Functional Features of the MGCDS Domain

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| **Feature** | **Short example** |
| **Interaction features** | |
| A1. Drug from a CPG has an effect on a comorbid condition. | The cardiovascular disease CPG recommends low-dose aspirin, which may cause or worsen duodenal ulcer (DU) as a comorbid condition. |
| A2. Two or more drugs from different CPGs interact | The bacterial urinary tract infection CPG recommends antibiotics such as trimethoprim, which impacts the anticoagulant effect of warfarin that is recommended by the venous thromboembolism CPG. |
| A3. Clinical goals from different CPGs conflict | Coronary artery disease CPG recommend preventing thrombosis via anti-platelet therapy, which conflicts with the goal of preventing bleeding during surgery, as per perioperative antiplatelet therapy CPG. |
| A4. Conflicting actions (e.g., drugs, procedures) from different CPGs | The transient ischemic attack (TIA) CPG recommends administration of clopidogrel, while coronary artery bypass grafting CPG recommends suspending clopidogrel. |
| A5. Duplicate or redundant advice from different CPGs | Hypertension and cardiovascular disease CPGs both recommend calcium channel blockers. |
| A6. Temporal relationship between different CPGs | The acute otitis media CPG recommends taking cefpodoxime two hours after taking antacids, which are in turn recommended by the gastroesophageal reflux disease CPG. |
| A7. Multiple related interactions from different CPGs | The TIA CPG recommends aspirin, whereby the DU CPG recommends proton pump inhibitors (PPI) to mitigate the effect of aspirin on the duodenum or ulcer bleeding. PPI may cause a new comorbid condition of osteoporosis. |
| **Mitigation features** | |
| B1. Adding a drug to mitigate an adverse effect | Add a PPI to mitigate the effect on DU caused by aspirin. |
| B2. Adjust drug dosage | A reduction of 10% of warfarin dosage to cope with concomitant treatment of antibiotics. |
| B3. Monitor the effect of a drug | Monitor progression of the DU during overlapping treatment with aspirin; or monitor INR frequently during concomitant treatment of warfarin and antibiotics. |
| B4. Replacing a drug with a safer / more effective drug for comorbidity | Replace aspirin with clopidogrel for a patient with DU. |
| B5. Discard unsafe/interacting drug | Suspend ACE Inhibitor when eGFR value drops by over 30% over 4 months. |
| B6. Delay a task to avoid a temporal overlap | Stop clopidogrel 5 days prior to surgery to reduce bleeding risk. |
| B7. Add a task to ensure a temporal overlap | When stopping clopidogrel prior to surgery, start bridging therapy with tirofiban 24h later until 4h before surgery, and resume 2h after surgery. |
| **Other features** | |
| C1. Patient preferences and/or patient burden | Choosing one drug over another due to lower price; or choosing any of direct oral anticoagulants over warfarin to avoid checking INR on regular basis. |
| C2. Optimization of clinical resources | Grouping tests recommended by different CPG on the same day, or avoiding multiple imaging scans, recommended by different CPG, where results can be re-used for diagnosis of both comorbid illnesses. |
| C3. Explanation of the mitigation strategy(ies) | Including an explanation for a recommended mitigation (e.g., all patient conditions are treated, the largest number of conditions are treated, or the condition that is at the focus of the medical investigation is treated). |
| C4. Alternative mitigation strategies for a single interaction | For a patient taking aspirin for secondary prevention of TIA, who developed DU due to aspirin, one strategy may be to add a PPI to protect the duodenum, and a second strategy may be to replace aspirin with clopidogrel. |