



HEALTH QUALITY & SAFETY  
COMMISSION NEW ZEALAND

*Kupu Taurangi Hauora o Aotearoa*

# Appropriate medication use in aged residential care: Optimising the use of antibiotics, antipsychotics and fentanyl

Presented by Adapt Research Ltd for the  
Health Quality & Safety Commission



# Medicines and aged residential care

- Polypharmacy
- Appropriate vs problematic polypharmacy
  - interactions, reactions, adherence issues
- **Problematic polypharmacy is common**, and action is needed on several fronts (King's Fund 2013)

*Cont over*



# Medicines and aged residential care

Medicines should be prescribed:

- for evidence-based indications
- at the right dose
- for the right person
- for the appropriate duration

‘It is particularly important that medication reviews are undertaken regularly for [older people] to support scaling back or indeed increasing treatment where appropriate.’  
(King’s Fund 2013, p vii)



# Antibiotics and urinary tract infection

‘The use of dipsticks to diagnose UTI is not recommended in ARC’



# Potential harms

Overuse of antibiotics contributes to  
(Jump et al 2018):

- **\*antimicrobial resistance**
- *C. difficile* infection
- adverse events
  - diarrhoea
  - nausea
  - allergic reactions
- unnecessary cost
- effect on microbiome (eg, gut flora important for health)

REVIEW

Open Access

(Dis)Trust your gut: the gut microbiome in age-related inflammation, health, and disease



Thomas W. Buford



# Use diagnostic criteria

- No symptoms, don't investigate (Zalmanovici Trestioreanu et al 2015)
- Treating asymptomatic patients increases antimicrobial resistance (Das et al 2011)
- Antibiotics may be required when defined criteria for UTI are met (clinical diagnosis)
  - Clinical decision aid/algorithm can provide guidance
  - Only 5–8% of delirium is caused by UTI

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# Use diagnostic criteria

- Three-quarters of prescriptions for UTI in ARC are given when criteria for UTI are not met (D'Agata et al 2013)
- **50% or more of antibiotic courses administered in ARC may be unnecessary** or excessively broad spectrum (Jump et al 2018)



# Urine testing

- Microscopy and culture of urine only for ARC residents meeting the clinical criteria for UTI
- Aim: to inform antibiotic selection; reduce spread of multi-drug resistant organisms (bpac<sup>nz</sup> 2015)
- Only two of 157 possible treatment de-escalations performed once test results known (Lemoine et al 2018)

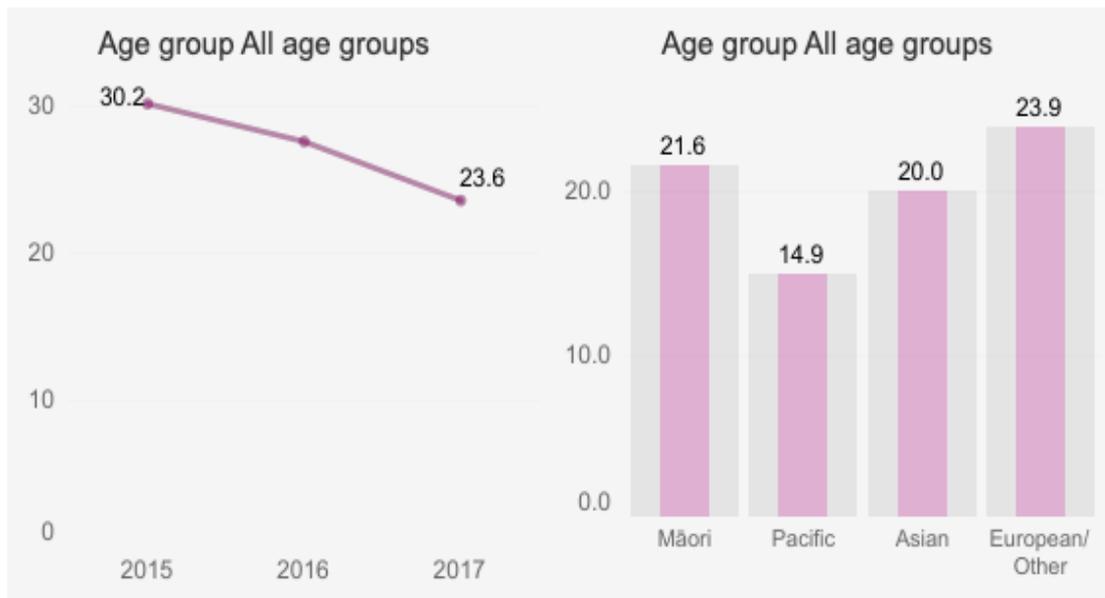
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# Urine testing

