impaired control and over use, craving and continued use despite harm.

Opioid induced hyperalgesia may occur: pain becomes more diffuse and qualitatively different from pre-existing pain.

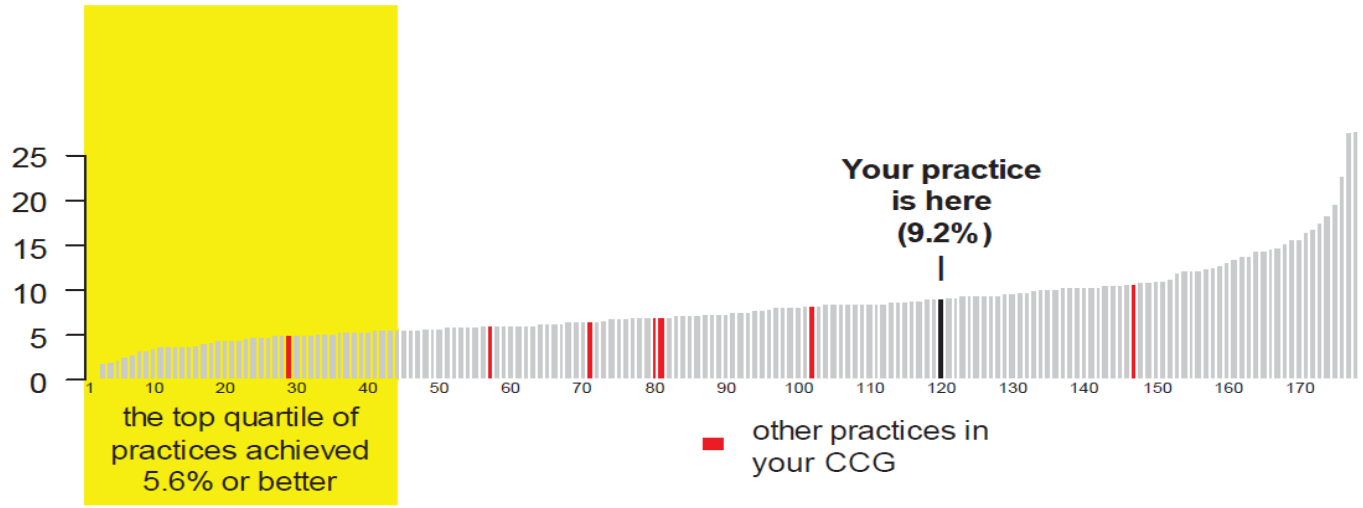
How is your practice doing?

#PracticeName

Achievement in participating practices across West Yorkshire

The graph below demonstrates:

Your practice (black bar) and percentage of the practice population prescribed opioids (XX%) in the last 8 weeks; a lower value indicates better clinical practice. The audit data exclude patients with a cancer diagnosis, on the palliative care register or drug addiction diagnosis.



- Achievement throughout West Yorkshire overall (range X to XX%)
- The best achieving practices within West Yorkshire (yellow box – achieving XX% or below)
- Other practices within your CCG (red bars, n=XX)

Your practice achievement on individual indicators:

Risk Factor	Proportion of patients (%)	Number of patients
Prescribed strong opioids		
Men aged under 50 years and prescribed strong opioids		
Patients aged over 75 years and prescribed strong or weak opioid		
Women aged over 65 years and prescribed strong or weak opioid		
Polypharmacy (on 10 or more repeat prescriptions) and prescribed strong or weak opioid		
All mental health diagnoses and prescribed strong or weak opioid		
Taking antidepressant and a strong or weak opioid		
Taking benzodiazepines and a strong or weak opioid		

What next?

Can you halt the increase in opioid prescribing at your practice?

Make a plan about what your individual practice team members want to do, when and with whom. It may involve one or more of the following:

Think twice about prescribing opioids for the first time. Consider alternative forms of analgesia and patient support if the condition being prescribed for is likely to be long term or in a high risk patient.

At **medication reviews** check over-adherence, indication and assess for behaviours that may indicate problem usage.

Identify a practice **opioid champion** who will lead on this work and look at relevant prescribing guidelines.

Consider **allocating records** for review within the team to the patient's usual GP or to a pharmacist for review and follow-up (if necessary) by usual GP. Could administrative staff identify and code patients?

Review your **progress** in light of further feedback we will send you later.

