

3-Year Review of a Remote Pharmacist-Directed Warfarin Service

Kevin McDonald, B.Sc.PHM; Director North West Telepharmacy Solutions

Nadine Lambert, B.Sc.PHM; Pharmacy Services Lead, North West Telepharmacy Solutions

Aim

Provide better care for patients prescribed warfarin in very remote communities using telepharmacy

Context

Six communities (primarily First Nations population) along the James Bay Coast, accessible only by flights, water, or ice road. High rates of diabetes and its comorbidities. Additional comparison site of an ambulatory care clinic in Deep River, Ontario

The Problem

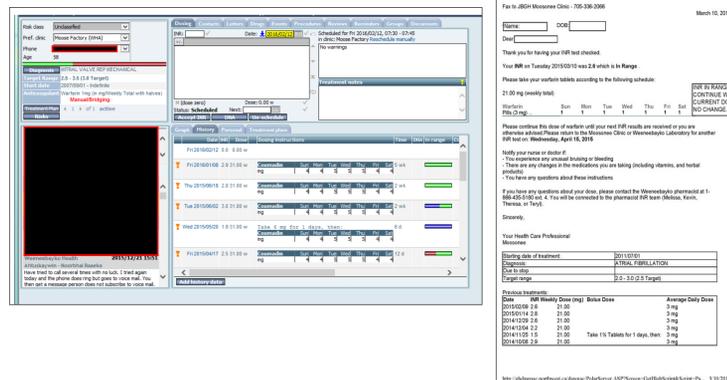
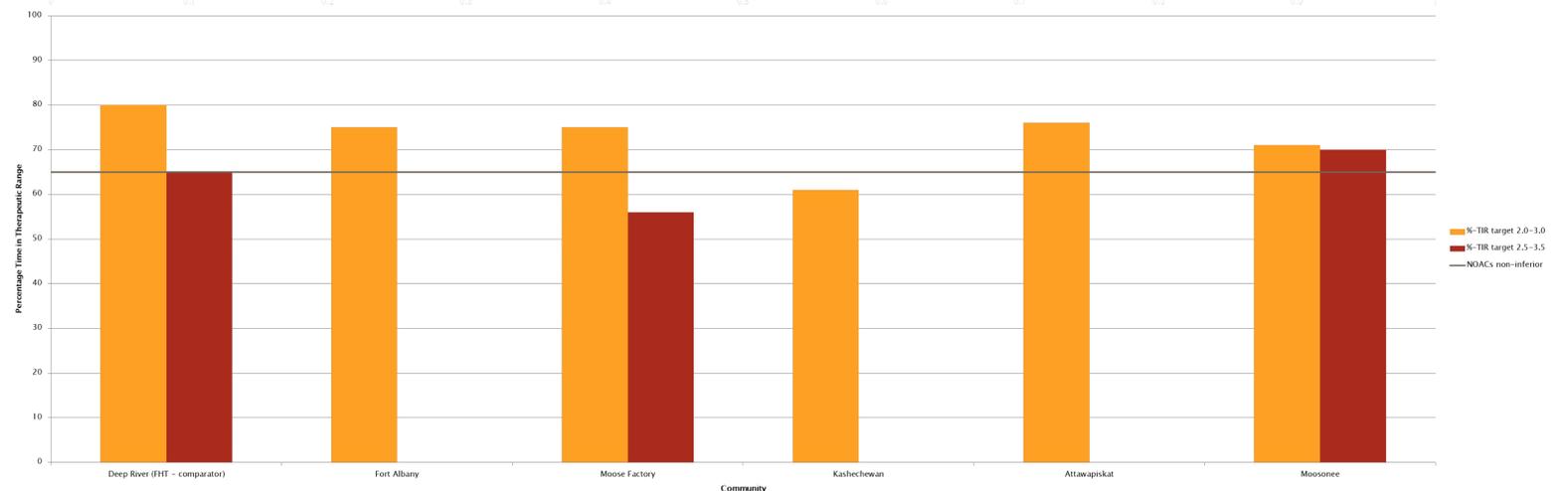
- ❑ Patients in remote communities have limited access to health care providers
- ❑ Warfarin is a potentially high risk medication that requires close monitoring (lab work) to ensure it is therapeutic while minimizing the risk of severe bleeds
- ❑ Pressure to change to new medications on the market (Novel Oral Anti Coagulants – NOACs) with their high cost but decreased monitoring requirements
- ❑ Availability of antidote for severe bleeds and poor blood supply adds to the risk of new agents