- Also, discrepancy between logic based on culture results and actions actually taken in 75% of cases (Haaijman et al 2018)
- **Avoid dipsticks in ARC; very high false positive rate** and leads to antibiotics, eg, phoning the GP with result

# NZ practice

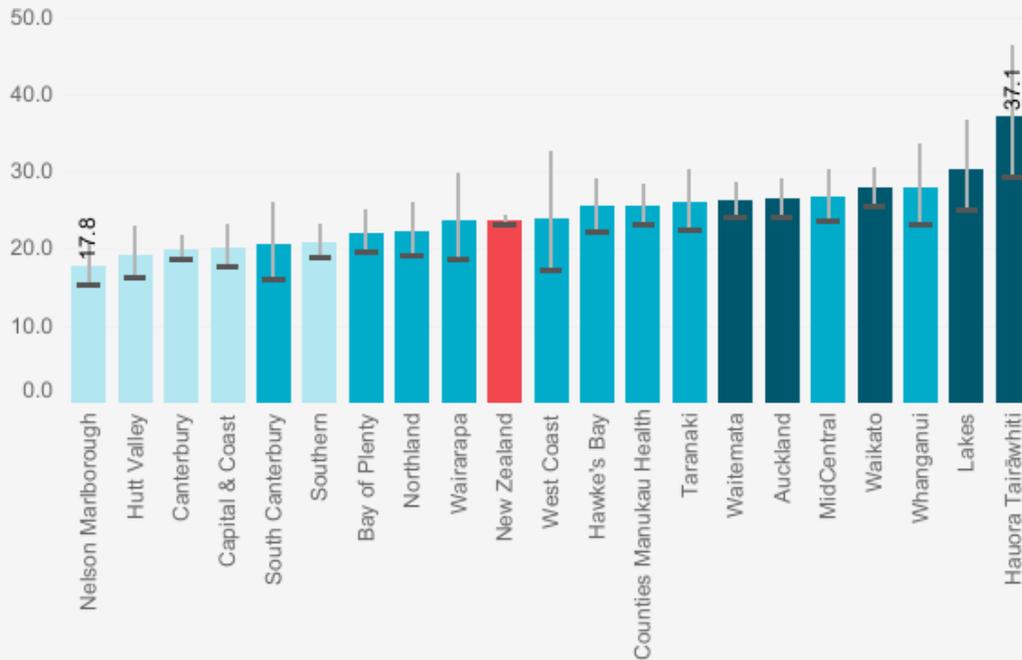


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# NZ practice

Bar: Indicator 8. People listed in ARC dispensed an antibiotic specifically indicated for UTIs, rate per 100 for people who are aged All age groups, All sexes, All ethnic groups, in the year 2017





# Recommendations

- Prevention of UTI (Meddings et al 2017)
  - Hand hygiene, catheter care, oestrogen use
  - Antimicrobial prophylaxis should not be recommended for those with indwelling catheter
- Diagnosis
  - Remove urine dipsticks
  - Use clinical decision aids (UTI diagnostic criteria and algorithm)

*Cont over*



# Recommendations

## Antibiotic stewardship

- ‘... an organisational or healthcare system wide approach to promoting and monitoring judicious use of antimicrobials to preserve their future effectiveness’ (bpac<sup>nz</sup> 2017)
- Use an antibiotic selected in accordance with local guidelines, pathogens, and resistance patterns
- Document the indication for antibiotics: not documented in 25% of prescriptions in 2018 (Australia); review or stop date not documented in 59% (ACSQHC 2019)
- **Act on culture results**
- Prophylactic treatment is a ‘last resort’ (bpac<sup>nz</sup> 2015)



