

**AIM@GP – Advancing INSIGHT  
Methods in General Practice:  
Insulin Initiation Support in  
Primary Care**

Stewart B. Harris<sup>1</sup>, Hertzl C. Gerstein<sup>2</sup>, Jean-Francois Yale<sup>3</sup>,  
Lori Berard<sup>4</sup>, John Stewart<sup>5</sup>, Susan M. Webster-Bogaert<sup>1</sup>

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<sup>1</sup>Department of Family Medicine, The University of Western Ontario  
<sup>2</sup>Department of Medicine, Master University  
<sup>3</sup>Department of Medicine, McGill University  
<sup>4</sup>Health Sciences Centre  
<sup>5</sup>sanofi-aventis

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### Background

- Pharmacists are accepted members of diabetes education teams within hospitals and ambulatory settings<sup>1</sup>
- Recent literature supports the integration of pharmacists into the family practice setting to improve diabetes outcomes<sup>2</sup>
- However, there is minimal evidence on the effectiveness of diabetes education support provided by community pharmacists in collaboration with family physicians<sup>3</sup>

<sup>1</sup> Sadur, C.N. 1999  
<sup>2</sup> Coast-Senior, E.A. 1998; Scott, D.M. 2006; Choe, H.M. 2005  
<sup>3</sup> M.P. 2000

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### Objective of AIM@GP

- To determine the effectiveness of an insulin initiation strategy to increase family physician insulin prescribing in the family practice setting

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### Method - Study Design

- Multi-centre (15 sites), national, study
- Stratified, parallel group, randomized controlled design

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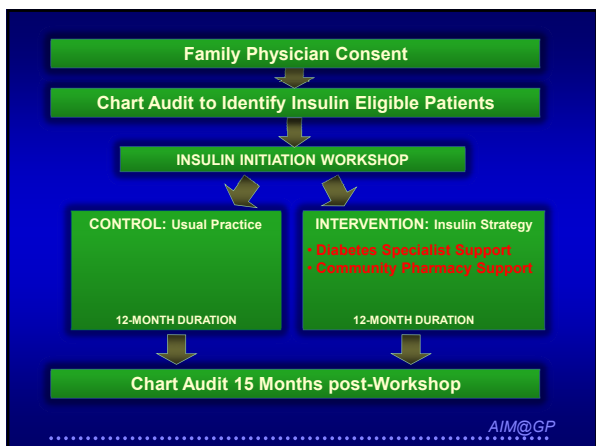
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### Method - Setting and Participants

- Eligible Family Physicians
  - Workshop attendance
  - Minimum of 35 patients with type 2 diabetes
  - Minimum 4, maximum 30 insulin-eligible patients

Patient insulin-eligibility

- T2DM
- Not currently prescribed insulin
- A1C  $\geq$  7.5% (most recent lab value)
- OAD score  $\geq$  1.5
  - Sum of all OADs prescribed
  - OAD  $\frac{1}{2}$  to maximum dose = 1 OAD

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### Method - Setting and Participants

- Diabetes Specialist Sites
  - Specialist / Nurse Educator / Chart Auditor
  - Role: chart auditing (pre & post); facilitation at insulin workshop; support for insulin initiation

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### Pharmacists

- Potential pharmacists in geographic proximity to consenting physicians identified through a national database and surveyed
- Matching of pharmacists to intervention physicians based on diabetes education training, geographic proximity, services and resources
- Role: support for insulin initiation

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### Method - CME Workshop

- All physicians attended the one-day workshop
- Overview
  - Education on insulin initiation and titration
  - Physician-specific summary 'report card' on the characteristics of their type 2 diabetes population
  - Physician-specific insulin registry
  - Randomization status

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### Method – Study Intervention

