**Supplementary File 2** **Translations between studies with 3rd order interpretations and line of argument synthesis**

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| **Author**  **(year)** | |  | **Unmet Primary Care Needs** |  | |  | **Justification of antipsychotics** | |  | |  | **Pivotal Role of Family** |
| **Sub-themes** | | Time-intensive | Knowledge & self-efficacy | Care Pathways | | To facilitate coping (in PwD, their carers & in NHs) | Barriers to implementation of non-pharm strategies | Traditional prescribing “comfort zone” | | | Influence of family | Community based supports for the family |
| **Colenda (1995)** | |  |  |  | |  |  | The decision to “act” generated less anticipated regret than the decision not to “act” (pg74) | | |  |  |
| **Colenda**  **(1996 – International Journal of Geriatric Psychiatry)l** | |  | PCPs did not endorse referring the patient to an expert in behavioural management. This finding may be secondary to the fact that they do not know much about the success of behavioural management techniques for these patients. (pg642) |  | |  |  | Physician respondents tend to be wedded to a traditional medical model of care when managing these patients (pg. 641) | | |  | PCPs surveyed had a low likelihood of referring the spouse of the person with dementia to a dementia support group. (pg. 638) |
| **Colenda (1996- Journal of the American Geriatrics Society)** | | PCPs also stated that both the time contacted and repeated calls received from caregivers influenced their decision-making when treating agitated patients; these two components were given the title “hassle factor”. (pg1377) |  |  | |  | It is easy to understand how this factor could compel physicians to overuse medications for these patients, especially for urgent phone calls that occur in the middle of the night, when agitation offer occurs. (pg1378) | Majority of PCPs chose medication as the primary intervention, only a minority considered psycho-social or behavioural interventions. (pg 1377)  An underlying treatment heuristic exists for these patients; if they are agitated give them medications. (pg1378) | | | …repeated calls received from caregivers influenced their [GPs] decision-making …  (pg1377) |  |
| **Teel (2004)** | | *“I’m certified in geriatrics, but I don’t have time to concentrate on particular things”* (pg427)  *‘I spend as much time asking how the caregiver’s doing as I do the patient’.* (pg426) | Patient aggression, anger and violence were cited as distressing and often difficult to manage. (pg426) | Several PCPs pointed out the difficulties encountered in trying to access or coordinate consultation, either because of the infrequent visits by consultants to the PCP’s rural area, the extreme distances patients had to travel to the specialist’s office, or the considerable delays in getting appointments  *“We don’t have anyone here that we can consult with...there’s a weekly outreach clinic, but it can take several months to get in to see them.”* (Pg 424)  Participants were frustrated by the limited access to consultative support in their rural communities. (pg428) | |  |  |  | | | *‘some people whose spouses take care of them may be at home for 10 years before they finally become such a problem—or the caregiver’s health declines—that they need the nursing home’*.  Families contributed to making treatment processes either more difficult or more straightforward (pg425)  “*resistant children who live elsewhere and who promised they’d never put mom in a nursing home, but they don’t want to take her to California; so we try to hire someone, which is virtually* *impossible.”* (pg426)  … wants the PCP to ‘fix’ everything right away, yet is unable to provide any assistance in the process. (pg426)  “*they want him bright during the day and telling old stories, and not hurting anyone.”* (pg426) | *‘we don’t have much in the way of support groups ... we are in a no man’s land’.*  *‘it’s on-the-job training’* (when discussing how families learned about caregiving.)  *‘number one is family education ... try to teach them what this is, how things are going to change, and what they need to be doing’.* (pg426)  Most PCPs in the current study also identified the need to provide education and support to family caregivers, and all expressed frustration with the limited supportive resources available in their communities.  (pg428)  The limited availability of community resources for education and support contributed to difficulties in caring for patients with dementia and their families. (pg428) |
