Prevalence of Potentially Inappropriate Medications Prescribed to Elderly Patients Attending Primary Health Care Centres in the State of Qatar: A Cross-Sectional Study

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**Supplementary File** PIMs for older adults as per the updated 2015 American Geriatrics Society (AGS) Beers Criteria

| PIMs to avoid for many or most older adults | Medications                                                                 |
|--------------------------------------------|-----------------------------------------------------------------------------|
| **Therapeutic category**                  |                                                                             |
| **Anticholinergics**                      |                                                                             |
| First generation antihistamines:          | Brompheniramine, carbinoxamine, chlorpheniramine, clemastine, cyproheptadine,  |
|                                           | dexamethasone, doxylamine, hydroxyzine, meclizine, promethazine, triprolidine. |
| Antiparkinsonian agents:                  | Benztropine (oral), trihexyphenidyl.                                        |
| Antispasmodics:                           | Atropine (excludes ophthalmic), belladonna alkaloids, clidinium- hydroxyzine,  |
|                                           | hyoscyamine, propantheline, scopolamine.                                    |
| **Antithrombotics**                       | Dipyridamole (oral short-acting; does not apply to the extended release      |
|                                           | combination with aspirin), ticlopidine.                                     |
| **Anti-infective**                        | Nitrofurantoin.                                                             |
| **Cardiovascular**                        |                                                                             |
| Peripheral alpha-blockers:                | Doxazosin, prazosin, terazosin.                                             |
| Central alpha-blockers:                   | Clonidine, guanabenz, guanfacine, methyldopa, reserpine (>0.1 mg/d).        |
| Others:                                   | Disopyramide, dronedarone, digoxin, nifedipine (immediate release), amiodarone. |
| **Central Nervous System**                |                                                                             |
| Antidepressants (alone or in combination):| Amitriptyline, amoxapine, clomipramine, desipramine, doxepin >6 mg/d,       |
|                                           | imipramine, nortriptyline, paroxetine, protriptyline, trimipramine.        |
| Barbiturates:                             | Amobarbital, butabarbital, butalbital, mephobarbital, pentobarbital, phenobarbital, secobarbital. |
| Benzodiazepines                           | Alprazolam, estazolam, lorazepam, oxazepam, temazepam, triazolam.          |
| Short- and intermediate- acting:          | Clorazepate, chlordiazepoxide, clonazepam, diazepam, flurazepam, quazepam. |
| Long- acting:                             | Eszopiclone, zolpidem, zaleplon.                                            |
| Benzodiazepine receptor agonist hypnotics,| Meprobamate, ergoloid mesylates, isoxsuprmine.                             |
| Nonbenzodiazepine:                        |                                                                             |
| Antipsychotics (first and second generation): |                                                            |
| Others:                                   | Methyltestosterone, testosterone.                                           |
| Endocrine                                 | Chlorpropamide, glyburide.                                                 |
| Androgens:                                | Desiccated thyroid, estrogens with or without progestins, growth hormone, insulin, sliding scale, megestrol. |
| Sulfonylureas, long-duration:             |                                                                             |
| Others:                                   | Metoclopramide, mineral oil (given orally)                                |
| Gastrointestinal                          |                                                                             |
| Proton pump inhibitors:                   |                                                                             |
| Others:                                   |                                                                             |
| Pain medication                           |                                                                             |
| Non-COX-Selective NSAIDs:                 | Aspirin >325 mg/d, diclofenac, diflunisal, etodolac, fenoprofen, ibuprofen,  |
|                                           | ketoprofen, meclofenamate, mefenamic acid, meloxicam, nabumetone, naproxen  |
|                                           | oxaprozin, piroxicam, sulindac, tolfenamin, indomethacin, ketorolac.       |
| Skeletal muscle relaxants:                | Carisoprodol, chlorzoxazone, cyclobenzaprine, metaxalone, methocarbamol,  |
| Others:                                   | orphenadrine                                                                |
| Genitourinary                             | Desmopressin                                                                |


### PIMs to be used with caution in older adults

| Therapeutic category                     | Medications                                                                 |
|-----------------------------------------|-----------------------------------------------------------------------------|
| Antidepressant agents:                  | Mirtazapine, SNRIs, SSRI, TCAs                                              |
| Antineoplastic agents:                  | Carboplatin, cisplatin, cyclophosphamide, vincristine                      |
| Anticonvulsant agents:                  | Carbamazepine, oxcarbazepine                                                |
| Antiplatelet/anticoagulant agents:      | Prasugrel, dabigatran (in adults aged ≥ 75 years old), aspirin for primary prevention of cardiac events (in adults aged ≥ 80 years old). |
| Diuretics                               |                                                                             |
| Vasodilators                            |                                                                             |