# Impact of interventions

- **Educational interventions** directed at nurses and physicians are effective in reducing unnecessary antibiotic prescriptions (Falcone et al 2019)
- **Care bundle approaches** (professional development, antibiotic stewardship, culture of teamwork) decrease catheter-associated urinary tract infection up to 54% (Mody et al 2017)



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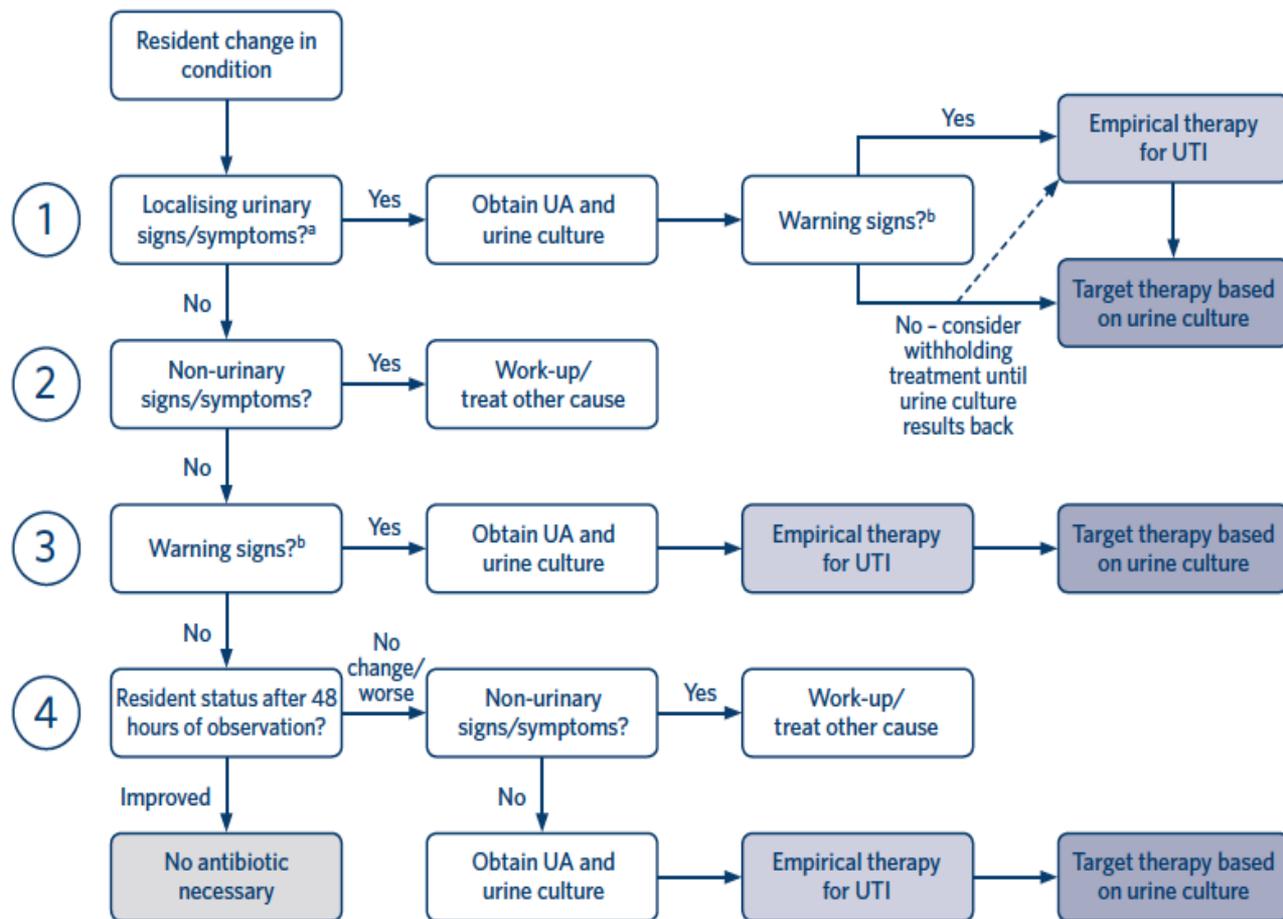