| **Hinton**  **(2007)** | | *“it’s a lot more complicated than the intact 50-year-old hypertensive diabetic but the reimbursement is the same.* (pg1489)  Clinicians are pressured to practice in a “time-efficient” fashion ... Dementia created heavier paperwork demands (pg1489)  *“we often don’t talk adequately with the family in the 15 minutes*.”  As a result of having insufficient time to discuss psychosocial issues and behavioral disturbances, these problems may be neglected until they become severe, leading to what 1 physician characterized as “reactive care.” (pg1489)  *I think we’re all drowning, I do. It’s, you know, we are all truly trying to keep our heads above water...These people [persons with dementia] do take a lot of time and energy and when you’re doing all the other stuff that we’re doing with all the other patients that, to be honest, sometimes it’s like, you know, you just don’t want these people in your practice cause a 15-minute visit turns into much more than that.* (pg1489)  Lack of time and failure to systematically assess behavioral problems may delay their detection and management until a time of “crisis.” (Pg. 1491)  *Those people get pushed out of those practices because they cause chaos, and so they get referred or something happens*. (Pg. 1491)  *the majority of the visit is hand-holding and listening, that sort of thing. It takes a long time.* (pg1489) | *“I do rely on psychiatry because I admit that I am not the most knowledgeable person about people with agitation and behavioral problems at home. I’m good at prescribing a little Risperdal but I get a little nervous about anti-psychotic meds and I tend to send those people to psychiatry”* (pg. 1490)  *Usually I rely on the psychiatrist because you just get to the point there where, I don’t know how to deal with all the hallucinations, the screaming and those kinds of problems. I want a second opinion too in making sure my diagnosis is correct.* (pg. 1490) | *We have good neurologists, but they are generally scheduled far in advance so it takes a least a month, two months to get an appointment unless the patient’s hospitalized. Psychiatrists are more of a problem. There aren’t enough of them.* (pg. 1490)  *“It’s hard, bottom line is it’s hard. The feedback is slow [from specialists]...So you don’t get anything and then the patient comes back and they are usually, they don’t have any idea, and then they’re kind of frustrated too.* (pg. 1490)  *I just feel, I don’t have the network we need, so, because for the dementia care it’s a team care, dietician, social work, psychiatry, psychologist, and pharmacist...I feel I don’t have this. I don’t think anybody has this luxury, but the gist of care should be that.* (pg. 1490)  *One needs access to a social worker, the nurses who are properly trained in geriatric issues.* (pg. 1490)  As a consequence of the problematic access to specialists, physicians often felt they had little choice but to try and manage care as best they could despite a perceived lack of  time and training. Some physicians expressed frustration and even some degree of demoralization about being placed in a situation in which they felt compelled to provide care that they felt was beyond their realm of expertise. ((pg. 1490) | |  |  | Clinicians may rely more on medications if they are less familiar with psychosocial approaches or perceive these as potentially more time consuming. This has important public health implications because recent data question the efficacy and safety of psychotropic medications for older adults with dementia, making non-pharmacological approaches more attractive from a risk/benefit perspective. (pg 1491) | | | *It [behavioral problem] isn’t something that I have to deal with clinically. Usually, the family deals with it [behavioral problems].* (pg1489)  Family members were perceived as having very real and sometimes intense “social and psychological” needs  *Most of the time when they come in to see me there may be some specific concerns like, you know, they’re [patient] wetting the bed all the time, or they’re [patient] wandering, or you know, whatever*  (pg1489)  Particularly when there were multiple caregivers with competing agendas, conflicts (pg1489) | *Since I’m not a licensed clinical social worker and I don’t know what’s available in the community, and I don’t know how to, nor do I have time to call up and make arrangements for meals on wheels, or call up and find out what they need for a choreworker, or call up and find out how to access daycare. All I can do is say, you know, these things exist and here’s some ways to contact them, there’s a green booklet that the County put out a couple of years ago.* (pg. 1490)  *I mean, there are books that tell you who, but there’s so many listings in those books it’s hard to work your way through those to figure out, okay, for this person in this circumstance who are the two or three people that I need to get involved, and it’s confusing about who to see when, and who does what when.* (pg. 1490) |
