**Online appendix 2 Nurses’ experiences of using CCMM mapped against NPT framework**

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| **NPT components** | **Process evaluation findings** | **Illustrative quotes\*** |
| **Sense-making by nurses**  Clarity of purpose; potential value and benefits  Perceived distinctiveness of CCMM  Understanding their role in CCMM | Nurses understood the purpose of CCMM. They recognised the challenges for carers managing end-of-life analgesia and the benefits of providing them with more information and support to manage medicines effectively.  CCMM did not meet nurses’ expectations of an intervention: it was *‘not rocket science’* and was not seen as novel or distinct from current practice. However, control group nurses were critical of current practice, describing it as ad hoc, not supported by written materials and not reliably meeting carers’ needs.  Nurses framed CCMM as ‘information giving’ and focused almost exclusively on the written materials in the toolkit, which they perceived as a new and useful resource. Nurses had difficulty distinguishing the CCMM structured conversational process from their routine interaction with patients and carers: *‘we’re always talking about pain relief’*. They rarely identified or commented on this component of CCMM without prompting from the interviewer. This perspective played down the nurse’s role and agency in CCMM. | *‘I was a little bit disappointed. I guess because some of what you were suggesting we were already doing. In not quite the same way but, you know, to a degree.’* N01iSE  *‘[nursing practice] is very task orientated. […] you go [into a patient’s home] and there’s set things to do […] It’s like a list of things and you don’t think about the wider picture. […] And we just say, ‘right this is what you need to do’. […] we [don’t] always explain things properly, or [give] help for the carers. I think sometimes we’re very patient-focused’* N04cSE  R: *Is [CCMM] different in any way to what you usually do?*  Nurse: *Well in that you’ve got a kit here. We don’t have kits. We just go in and talk and, you know, obviously we write a care plan but we don’t have anything specific like that to take in.* N11iSW |
| **Participation: nurses’ commitment and engagement**  Buy-in to CCMM  Continued support for CCMM | Positive experiences of CCMM training helped initial nurse engagement. Nurses emphasised the importance of delivering CCMM well. However, low recruitment meant some nurses did not use CCMM often enough to become familiar and confident with it or fully assess its usefulness. Trial design limited opportunities for nurses to discuss CCMM with each other. |  |
| **Action: work done by nurses to operationalise CCMM**  Knowledge and skills required  Compatibility with existing work practices  Fit with nursing role, values and beliefs | Nurses thought they required no additional knowledge or skills to use CCMM. However, nurses at both sites, and the district nurses in particular, felt they would have benefited from more rehearsal of the conversational process to become fluent and confident. This suggests CCMM required more adjustments to their practice than nurses later admitted.  Nurses thought that carers needed CCMM explained to them, and to be literate and interested in managing medicines to use it. There was a view that not all carers would be able to cope with CCMM ‘paperwork’.  Nurses said CCMM could generally be delivered efficiently and quickly. They described using its in-built flexibilities to adapt delivery to the time available, circumstances during the visit and the dyad’s knowledge and approach to managing medicines, which nurses saw as a shared responsibility. The nurses’ main focus was the patient and in the home setting discussion with a carer alone could be practically difficult or feel awkward. Most nurses preferred to include patients in CCMM and found the resulting 3-way conversations rewarding.  In other respects nurses did not fully exploit CCMM’s adaptability, for example by using written resources selectively when dyads had their own systems for managing pain medicines. Nurses typically gave the toolkit in its entirety at the initial consultation, with the expectation that carers would ‘decide for themselves’ which resources would be useful.  Nurses thought CCMM’s specific focus on pain medicines did not align well with their holistic approach to managing all end-of-life symptoms and the associated medicines that carers typically helped with. Some nurses were concerned that initiating discussion specifically about pain medication could potentially increase anxiety about pain and be ‘overwhelming’ for carers.  Nurses said they often saw patients ‘too late’ for dyads to benefit from or cope with CCMM and most nurses suggested introducing CCMM earlier in the course of a patient’s illness. | *‘[…]I’d read up, I wanted to deliver it concisely. I didn’t want to look as if I was fumbling and tongue tied […] I felt I was quite well prepared [but] […] it was quite nerve racking the first one if I’m honest. […] you get more confident […] So it was just building up confidence really.’* N13iSW  *‘I think that [carers] need to be able to read and not be too fazed by [written information]. Because I think some people would be. […] I think it could be quite overwhelming for some people.*’ N06iSE  *‘having the carer and the patient there and talking about those things […] so the carer’s heard the concerns that the patient’s got because often that’s covered when they’re not there. […] having those conversations […] with both of them is helpful.’* N06iSE  *‘we sat down and I introduced each section [of the toolkit] briefly and then I said to them, “so next week we can go into more detail on whatever you would find most useful out of this.”’* N11iSW  *‘when you’re managing somebody’s medication, you’re managing their medication whether it’s related to pain or not.* *But I think [the CCMM chart] restricted it.’* N03iSE  *‘there’s that fine balance between helping them know what to do but not making such a thing about the pain.’* N06iSE  *‘if we’d discussed [CCMM] a lot earlier on then maybe [the carer] would have been better prepared. […] if she’d had [the intervention] from the GP or the palliative team a bit sooner. […] by the time I [visited] it was all getting a bit much for the carer.’* N13iSW |
| **Monitoring: nurses’ reflections and appraisal of CCMM**  Individual assessment of impacts of CCMM  Collective assessment of CCMM  Changes in practice reported | Nurses used CCMM with only a small number of dyads, limiting perception of benefits. The trial design restricted opportunities during the study for collective assessment of CCMM.  Most nurses said they already used components of CCMM to inform and support carers. However they acknowledged that CCMM offered a more comprehensive and systematic approach and ensured information was recorded.  Nurses identified having written materials for carers as one of the most valuable components of CCMM, particularly information about opioid analgesia and charts for recording pain medication.  Nurses’ comments suggested that CCMM increased their empathy with carers and for some this was associated with positive changes in quality of interaction. However, a nurse caring for a patient with intractable pain found it distressing to fully appreciate the carer’s responsibilities and vulnerabilities.  Nurses reported positive influences on their practice more generally, ie including carers in discussion more often and encouraging record keeping by patients and carers. | *‘I think the intervention means […] you’re definitely going to ask it and you’re going to record it. Whereas I think normally you might ask it and you might record it. […] a lot of things in palliative care seem to be very ad hoc.* *So having anything that’s a bit more systematic is good.’* N06iSE  *‘I think the information about the drugs was good. […] with a time pressure […] you do it broadly, but to have that specific information is really helpful […] there’s so many myths around about medication, morphine particularly, that actually if you’ve got that written down and you can go through it with somebody that’s got to be a good thing.’* N01iSE  *‘I have been using the medication chart more. […] you want to do the best for everybody and get it right for everybody. […]* *it’s made me think more about my practice.’* N01iSE  *‘I would probably advise carers in any situation now to chart pain. […] [CCMM] has focused me to think how these charts and documenting […] in a formalised fashion makes it a lot easier as things progress. […] [before] I probably just said and didn’t reinforce.’* N13iSW |

\*Quotes are tagged with a composite code that provides unique nurse study ID (first letter followed by two digits); group allocation (i or c, intervention or control); and study site (south England (SE) or south Wales (SW)) […] indicates text of transcript has been edited for clarity and brevity.