# Impact of interventions

**Ontario programme** across 10 facilities: 29% reduction in culturing rates, 41% reduction in urinary, and **27% reduction in total antibiotic prescription** (Public Health Ontario 2018)

- Obtain urine cultures only when residents have the indicated clinical signs of UTI
- Prescribe antibiotics only when specified criteria have been met
- Reassess antibiotic treatment once urine culture and susceptibility results have been received
- Avoid the use of dipsticks to diagnose UTI





**<sup>a</sup> Localising urinary signs/symptoms:**

- (1) acute dysuria;
- (2) new urgency, frequency, or incontinence;
- (3) acute gross haematuria;
- (4) costovertebral (flank) tenderness;
- (5) suprapubic pain;
- (6) new scrotal/prostate tenderness; or
- (7) purulent urethral discharge.

**<sup>b</sup> Warning signs include:**

- (1) fever, defined as single temperature >37.9°C or repeated temperatures >37.2°C or increase from baseline temperature of 1.1°C;
- (2) rigors;
- (3) acute delirium (excludes mild cognitive changes); or
- (4) unstable vital signs.

**Figure:** Unified algorithm for the diagnostic evaluation and treatment of suspected UTIs in nursing homes. (Cmich and Drinka, 2014)

Abbreviations: UA, urinalysis; UTI, urinary tract infection.



# Antipsychotics and dementia

‘Trial deprescribing to prevent falls’



# Potential harms

- Stroke, central nervous system events, sedation, cognitive impairment and confusion, fractures, falls, UTI, deep-vein thrombosis, peripheral oedema, gait disturbances, akathisia, Q-T prolongation, and death (RANZCP 2016)
- **Increased risk of mortality in patients with dementia** (odds ratio 1.56; 95% CI 1.10–2.21), and in elderly patients (1.38; 1.01–1.89) in the short term (Schneider-Thoma et al 2018)

*Cont over*



# Potential harms

- Eighty-seven patients treated, one patient will die (Maher et al 2011)
- AGS updated Beers Criteria strongly recommend antipsychotics are avoided (American Geriatric Society 2019; O'Mahony et al 2015)
- Food and Drug Administration (FDA) black box warning, **not meant for residents with dementia**, review treatment plans (FDA 2008)



# Benefits are modest

- **Non-pharmacologic interventions work better** for aggression and agitation (Watt et al 2019)
- Analysis of 16 meta-analyses shows antipsychotics have only modest effect on psychosis, aggression and agitation in dementia (Tampi et al 2016)
- Use only for severe symptoms of behavioural and psychological symptoms of dementia (BPSD) that have failed to respond adequately to non-pharmacologic strategies (Tampi et al 2016)

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# Benefits are modest

Conceptual Model of Behaviour diagram, depicts the many variables that can have an impact on behaviour that challenges (James 2017)



# NZ practice

- NZ psychotropic medicine use in older people (Ndukwe et al 2014)
  - increased 22.5% between 2005 and 2013
- Even though antipsychotics are harmful, of only modest benefit, and stopping them may be cost-saving (preventing falls)

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# NZ practice

Reasons for overuse:

- Cost associated with alternative non-pharmacologic treatments
- Desire to keep resident in current facility, lack of dementia beds and access to psychogeriatric services in the community (Thornley 2015)
- **Poor clinician knowledge of prescribing guidelines** and administration practice



# Practical guidance

- NICE
  - Limited benefit, only for agitation, aggression, distress, psychosis
  - Intervention must include non-pharmacologic approaches
  - Use a decision aid on harms and benefits
- Australian and New Zealand Society of Geriatric Medicine position statement
  - Use for emergent BPSD (severe distress/disruption, imminent danger) not for non-emergent BPSD
  - Obtain consent

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# Practical guidance

- Long-term antipsychotics for BPSD may be successfully discontinued in most adults aged 65 and older, low-quality evidence (Van Leeuwen et al 2018)
- Strong recommendation to **taper and stop antipsychotics used for BPSD > 3 months**, if symptoms stable or no response [moderate evidence] (Bjerre et al 2018)
  - Educate residents and their caregivers about harms and the rationale for deprescribing (Bjerre et al 2018)