#PracticeName team plan of action is to :

- What are we going to do (e.g. which risk factors would you like to review if any)?

- When are we going to do it (opportunistic, systematic, a combination or another time)?

- Who will be involved (GPs, pharmacist, administrative staff)?

Frequently Asked Questions

What is the Campaign for Reduction in Opioid Prescribing (CROP)?

CROP
Campaign to Reduce Opioid Prescribing

CROP is a collaboration between all medicines management leads of the 10 CCGs of West Yorkshire and a multidisciplinary group at the University of Leeds led by Dr Sarah Alderson, Clinical lecturer in Primary Care and sessional GP in Halifax. We aim to halt the increase in opioid prescribing in primary care through performance feedback.

We are very busy. Why should we prioritise opioid prescribing?

We know that practices are currently under a great deal of pressure and there are increasing demands within consultations. However, reducing opioid prescribing can prevent adverse events (e.g. constipation, sedation, overdose and addiction) all of which increase demands on your practice. Furthermore, learning new consultation 'scripts' (example phrases to help discuss difficult issues) to manage patient's expectations for a medicine as a "cure" for pain could reduce unnecessary consultations.

Our practice population is different and our prescribing reflects this.

Studies have shown that patient and practice factors such as deprivation, patient demographics, number and experience of GPs and QOF attainment only partially explain the 10-fold difference in prescribing between practices. Practice team and individual clinician prescribing behaviours account for the variation in levels of opioid prescribing.

What is a weak or strong opioid?

Weaker opioids include codeine (with or without paracetamol or ibuprofen), dihydrocodeine (with or without paracetamol), tramadol, pethidine, meptazinol and tapentadol. Stronger opioids comprise of diamorphine, morphine, oxycodone, fentanyl, hydromorphone, buprenorphine, pentazocine, dipipanone and papaveretum.

How can I influence the trend for increasing opioid prescribing?

The rate of increase in the number of patients prescribed opioids could be stopped if just **1 in 20** new opioid prescriptions were not prescribed. This would potentially save the prescribing budget approximately £500,000 across West Yorkshire in the next year.

How often will I receive this feedback?

Practices will be re-audited every two months and an updated version of the feedback will be sent so you can see your practices progress in reducing opioid prescribing.

Report 1	Report 2	Report 3	Report 4	Report 5	Report 6	Report 7
April 2016	June 2016	August 2016	October 2016	December 2016	February 2017	April 2017

Where do these data come from?

These West Yorkshire data were extracted from SystmOne by the CCGs in April 2016.

Why can't I produce the same numbers as the report?

It is important to remember that you may have changed patient care since we collected these data. SystmOne updates on a daily basis so it will not be possible to replicate the figures in your practice feedback reports.

References:

1. Foy, R., Leaman, B., McCrorie, C., Petty, D., House, A., Bennett, M.I., Carder, P., Faulkner, S., Glidewell, L. and West, R. 2016. Prescribed opioids in primary care: cross sectional and longitudinal analyses of influence of patient and practice characteristics. *BMJ Open.* Accepted March 2016.
2. Clarke, H., Soneji, N., Ko, D.T., Yun, L. and Wijeysundera, D.N. 2014. Rates and risk factors for prolonged opioid use after major surgery: population based cohort study.
3. Noble, M., Treadwell, J.R., Tregear, S.J., Coates, V.H., Wiffen, P.J., Akafomo, C. and Schoelles, K.M. 2010. Long-term opioid management for chronic noncancer pain. *Cochrane Database Syst Rev.* **1**(1).
4. Heit, H.A. and Gourlay, D.L. 2010. Tackling the difficult problem of prescription opioid misuse. *Annals of internal medicine.* **152**(11), pp.747-748.
5. Opioids for persistent pain: summary of guidance on good practice from the British Pain Society. 2012. *British Journal of Pain.* **6**(1), pp.9-10.

Supplementary Figure S2: Campaign to reduce opioid prescribing interview topic guide

Interview topic guide

The debriefing interview will start with a brief introduction to the project and the aims. The participants will be again reminded that they are not obliged to participate at all. They will be told that there are no right and wrong answers to the questions. If they do not hear a particular question, or if they do not understand a particular question, they are invited to ask for clarification. They will also be informed that they can choose not to answer a particular question, without needing to give a reason.

- Do they remember receiving the CROP reports?