| **Buhagiar**  **(2011)** | |  | Respondents appeared equally self-critical of both their diagnostic and management skills with respect to BPSD. Many of them expressed reservations in their skills to differentiate BPSD from non-dementia behavioural changes. (pg 231)  Rather than lack of knowledge, it is the GPs’ level of confidence that needs to be bolstered. (pg231)  nearly all GPs reported that they were inclined to institute time-limited prescriptions. (pg. 232)  yet they have a very high level of potential, as evidenced by their knowledge base. (pg. 232) | The majority of GPs found consulting with specialist services to be difficult. (pg 230)  A substantial number of GPs appear to encounter major difficulty in accessing secondary care services whenever they need support with the management of BPSD. (pg 231)  GPs may feel they are left to deal  with the crisis on their own without the back-up they would require from specialist services. (pg 232) | |  | No GP reported finding the implementation of non-pharmacological strategies to be easy. (pg. 230)  They may be forced to resort to medications given their better likelihood of immediate gratification compared with a non-pharmacological approach. (pg. 232) | Although nearly all GPs felt that non-pharmacological interventions are important and that non-pharmacological interventions should start before medications no GP reported a preference for non-pharmacological interventions over medicatons (pg. 230)  all of our respondents reported a preference for the use of pharmacological interventions. (pg. 231)  GPs may also have a preference to use medications – tools they are highly more familiar with, compared with the more alien non-pharmacological methods. (pg. 231) | | | Pressure from caregivers may force GPs to reluctantly prescribe medications in order to alleviate tensions. (pg 232) |  |
| **Azermai**  **(2013)** | |  | The message that antipsychotics should and can be discontinued without detrimental behavioral effects has not yet reached the ﬂoor. (pg. 352) |  | | GPs consider antipsychotic discontinuation to induce more suffering for the nursing home resident and adversely affect the resident’s quality of life…important to focus on quality rather than on quantity of life. (pg. 351)  Recurrence of behavioral problems after antipsychotic discontinuation was a major concern, as well as hindrance to others and risk of harm to the resident. (pg. 349) | Shared willingness [to discontinue antipsychotics] was even lower, only 4.2%. The percentages of overlap between nurses and GPs were generally low, indicating that nurses and GPs evaluate the same resident differently. (pg. 349) |  | | |  |  |
| **Mavrodaris**  **(2013)** | |  | *‘‘We have found that after admission when other problems have been resolved, e.g. nutritional, medical that antipsychotic prescriptions can be reviewed and changes made.’’* (pg. 36) | GPs alluded to uncertainty of roles and the expectation that primary responsibility should be maintained by secondary care.  *‘‘Hopefully elderly mental health is as they are initiating”.* (pg 36)  . Improved communication and collaboration between psychiatrists, GPs and care home staff at each level of care is fundamental (pg. 37)  GPs expressed concern at stopping drugs on their own with the expectation of either guidance or regulation of medication from secondary care (consultant psychiatrists or geriatric psychiatrists). (pg. 35)  Both GPs and care home participants expressed confusion regarding their roles in the management of patients with BPSD. (pg 38) | | An increased risk of cardiovascular disease was not considered a strong stimulus to discontinue antipsychotics as quality of life issues prevailed in addition to, and again, dependence on specialist advice. (pg. 35) | ‘*‘Often it is pressure from nursing homes or carers for medication to calm a patient down that is trigger for prescribing”* (pg36)  A culture of blaming was expressed in this study. GP’s reported pressure from care home staff to maintain a patient on antipsychotics, whereas care home staff reported GP’s insisting on maintaining use of antipsychotic therapy. (pg. 37)  Many GP participants also expressed concern at the lack of practical non-pharmacological options and indicated that current guidelines were not clear or clinically useful. (pg 35)  A lack of clarity regarding available and suitable pharmacological and non-pharmacological management options. (pg. 37) |  | | |  |  |
| **Donyai**  **(2016)** | |  | The interviewees neglected to present other options in their argument, such as a trial reduction of the dose of an antipsychotic, or nonpharmacological approaches for addressing symptoms. (pg 4)  *I think the use of them [antipsychotics] is increasing maybe because, I don’t know, we are less afraid of them. I think doctors are less afraid of using antipsychotics which wasn’t the case before so I would do a prescription for risperidone if I get told, right,* *increase the dose or can we titrate the dose? Right, ﬁne. I’ll call the patient in every month, gradually increase the dose without worrying.”*  (pg. 4) |  | | *They* [PwD on AP] are *quieter, more subdued, less distressed. The man that I saw last week that prescribed them, who has dementia, he was just weeping inconsolably, he’s got dementia and he was weeping for his wife who has been dead for many years, and they put him on quetiapine. And I mean he gets tearful if you talk about his wife now, but the uncontrollable weeping had stopped.* (pg. 5)  The arguments were formulated to illustrate the negative consequences of alternative choices (e.g. reducing the dose or not prescribing) on carers and patients, for example in terms of coping and stress (pg. 5) |  | “*I’m not very familiar with the guidelines. I think, but what I know of them, I think we have to be careful not to go to the other extreme where we just say we’re not prescribing them.”*  (pg. 4)  *They* [antipsychotics] *should always be justiﬁed but I think it’s still used as the easy option. Because it’s something as doctors, we do, we just prescribe a medicine.*  (pg 4) | | |  |  |