# Recommendations

- BPSD often an expression of unmet need (quality of life)
  - Early diagnosis and person-centred management are important along with carer education and support
- Management of BPSD tailored to individual; **understand behaviour as communication**
  - target unmet needs; person-centred, guided by the severity of symptoms
- Non-pharmacologic first line of management
  - **time spent with people appears important**

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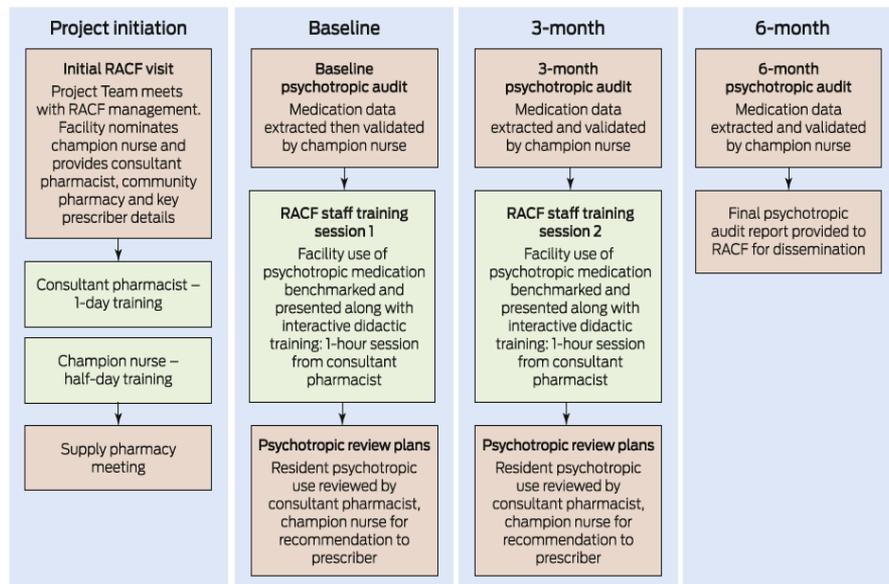
# Recommendations

- Medication should be determined by people with expertise in this area; as an adjuvant therapy or when non-pharmacologic management has failed
  - administered with consent
- Programme: audit and feedback, agreed guideline and appropriateness criteria, environmental and culture changes, education about efficacy, harms and how to manage BPSD, mandated medication review



# Impact of interventions: RedUSe (↓38%)

## 1 Overview of the RedUSe program\*



Source: Westbury 2018

\* Shaded green: educational sessions. ◆



# Impact of interventions: Canadian Foundation for Healthcare Improvement programmes (↓54%)



Save \$39 million annually  
if scaled up across Canada  
(Risk Analytica 2016)



Number of Target Residents discontinued or reduced (54%) **222/416**



41

Falls ↓

33



30

Verbal Abusive Behaviours ↓

20

29

Aggressive Behaviour **no increase**

28



58

Resisting Care ↓

45



31

Socially Inappropriate Behaviours ↓

23



# Fentanyl patches

'Review the effect after 2–4 weeks'



# Potential harms: Opioids

- High-risk medicines (Health Quality & Safety Commission, IHI)
- Respiratory depression
- Increased falls in older people; **one additional fall-related trauma for every 29 opioid prescriptions** (Daoust et al 2018)



# Potential harms: Fentanyl patches

- Death (ISMP Canada 2009)
- Very potent and dangerous if opioid naïve or chronic obstructive pulmonary disease
- Elderly particularly sensitive
- Lack of knowledge about indications, potency, pharmacokinetics, dosing
- Poor communication also contributed to harms (Health Quality & Safety Commission 2013)



# Appropriate use

- **Approved use:** (1) the management of chronic cancer pain, and (2) the management of *opioid-responsive* chronic severe pain of non-malignant origin in *opioid tolerant* patients, *after other conservative methods* of analgesia have been tried.
- Acute pain
  - Australian and New Zealand College of Anaesthetists: slow release opioids are not to be used for acute pain

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# Appropriate use

- Chronic pain
  - Opioids no more effective than non-opioids or non-pharmacologic interventions for chronic pain according to meta-analysis (Reinecke et al 2015)
- Exception: **cancer pain**
  - Cochrane systematic review: **patches produced good pain relief for most people**; reduction in complaints about constipation compared with oral morphine (Hadley et al 2013)