- Insulin Initiation Strategy
  1. Community pharmacist support
    - Intervention physicians introduced to matched pharmacists at CME Workshop
    - Option to refer patients to a trained community pharmacist for 1-hour insulin initiation session
  2. Specialist/educator diabetes consultation support
    - Active for 2 months (educator initiated every 2 weeks)
    - Passive for 10 months (ad-hoc; physician initiated)

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### Measures – Primary Outcome

- Insulin prescribing rate (IPR)
  - The number of insulin starts per physician of insulin-eligible patients during the 12 months following the CME Workshop

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### Measures – Secondary Outcomes

- HbA1c, fasting plasma glucose
- OAD prescription and score
- Insulin prescription and dosage
- Number of days from study start to insulin initiation
- Proportion of patients at HbA1c target ( $\leq 7.0\%$ ;  $\leq 6.5\%$ )
- Proportion of patients with intensification of diabetes management

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### Measures – Secondary Outcomes

- Elicited from questionnaires:
  - Physician knowledge, attitude, and self-efficacy of glycemia management, insulin initiation and titration
  - Physician-pharmacist collaboration
  - CME Workshop evaluation
  - AIM@GP study evaluation

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## Analysis

- Intention-To-Treat
  - Missing patient level clinical data estimated using the last-carried-forward approach
- Continuous variables
  - ANOVA with intervention and specialist site as fixed effects
- Categorical variables
  - Cochran-Mantel-Haenszel test (CMH) stratified by specialist site
- $p < 0.05$  deemed significant

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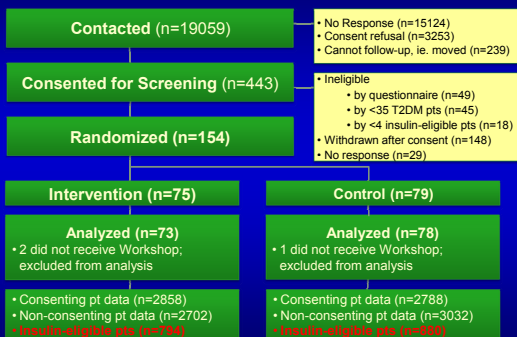
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## Results - Disposition of Subjects



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## Results - Baseline Demographics

- Physician participants

	Intervention N=73		Control N=78		p value
		SD		SD	
Mean age, years	51.4	8.8	48.2	9.1	.03
Male (N; %)	53; 72.6%	-	59; 75.6%	-	NS
Urban (N; %)	56; 76.7%	-	61; 78.2%	-	NS
Mean years in practice	26.1	8.8	23.1	9.6	.05
No T2DM CME attendance	21%	38.2	7%	11.1	<.0001
Mean number of pts	2440	1239	2365	1206	NS
Mean number pts T2DM	82.1	38.6	80.6	36.3	NS
Mean number pts seen/day	39.6	13.2	35.0	9.0	.02

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## Results - Baseline Demographics

- Patients
  - Only consenting patients for secondary outcomes

	Intervention N=73		Control N=78		p value
	Mean	SD	Mean	SD	
Years T2DM	7.9	2.5	8.0	2.9	NS
HbA1c Baseline	7.1%	0.43	7.2%	0.5	NS

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## Results – Primary Outcome

	Adjusted IPR	SE	RR	95% CI	p value
Intervention	2.28	0.27	0.99	0.80; 1.24	NS
Control	2.29	0.25			

Pooled site and stratum as class effect, mean HbA1c at baseline as covariate

Insulin Prescribing Rate	Intervention N=73	Control N=78
Mean	2.14	2.21
Standard Deviation	2.05	1.67
Median	2.0	2.0
Range	0 - 8	1 - 7

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## Secondary Clinical Outcomes