Intervention

1. Advanced Directive created so pharmacist could monitor, order labwork (INRs), adjust warfarin doses, and initiate vitamin K therapy
2. All patients prescribed warfarin in the region were entered into the DawnAC software for warfarin monitoring
3. Pharmacist would receive reports of all INRs done and enter into DawnAC and call patients to discuss after every result

Analysis of Warfarin Therapy %–TIR – Jan 1, 2013 to Dec 31, 2015



Lessons Learned

- ❑ Warfarin remains an effective means of anticoagulation despite national guidelines that recommend newer oral anticoagulants
- ❑ Telepharmacy and a remote pharmacist is an effective means to provide INR monitoring and warfarin dosing for patients
- ❑ Patients were very positive about receiving regular phone calls to discuss results and therapy changes
 - In most cases, this was the most regular care by a health care provider they had ever received

Effect of Change

- ❑ Every patient prescribed warfarin in the James Bay Region was under the pharmacist dosing program
- ❑ Patients could expect a call from the pharmacist about every INR result, any dosing changes, and next INR labwork
- ❑ Patients not compliant with INR bloodwork (i.e. not done on schedule) could expect the pharmacist to remind them
- ❑ Pharmacist became a professional resource for discussion of NOAC use in individual patients

Results

- ❑ Between Aug 1, 2011 and Dec 31, 2014, there were a total of 207 enrolled (active patients up to 90 at a time) in 7 communities
- ❑ 10 moderate-major bleeding events noted
- ❑ 12 patients lost to follow up and 121 discontinued
- ❑ Percentage Time in Therapeutic Range (%–TIR)
 - 2012 – 68%
 - 2013 – 68%
 - 2014 – 73%

References

- Reynolds MW, Fahrbach K, Hauch O, Wygant G, Estok R, Cella C, Nalysnyk L. Warfarin anticoagulation and outcomes in patients with atrial fibrillation: a systematic review and metaanalysis. *Chest*. 2004; Dec;126(6):1938–45.
- Go AS, Hylek EM, Chang Y, Phillips KA, Henault LE, Capra AM, Jensvold NG, Selby JV, Singer DE. Anticoagulation therapy for stroke prevention in atrial fibrillation: how well do randomized trials translate into clinical practice? *JAMA*. 2003 Nov 26;290(20):2685–92
- Shen AY, Yao JF, Brar SS, Jorgensen MB, Chen W. Racial/ethnic differences in the risk of intracranial hemorrhage among patients with atrial fibrillation. *J Am Coll Cardiol*. 2007 Jul 24;50(4):309–15.
- Albers CW, Diener HC, Frison L, Grind M, Nevinson M, Partridge S, Halperin JL, Horrow J, Olsson SB, Petersen P, Vahanian A; SPORTIF Executive Steering Committee for the SPORTIF V Investigators. Ximelagatran vs warfarin for stroke prevention in patients with nonvalvular atrial fibrillation: a randomized trial. *JAMA*. 2005 Feb 9;293(6):690–8
- Connolly S, Pogue J, Hart R, Pfeffer M, Hohnloser S, Chrolavicius S, Yusuf S. Clopidogrel plus aspirin versus oral anticoagulation for atrial fibrillation in the Atrial fibrillation Clopidogrel Trial with Irbesartan for

Address Correspondence to:
Kevin McDonald
Direct North West Telepharmacy Solutions
P.O. Box 606
Deep River, ON K0J 1P0
KmcDonald@northwest.ca