# Practice guidelines

Review of guidelines (Nuckols et al 2014)

- Caution for doses greater than 90 mg of morphine equivalents per day
- Reduce dose 25–50% when changing opioids, titrate with caution
- **Limit use to opioid-tolerant patients**
- Unpredictable absorption can occur with fever, exercise, or exposure to heat
- Use a trial period

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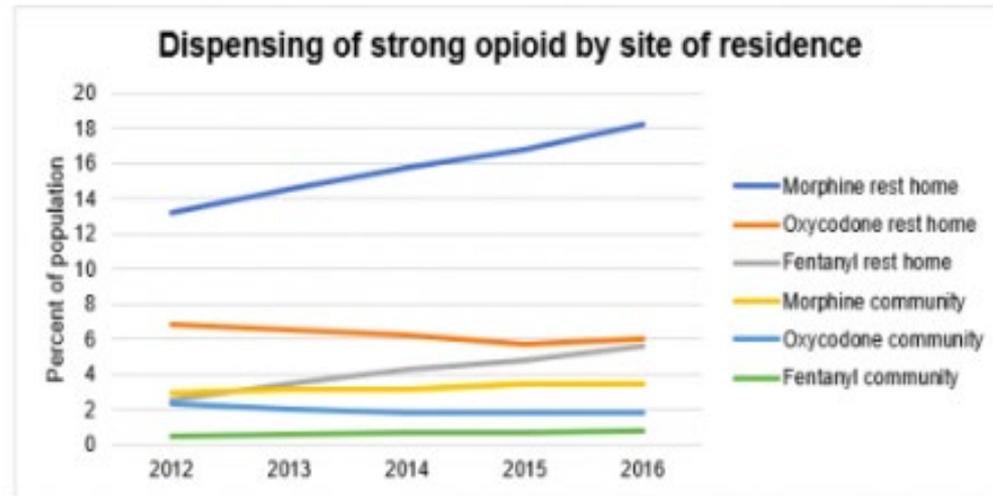
# Practice guidelines

Review of guidelines (Nuckols et al 2014)

- Engage MDT pain management
- **Schedule regular follow-up**
- Eight guidelines recognised **risks associated with fentanyl patches**
- Ten guidelines noted benzodiazepines and opioids are a high-risk combination
- Seven guidelines cited COPD as a risk factor for overdose

# NZ practice varies

- Rates of fentanyl use have more than doubled since 2011
- Fifteen-fold variation between DHBs
- Not clear why ARC facilities in some DHBs have high fentanyl usage
- Rate of opioid dispensing is higher in people of European/other ethnicity and in women
- Rate higher in people aged 80 and over, despite adverse effects of strong opioids more frequent





# Recommendations

- There is evidence of benefit for cancer pain
- Not for opioid-naïve patients
- For non-malignant pain prescribing should follow a thorough benefit-to-harm evaluation
- Consent must be obtained from the patient or their nominated representative

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# Recommendations

- Quality improvement interventions should involve ongoing audit and feedback, staff education, and use of clinical aids such as fentanyl patch charts and pain assessment tools
- Fentanyl should be a last resort, at the lowest possible dose, do not cut the patches
- Use a time-limited trial of efficacy (eg, 10–14 days)
- Improved documentation: Indication, baseline pain (validated pain tool), site, when to change, review date and plan for review, record ongoing pain, bowel assessment



# Overall report conclusions

- Ongoing audit data (electronic charting systems/API technology, Atlas of Healthcare Variation, local audits)
- Education
  - Harms and benefits
  - Practice guidelines
  - Value of clinical aids

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# Overall report conclusions

- Improve documentation
- Use objective clinical decision aids (urinary tract infection diagnosis, behavioural assessment, pain scores)
- Algorithms (starting antibiotic, deprescribing)
- Multidisciplinary review
- Consent



# References

For full references, see report at:

[www.hqsc.govt.nz/our-programmes/aged-residential-care/publications-and-resources/publication/3990](http://www.hqsc.govt.nz/our-programmes/aged-residential-care/publications-and-resources/publication/3990)