The Driving in Dementia Decision Tool in Clinical Practice

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Acknowledgements

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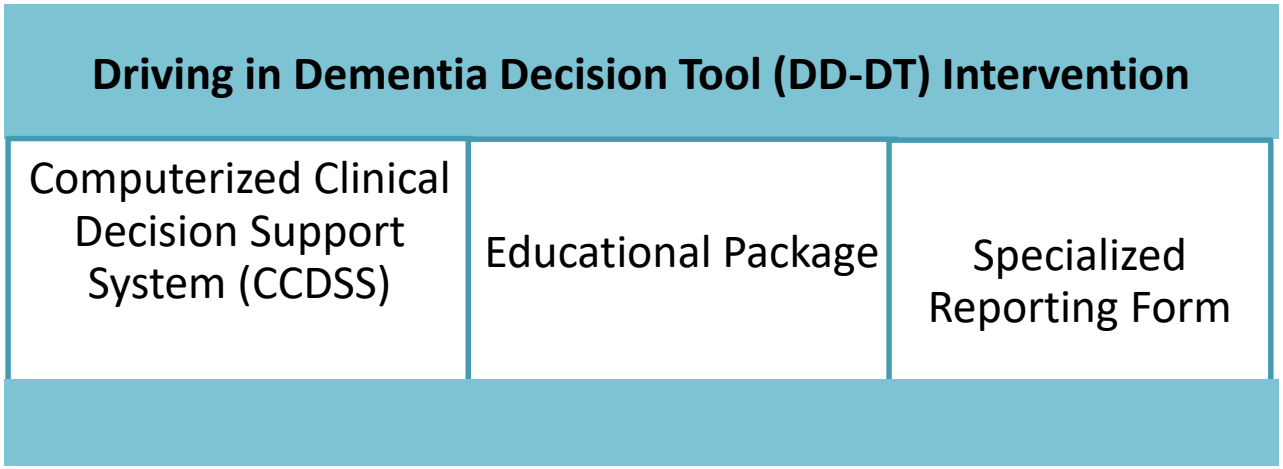
Objectives

- To adapt, tailor and implement a Driving in Dementia Decision Tool (DD-DT), based on best evidence, to facilitate physician decisions regarding reporting drivers with mild dementia and MCI to provincial transportation authorities; and
- To evaluate in a cluster randomized controlled trial the effects of the DD-DT on the outcome of physicians' reporting of such patients to provincial transportation administrators; and

Development of the DD-DT

- Systematic literature and guideline review
- Delphi expert opinion from the DADIO study
- Interviews and focus groups with physicians, OTs, family caregivers of persons with dementia and transportation administrators
- Iterative meetings with website developer



Cameron et al, International Psychogeriatrics, In Press

Development of the DD-DT

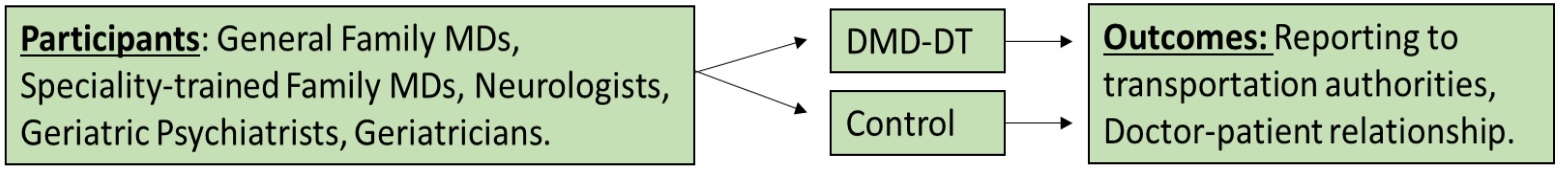
- Computerized clinical decision support system
- produces a recommendation for reporting patients with mild dementia or MCI to transportation authorities:

• Report • Do Not Report • No Consensus	vs	• Generic reminder of reporting legislation

Patient Data Required:
1. Age
2. Sex
3. First 3 digits of postal code
4. How long has s/he has been your patient?
5. Primary diagnosis (MCI or mild dementia & sub-type)
6. Relationship to caregiver / informant
7. Reliability of caregiver / informant
8. Caregiver/informant concern re: patient driving?
9. Patient history of motor vehicle crashes last 2 years?
10. Any behavioural / neuropsychiatric symptoms?
11. Difficulties with ADL and IADL?
12. MMSE and/or MoCA score (at least 1 of these)
13. Clock Drawing Test result
14. Any cognitive slowing?
15. Trails A and B Test result (optional)