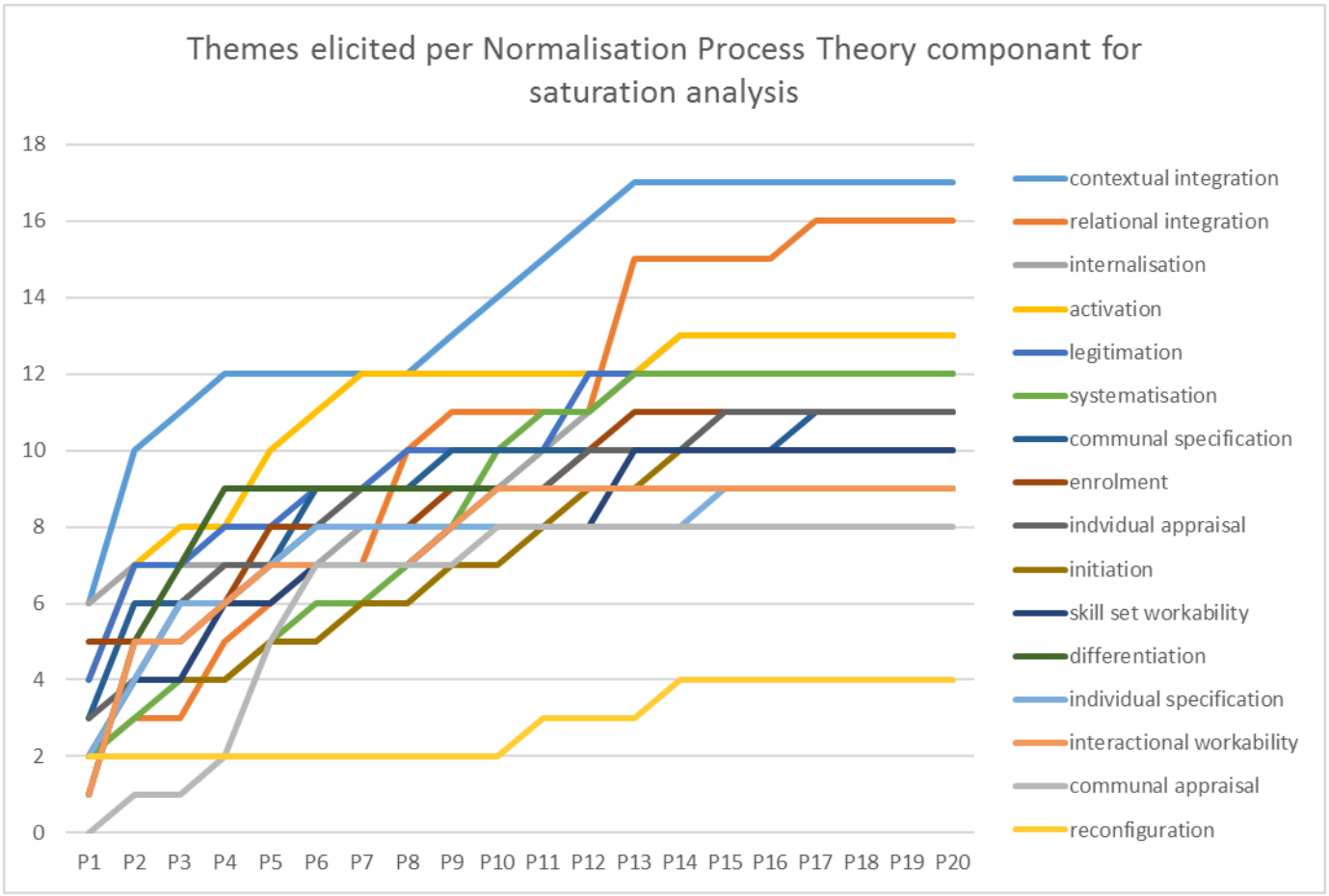
- Did the practice use the CROP reports to look at opioid prescribing? If not, why not?

- How do practice staff use the reports?
    - Who buys into the reports and/or drives it forward?
    - Do staff discuss the reports? What actions were agreed? E.g practice meetings/minutes
    - Did the practice discuss the impact of rising opioid prescribing on patient care?
    - Does the practice share the reports with their patient participation group?

- How do they feel about their performance in CROP over the year?
    - What changes did they make as a practice? (drug dependency codes, reviewing patients, identifying high risk prescribing) Are these sustainable?
    - What were the barriers to change?
    - Did the reports have any impact upon patient interactions?