Clinical Outcomes <small>Only consenting pts</small>	Intervention <small>Mean, SD</small>		Control <small>Mean, SD</small>		Difference Change		
	Pre	Post	Pre	Post	Adjusted Mean SE	95% CI	p
HbA1c	7.1 0.4	7.1 0.4	7.2 0.5	7.2 0.5	0.02 0.04	-0.05; 0.09	NS
FPG	7.9 0.7	7.8 0.7	7.9 0.7	7.8 0.7	0.01 0.07	-0.13; 0.15	NS
% pts OADs	80.9 10.8	83.3 10.0	79.2 12.1	81.1 11.1	0.87 0.7	-0.42; 2.16	NS
OAD Score	1.3 0.2	1.4 0.2	1.4 0.2	1.4 0.2	0.01 0.02	-0.03; 0.04	NS
% pts Insulin	11.5 8.9	17.1 10.6	11.5 8.5	18.4 10.8	-1.1 0.9	-2.80; 0.69	NS
Insulin Daily Dose	47.9 21.2	53.6 22.7	57.2 26.2	54.9 23.7	6.0 2.8	0.35; 11.56	0.04
Intensification DM management		31.6 14.2		32.8 14.9	-0.3 2.4	-4.93; 4.34	NS

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### Pre-Post Changes

- Both intervention & control groups demonstrated:
  - A statistically significant increase in the number of patients prescribed OADs and the OAD score
  - A statistically significant increase in the number of patients prescribed insulin
  - No significant change in HbA1c or FPG
- The intervention group did significantly increase the insulin daily dose from 48 to 54 units; the control group did not change (57 to 54 units).

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### Physician Questionnaire

- No significant differences found **between** the intervention and control groups
- Both intervention and control groups demonstrated:
  - A significant increase in knowledge, attitude & self-efficacy of insulin initiation & titration
  - A significant increase in self efficacy of glycemic control
- The intervention group did significantly increase their knowledge of glycemic control

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### Intervention – Specialist Support

- Specialist/Educator Support
  - 6 physicians contacted specialists in the 10 month Passive Phase\*
  - Physicians agreed/strongly agreed that specialist support\*\*
    - Was useful **89%**
    - Increased confidence in managing DM **97%**
    - Increased confidence initiating/titrating insulin **95%**

\* Communication Logbooks  
 \*\*Study Evaluation Questionnaire: 4 point Likert Scale Strongly Agree to Strongly Disagree

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### Intervention - Pharmacist Support

- Physicians
  - 92% of physicians were matched with a pharmacist
  - Physicians agreed/strongly agreed that pharmacist support\*
    - Was useful **81%**
    - Increased confidence initiating/titrating insulin **72%**
- Pharmacists\*
  - 89% pharmacists were aware of matched FP
  - 50% pharmacists were referred clients during study
  - Pharmacists agreed/strongly agreed that the collaboration with the physician
    - Improved collaboration physicians overall **76%**
    - Improved own confidence initiating insulin **77%**

\* AIM@GP Study Evaluation Questionnaire; Yes/No, 4 Q; 4 point Likert Scale Strongly Agree to Strongly Disagree

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### Discussion

- The AIM@GP trial targeted two major barriers to physician insulin prescribing behavior
  1. Lack of physician knowledge and confidence in insulin initiation and titration
  2. Lack of system support and internal clinical expertise

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### Discussion

- Providing family physicians with the option to use a community pharmacy for insulin initiation with back-up support by a specialist team did not result in a significant improvement in insulin initiation

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### Potential Explanation of Findings

- Low insulin prescribing rates for both intervention and control groups
- Minimal pressure to insulinize due to the low mean baseline HbA1c for both intervention and control groups
- Strength of the CME Workshop
- Artificial physician/pharmacist relationships

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### Conclusion

- This trial
  - Provides no evidence to support the strategy as a mechanism to change insulin prescribing in family practice
  - Adds to the growing consensus regarding the critical difference between the effectiveness of a pharmacist in a community pharmacy vs. in the family practice setting

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### Conclusion...

- Too few physicians are appropriately intensifying diabetes management through insulin initiation
- Future research is needed to develop and evaluate strategies to facilitate timely and appropriate use of insulin in family practice

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