Design and Analysis

- **Cluster Randomized Controlled Trial**
  - participants were stratified by gender and randomized

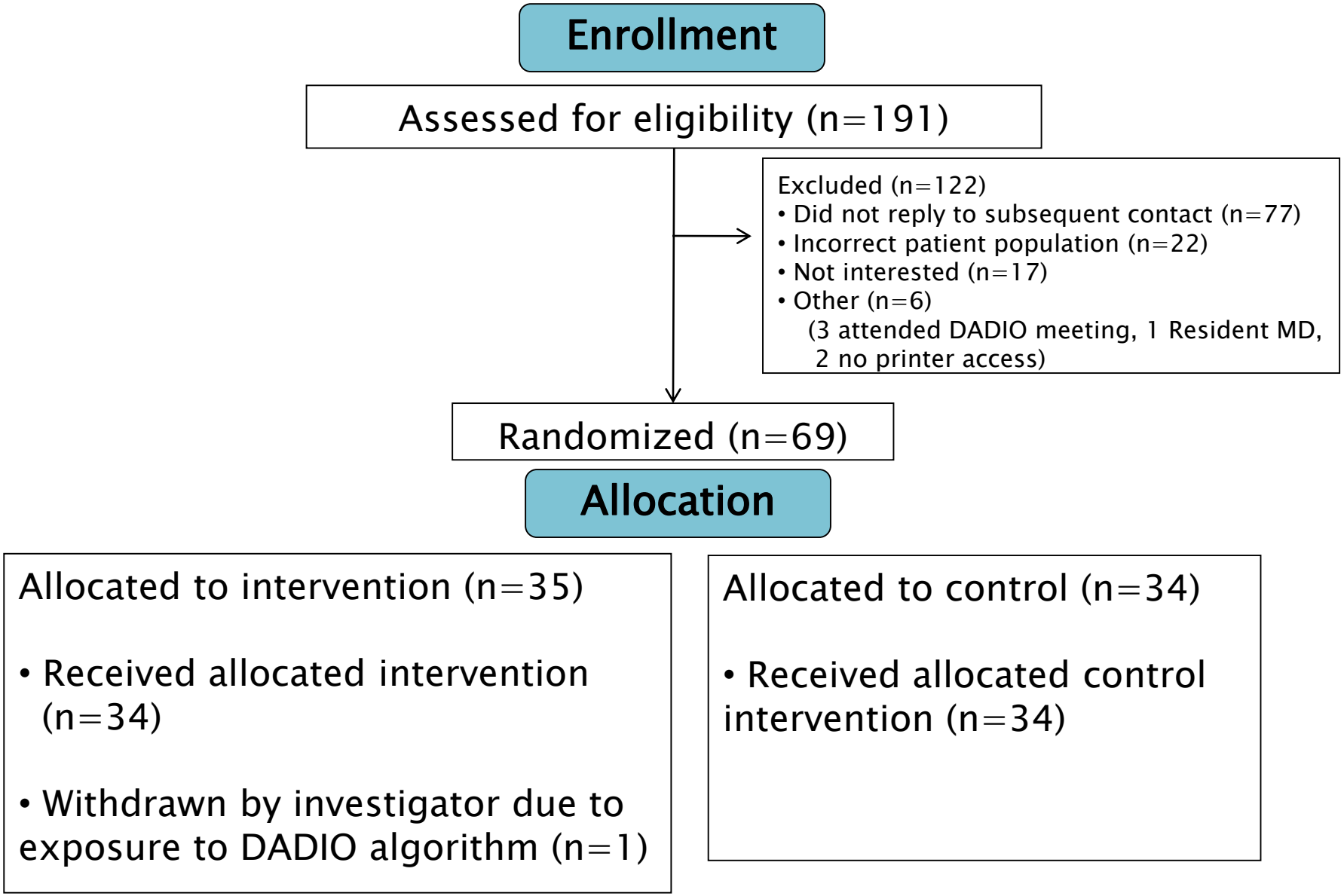


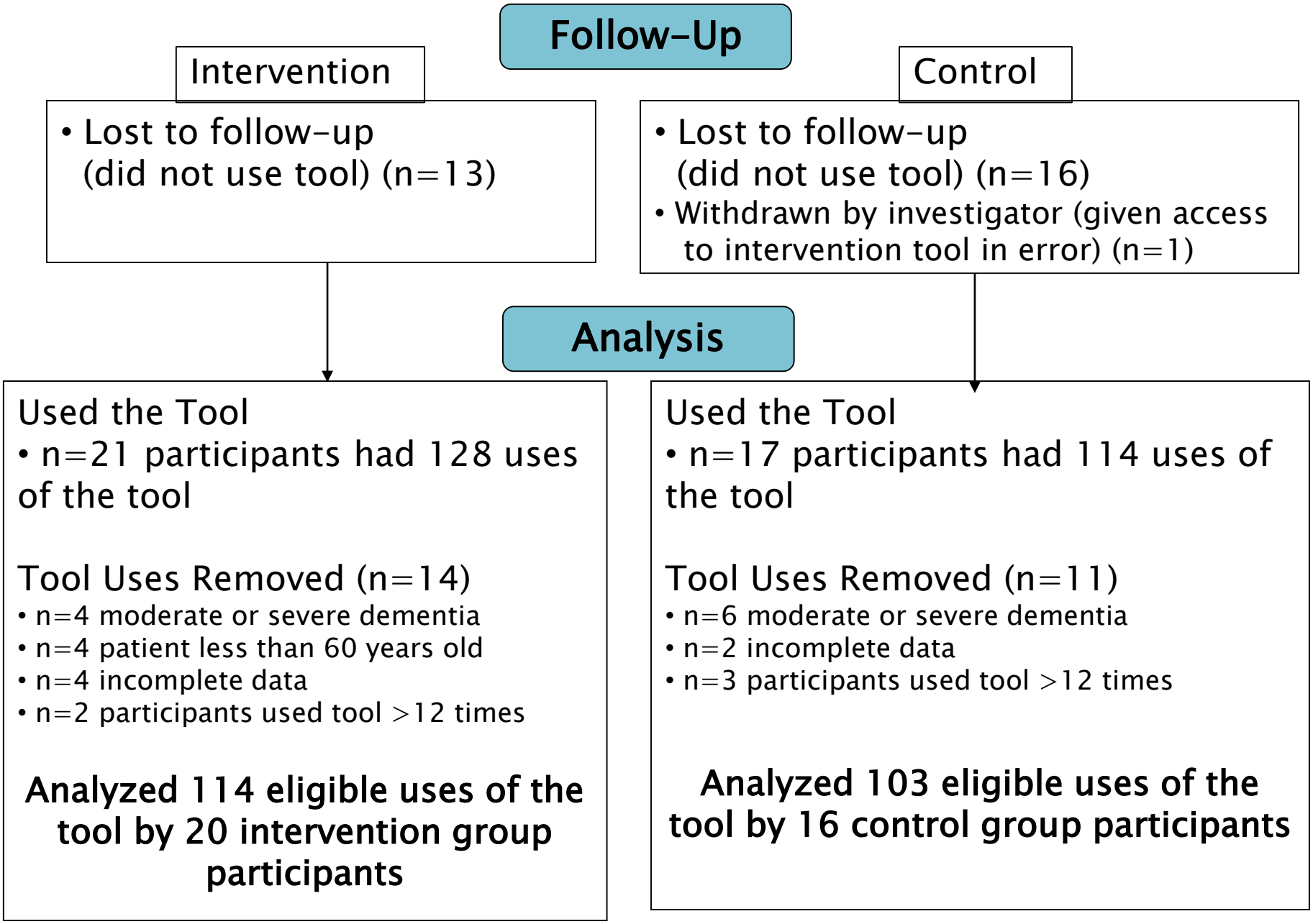
- **Quantitative analysis**
  - reporting decision relative to DADIO algorithm
  - road test decision

- **Qualitative analysis via interviews**
  - participant experience, impact on workflow and the MD-patient relationship

- **Sample size calculation**
  - based on an expected base reporting rate of 13% in family physicians, and an estimated 10% difference between control and intervention groups (i.e. the tool would increase per-protocol reports from 13% to 23%)