| **Foley**  **(2017)** | |  | *‘Some of the behavioural symptoms can be very difficult to deal with…aggression, wandering, incontinence, sexual disinhibition’* (pg. 7)  GPs expressed a need for more education around the prescribing of psychotropic medication.  *‘When do you add in psychotropic medication, what type of medication, what dosages, for how long? We need guidelines on that’* (Pg. 7) | Despite recognizing the importance of a multidisciplinary approach, many GPs were unsure of where these services were or of how to access services.  *I would probably struggle a bit in identifying the wider team’*  (pg. 5) | |  |  |  | | | *‘One of the big learnings I’ve had is the carer support and how important carer support is in the management of the patient’* (pg. 6) | GPs emphasized the need for respite, home-help and day-care services..  *‘I think you live on this lifeline of getting this respite and that helps you to cope as a carer’* (pg. 5)  *‘I suppose, I know that the Alzheimer’s Association, that there is some support available through that, but really being honest about it, I know that we have a very vague idea of that, and I would direct them towards that group, but I myself wouldn’t be able to provide the specifics of it’* (pg. 6) |
| **Cousins**  **(2017)** | |  | The vast majority expressed a desire to reduce psychotropic medication in completely settled or stabilized patients.  When asked if they routinely recommend non-pharmacological interventions before considering medication in BPSD, the majority agreed or strongly agreed. (pg1576)  Many respondents agreed that they feel they require more training to improve how they manage BPSD, however, some disagreed. (pg1576*)* |  | | Many GPs were concerned that withdrawing medication would impact negatively on the quality of life, leading to a return of challenging behaviors and disturbing psychological symptoms. However, around the same number of GPs were not concerned about this (pg4)  … over-  estimated the benefit in symptom relief of second-generation antipsychotics …with the majority of GPs expecting benefit in half of all patients. (pg. 1577) | Experienced GPs were significantly less likely to rate pressure to prescribe from aged care facility staff as a barrier to non-pharmacological techniques than GP practising <5 years.  Staffing and resources was clearly highlighted as the number 1 barrier to non-pharmacological methods being utilized in BPSD. (pg4)  Additional barriers identified to recommending non-pharm strategies were lack of nursing home staff skill, pressure to prescribe from facility staff/nurses, lack of efficacy of non-pharmacological techniques. (Fig 1 pg.1575). |  | | | Pressure to prescribe from relatives was not considered as significant a barrier. (Fig 1 pg.1575). |  |
| **3rd Order Interpretations** | * Managing BPSD was complex, resource intensive and sometimes unrewarding for the GP. * GPs lacked confidence when managing BPSD and wanted input from either secondary care or relevant members of the primary care team. However, the lack of clearly defined care pathways meant that GPs experienced difficulty accessing advice. | | | | * GPs were more comfortable prescribing medication than advising on non-pharmacological management strategies. * GPs found that antipsychotics enabled the patient with dementia, the family caregiver, the nursing home staff and the GPs themselves to cope with BPSD. * GPs had a tendency to over-estimate the benefits of antipsychotic prescribing. Consequently, in the context of the challenges of implementing non-pharmacological alternatives, the risks associated with antipsychotics were tolerated. | | | | | * The family of the person with dementia plays a crucial role in the management of BPSD. However, the needs of the carer could be intensive and challenging for the GP, particularly in the context of limited community supports for family caregivers. | | |

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|  | **Line of argument synthesis:** | **GPs experience difficulties accessing supports for family caregivers and for themselves when managing BPSD. Under-resourcing, poorly defined roles and a lack of integrated care pathways may contribute to GPs’ feelings of isolation and low self-efficacy when managing BPSD. Low self-efficacy is further exacerbated by the lack of practical, implementable treatment strategies which can lead to an over-reliance on both family care-givers and psychotropic medications to fill the therapeutic void created. It appears that these conditions can culminate in a reactive response to the care of people with BPSD where behaviours and symptoms escalate until an inevitable crisis point is reached.** |  |