- Were the CROP reports clear and easy to understand? How could the feedback process and reports be improved?

Supplementary Figure S3: Data saturation plot: cumulative themes per Normalisation Process Theory component. No new themes were elicited after interview P17



Supplementary Table S1: Practice characteristics and process reported at interview, ordered by initial rate of prescribing of opioids at the start of the Campaign to reduce opioid prescribing intervention year

Practice	Approximate list size	Opioid prescribing at the start of CROP	Opioid prescribing at the start of CROP compared to average (6.9%)	Reduced opioid prescribing over the CROP year more than average (-4.7%)	Summary of practice process reported at interview
P1	11,000	5.8%	lower	Yes	One GP took the lead - ran a team meeting for education, discussion and agreed plan of action. Put reminders on patient notes. Used Royal College of Anaesthetists their patient information. GP 'accidentally' found the reports that had been left on a coffee table; only after 2nd or third, and a difficult patient, was work started. Only really got going on it after the end of the CROP year.
P2	11,000	3.6%	lower	No	Lowest initial prescriber of the 20 participants. Some prescribers happy with that, but others wanted to reduce further. Came to a consensus agreed practice policy after many team meetings - produced a protocol that everyone was happy with: any new Rx needs a care plan, prescriber takes responsibility, and there is a plan for ending. Even though already low prescribers, reported that CROP has had an impact on prescribers and patients.
P3	8,500	7.9%	higher	No	No obvious cognitive participation or collective action. Had not engaged with the reports. Individual only, had not taken to practice meetings. All opioids went up, but found strong opioid reduced by half at the interview; said likely to have been changed to buprenorphine patch as the preferred option.
P4	5,500	5.2%	lower	No	Practice manager took to regular multidisciplinary team meetings, and worked with the lead General Practitioner. Not interested how they compare with others, just want to reduce their own prescribing. Systems in place for meetings, identification of patients for review, staff roles, link with Clinical Commissioning Group medicines management, non-attending pts, medicines

					supply. Worked on strong opioids: opioids not prescribed on repeat, and messages on patient front screen for review.
P5	7,500	10.1%	higher	Yes	Highly organised practice manager led the process - made sure gets to who needs to know. Takes to practice meetings, gets agreement, has an action plan from every meeting and sends out with minutes. A policy was agreed, opioids were taken off repeat, and a patient leaflet was designed and colour printed in different languages.
P6	14,000	4.9%	lower	Yes	All General Practitioners involved - discussed regularly at team meetings and used the CROP report action plan. Used the reports/ evidence with patients, and used the suggestions and tips - e.g. took opioids off repeat. Already low prescribers so hadn't been sure if they could make changes, but said became more aware and reported patient examples of success in reducing down opioids.
P7	13,500	10.0%	higher	No	No evidence of collective action or specification and no action in the CROP year. However, a practice pharmacist was taken on after the CROP year to do a pain clinic as one of their roles. They reported seeing the reports in an envelope. Do have team meeting structure and the pharmacist now plans to use the reports and searches, and engage the practice.
P8	4,000	7.2%	higher	Yes	Regular clinical meetings with three practices working together: doctors, nursing team, pharmacists. The practice manager made sure all prescribers got a copy of the CROP report, and there was a lead interested General Practitioner. They did an audit using previously used searches from the Clinical Commissioning Group where they found very few high strength opioids so concentrated on reducing use of tramadol.
P9	12,000	5.6%	lower	Yes	Organised practice with regular clinical meetings. Worked with their locality of five practices as a group to reduce work duplication, and all have the same approach. Practice systems in place to get to the relevant person and document management. Data quality manager, a practice pharmacist (advanced practitioner) and a pharmacy assistant involved. The pharmacist sees the high dose patients.
P10	4,000	5.1%	lower	Yes	Two General Practitioners took over the practice in the June after CROP started and began working on it straight away. Worked with the staff to change the culture around prescription supply and opioids; had some staff resistance, but they used the CROP reports to change systems. Wrote on the reports if there was any action required and stored electronically in a data room.