CONSORT Diagram




Follow-Up
Intervention
• Lost to follow-up (did not use tool) (n=13)
Control
• Lost to follow-up (did not use tool) (n=16)
• Withdrawn by investigator (given access to intervention tool in error) (n=1)
Analysis
Used the Tool
• n=21 participants had 128 uses of the tool
Tool Uses Removed (n=14)
• n=4 moderate or severe dementia
• n=4 patient less than 60 years old
• n=4 incomplete data
• n=2 participants used tool >12 times
Analyzed 114 eligible uses of the tool by 20 intervention group participants
Used the Tool
• n=17 participants had 114 uses of the tool
Tool Uses Removed (n=11)
• n=6 moderate or severe dementia
• n=2 incomplete data
• n=3 participants used tool >12 times
Analyzed 103 eligible uses of the tool by 16 control group participants

Results

MD Participants

Variable	Control Group (n=16)	Intervention Group (n=20)
Physician sex (n, % male)	8 (50%)	5 (25%)
Physician years in practice (Mean, SD)	13.44 (10.33)	14.58 (9.51)
Risk Taking Scale (Mean, SD)	17.56 (4.15)	16.50 (5.17)
Stress from Uncertainty Scale (Mean, SD)	42.13 (9.86)	42.15 (11.37)
Type of Practice (n, % Family medicine rather than specialty)	6 (38%)	10 (50%)
Location of Practice (n,% Rural rather than Urban)	2 (13%)	0 (0%)

Patients Assessed

Variable	Control Group	Intervention Group
Patient Age (years, SD), n=217	78.12 (7.62)	77.73 (7.16)
Patient sex (n, % male), n=217	62 (60%)	62 (54%)
Patient location (n, % rural), n=217	0 (0%)	13 (11%)
Mild Cognitive Impairment (ie not Mild Dementia, n, %), n=217	54 (52%)	63 (55%)
Caregiver Concern*, (n,%), n=217	37 (36%)	36 (32%)
Motor Vehicle Collisions, (n, %) n=217	11 (11%)	14 (12%)
Abnormal Clock (n, %), n=217	62 (60%)	61 (54%)
MMSE (mean, SD), n=75	24.07 (3.70)	25.74 (3.56)
MoCA (mean, SD), n=182	20.77 (3.84)	20.42 (3.87)
Behavioural or Neuropsychiatric Disturbances (n, %), n=217	25 (24%)	21 (18%)
Cognitive Slowing (n, %), n=217	32 (31%)	33 (29%)
Abnormal Trails B Result (n, %), n=120	33 (62%)	51 (76%)

Results – Reports to Transportation Administrators

- Reporting in accordance with the DADIO algorithm did not differ statistically between the intervention and control groups

  50% of patient assessments by intervention group vs 49% of patient assessments by the control group

- In multivariable analysis **caregiver concern** (adjusted OR 5.8, 95% CI 2.5–13.6, $p<0.0001$) and **abnormal clock drawing** (adjusted OR 6.1, 95% CI 3.1–11.8, $p<0.0001$) predicted reporting in accordance with the DADIO algorithm

Results – Recommendations for On-Road Testing

- **On-road tests were recommended in 32%** of assessments by the intervention group vs **33%** of assessments by the control group

- In multivariable analysis **caregiver concern** (adjusted OR 2.2, 95% CI 1.2–4.3, $p<0.01$) and **abnormal clock drawing** (adjusted OR 2.3, 95% CI 1.1–4.5, $p<0.02$) were associated with recommendations for on-road testing

Qualitative Results
– interviews with 13 participants

- Participants did not consistently use the new reporting forms we created.
- Some found the tool obtrusive.
- Some promise for Family MDs, but not for specialists.
- Frustration re the “Dementia and Driving” toolkit with MCI patients.

Discussion

- Challenges of KT
- Challenges of enrolling family physicians
- Challenges of encouraging tool use – uptake and workflow
- Clinical practice is difficult to change.

Discussion

- Why this may not have worked:
  - Much higher reporting rates than anticipated
  - Lower conflict rating than anticipated
  - Novice vs Expert clinicians / Primary Care vs Specialists
  - Ethical conundrum for clinicians
  - A reminder of the legislation may have scared the control group
  - Clinical predictors much more robust than anticipated

Future Directions

- Open test of the DD-DT is underway with 14 Nurse Practitioners in Ontario
- Post-test interviews will examine reporting via most-responsible MD, and integration of the tool into workflow
- Physician Assistants – invited but harder to engage
- Family physicians may still be the best audience for the DD-DT

Thank you