P11	10,000	9.7%	higher	Yes	Data manager lead the process. Practice have an opioid counsellor working with them and they have had some good results. Reviewed coding for opioid patients and found some incorrect historical mental health coding; maybe used drug dependency coding to reduce their numbers, but this was not stated by the interviewee - more that it was an added positive to get their coding correct.
P12	30,500	5.9%	lower	No	Two practices under the same contract but mostly work separately. CROP report covered both but only sent to one of the practices and didn't necessarily get shared. Only now are they planning to do work on it after recent safety reports and seeing patients on large amounts.
P13	7,500	6.8%	lower	No	Did not act initially; repeated reports helped to get them started. Contacted local drug addiction services - now send their trainee General Practitioners through their training.
P14	14,000	6.1%	lower	No	Advanced Practitioner pharmacist taken on by the practice to do medication reviews, including high dose opioid patients. Wasn't involved much with practice meetings, and hadn't seen many reports.
P15	15,000	8.3%	higher	No	General Practitioner who had a particular interest, and the practice was already aware of the problem - CROP came during that and was helpful to the practice. Was surprised they hadn't changed their prescribing much (went up then reduced) - hadn't taken that in from the original reports. His impression was that they had done quite a bit of work and planned to re-run the reports to see where they are now.
P16	23,500	5.5%	lower	No	Lead General Practitioner had not seen CROP, not distributed. Even if other staff had seen the reports, they had not shared it. He thought it was likely that the 'chaos' at the practice had contributed (he was currently also doing the practice manager job). Did do some opioid work despite not getting CROP. Felt they are bombarded and too much is being asked of them.
P17	12,500	8.9%	higher	No	Interviewee wasn't at the practice at the time of CROP when in 'special measures'. He was brought in after as a clinical lead and has since become a partner in the new team. Was aware of CROP at the time and opioids is something they have been aware of since taking over, but the change has happened since CROP. Re-ran the searches and, for example, opioid use in the over 70s was reduced by two thirds.
P18	2,000	6.0%	lower	Yes	Small inner-city practice with a large homeless/immigrant/refugee/asylum seeker/ high drug misuse population. Have focussed on opioid prescribing for many years because of the risks for their population. They were interested to see how they were placed against other practices

					and were surprised they weren't higher prescribers compared to others. CROP was taken regularly to team meetings and was useful to have the reminder and focus each time a new report came.
P19	17,000	7.1%	higher	Yes	CROP was the incentive to decide that the two practice pharmacists should see the high dose opioid patients. It is discussed regularly at team meetings. They searched for those on >120mg/day morphine equivalent and are still working with that cohort. She felt that they had reduced a lot of doses, as well as stopping some, and that would be an added benefit over what is shown in the figures.
P20	17,500	3.9%	lower	Yes	Large, highly organised practice with systems in place and team working. They are passionate about the project. They set up a SystmOne template for the team to all work in the same way and provide a place for resources e.g. patient leaflet, the British National Formulary recommendations for reduction - this helps trainees and locums to follow the practice policy. They also set up to be able to refer to a local mediation centre that has proved successful. Took over a new branch practice during the CROP year, but brought the prescribing in line. The team all have good examples of how it has helped their patients.

Supplementary Table S2: Normalisation Process Theory components for embedding the Campaign to Reduce Opioid Prescribing (CROP) in General Practice.

NPT construct	Findings in Normalisation Process Theory components				
Coherence	**NPT component:**	**Differentiation**	**Communal specification**	**Individual specification**	**Internalisation**
	Themes contributed to	Deciding to act	Deciding to act Engaging the team	Deciding to act Engaging the team	Deciding to act Engaging the team
	Number of participants coded to component	15	16	14	18
	Number of codes	9	11	9	13
	Example code and quote	CROP made them more aware of their opioid prescribing. *"But you don't realise how big it is until you see figures like this. And looking at report and think 'Oh God!'"* (IT manager, higher prescribing practice, reduced prescribing, P11)	The practice has regular team meetings and CROP was discussed by the team. *"We looked at how we're performing, and it's a good thing cos we can look at it together and that brought up discussions on various elements of it. Why, in one area we might be lagging behind? Or what we could do to improve in a particular drug?"* GP, lower prescribing practice, reduced prescribing (P20)	Liked CROP, understands the aim, recognises the risk and that work needs to be done. *"So the more that I can do to be safe, there we are as a practice, we are for the general public. And it's these things that we desperately need. Cos this isn't about costs, it's all about safety and that to me is more important than anything else."* Practice pharmacist, higher prescribing practice, no change in prescribing (P7)	Seen as worthwhile, recognising the need for safer opioid prescribing for patient benefit and action. *"Everybody's yes it's the right thing to do. Everybody recognises the prescription of opioids for non-cancer pain is going out of fashion. It doesn't work and risk of all the other side effects and everybody's had hassles with patients"* GP, lower prescribing practice, reduced prescribing (P1)
Cognitive participation	**NPT component:**	**Initiation**	**Enrolment**	**Legitimation**	**Activation**
	Themes contributed to	Deciding to act Engaging the team	Deciding to act Engaging the team	Deciding to act Engaging the team Overcoming challenges	Flexibility in responding Overcoming challenges

	Number of participants coded to component	18	18	18	16
	Number of codes	10	11	12	13
	Example code and quote	CROP reports initiated the process. *"Our practice is definitely proof that, you know, for us this has been very, very useful tool. Because without it we wouldn't have started the work."* Practice manager, higher prescribing practice, reduced prescribing (P5)	Team engaged at practice meetings. *"As a practice we do look because we have our weekly practice meetings on Wednesday. So these reports are shared with other prescribers and nursing staff."* GP, higher prescribing practice, no change in prescribing (P17)	CROP fitted with practice aims, to reduce opioids, reduce the prescribing budget, or risk management. *"You know we wouldn't have put so much effort into it if we didn't think that patients would benefit and that, at the end of the day is our mission here."* Practice manager, higher prescribing practice, reduced prescribing (P5)	Practice agreed a new opioid prescribing policy/protocol. *"We developed a policy and procedure around strong opiate prescribing for the practice."* Practice manager, lower prescribing practice, no change in prescribing (P2)
Collective action	**NPT component:**	**Interactional workability**	**Relational integration**	**Skill set workability**	**Contextual integration**
	Themes contributed to	Engaging the team Flexibility in responding Overcoming challenges	Flexibility in responding Overcoming challenges	Flexibility in responding	Flexibility in responding Overcoming challenges
	Number of participants coded to component	15	18	16	19
	Number of codes	9	16	10	17

	Example code and quote	Used action planning. *"Well we tended to try and answer the questions [on the action plan]. So what are we going to do? Were any risk factors specifically you were going to focus on or whether you were going to look at all of it?"* GP, lower prescribing practice, reduced prescribing (P6)	Confidence to stick to policy changes. *"I think as a practice we took a good stance in terms of everybody was on board, so there wasn't an opportunity for a patient to have a discussion and then go to another doctor and say okay I need this!"* Practice pharmacist, lower prescribing practice, no change in prescribing (P14)	Used the practice pharmacist to assess/ action. *"So it was me [practice pharmacist] doing the majority of actually seeing the patients but obviously the GPs were at hand for support and advice."* Practice pharmacist, lower prescribing practice, no change in prescribing (P14)	Resources identified/developed and used for patients: leaflet/ website/ social media. *"We've had our own leaflets made up. Really educating patients. We've had them done in colour so it actually, patients know that it's not just a little printed sheet, and we had it done in five languages"* Practice manager, higher prescribing practice, reduced prescribing (P5)
Reflective monitoring	**NPT component:**	**Systematisation**	**Communal appraisal**	**Individual appraisal**	**Reconfiguration**
	Themes contributed to	Overcoming challenges Realising benefits	Realising benefits	Realising benefits	Flexibility in responding
	Number of participants coded to component	17	12	18	7
	Number of codes	12	8	11	4

	Example code and quote	Reviewed results and seen benefits/ progress. *"I've definitely seen an improvement, you know on OpenPrescribing.net."* Practice pharmacist, higher prescribing practice, reduced prescribing (P19)	Team regularly reviewed progress and achievement. *"It's something that we talked about when the CQC came in, you know, as something that we're doing. As a mark of quality and change that having a practice pharmacist has brought to the practice, to have the capacity to follow up."* Practice pharmacist, higher prescribing practice, reduced prescribing (P19)	Experienced good outcomes for patients. *"I've been surprised how some people have actually come off and they've felt a lot better."* GP, lower prescribing practice, no change in prescribing (P12)	Added in to work on all controlled drugs and those with abuse potential. *"I did a bit of data recording in terms of. it wasn't just opioids actually. It wasn't specific to opiates that we kind of tackled controlled drugs in general. Anything that's potentially abused."* Practice pharmacist, lower prescribing practice, no change in prescribing (P14)