

## Part 1

Scenario: During your reference interview you meet Julie, who is a nurse practitioner student who is doing a search for her FNP (family nurse practitioner) primary care unit. She is a RN with 10 years of experience in OB/GYN but does not practice in primary care so she needs help accessing the most current practices in diabetes management for her 45 year old female who speaks English as a second language and Spanish as a primary language. She speaks Spanish in an OB/GYN setting but will have access to an interpreter for patient instruction. Currently she seems open to finding the information that she needs and is able to communicate well. She also has a iPhone which she uses to find references on the web as well.

As a nursing student, it is priority that there be a few reference books that they will need that will make their lives easier as they move from clinical area to clinical area. Expense and ease of use are important to consider when advising students which materials to consider when making a purchase. Most nursing students will have multitudes of books their instructors or nursing programs will advise them to purchase to use as reference.

Current Practice Guidelines in Primary Care 2009 by Ralph Gonzales and Jean Kurtner, Paperback, 12.92 at amazon.com, ISBN-13 978-0071601337, McGraw-Hill Professional, (Nov, 20, 2008), 9<sup>th</sup> Ed. Rated 5 star Doody's Review. Current is a peer reviewed annually and not specific to any specialty which makes it a good standard reference for a nurse practitioner student.

Evidence Based Medicine Guidelines-Diabetes and Endocrinology by Ilkka Kunnamo Editor-In-Chief by John Wiley and Sons, Duodecim Medical Publications. These are EBM guidelines that are downloadable to her I phone or other cellular devise for use on the go. There are multiple different products available for free and nominal fees which are updated frequently and digital in format. Cost is 40.00 for this particular reference. It is available for download at skyscape.com. Reasons for the purchase: because it is in digital format, updated digitally, print version also available but more current in the digital format. Available for the student on the go when other resources are not available as well as many other downloadable references are available with this service for free.

## Part 2: Planning Your EBP Search Strategy

1. Develop a PICO for your health professional's information query. The next day your NP student is back from her first clinical. She is asking to find evidence based practice information on type 2 diabetes treatment as well when insulin therapy is initiated for a 45 year old female and how can she find current EBP guidelines to discuss in her next class project.
  - a. When is insulin therapy indicated in type 2 diabetes in a 45 year old female who is managed on oral hypoglycemics and diet.
    - i. P-Patient-45 year old female
    - ii. I-Intervention-when is insulin started

- iii. C-not applicable
- iv. O-Measurement of success-Improvement in HgA1C
- b. PICO Question: When is insulin therapy initiated in type 2 diabetes in a 45 year old female who is managed on oral hypoglycemics and diet.
- c. Strategy/Plan: I plan to search the Cochrane Systematic Reviews, PubMed, CINAHL Plus with full text, Medline with full text. I also plan to use the ADA dietary recommendations as a resource for the patient to use to help with her diet. I plan to go through the TWU list of databases for EBP.
- d. I do not intend to use the Textbook of Primary Care by John Noble 3<sup>rd</sup> Ed. Dated 9/27/2000 (It is the most current textbook on Primary Care that is located in my office at home). The reason why I plan not to use it is because it may have information that would be valid but is not a current resource to use for EBP.
- e. I do not intend to use the Diabetes: The New type 2: Your complete handbook for diabetes type 2 by June Biermann because it is only a consumer guide for type 2 diabetes. Although this is a good resource for patients it is also not an effective resource for evidence based practice.
- f. Search terms to try out: Diabetes, Type two, type 2, adult onset diabetes, sugar diabetes, insulin and injections, evidence based practice, EBM
- g. Search Limits and filters: EBM or EBP, women, age 18 and older, adults
- h. Search strings:
  - i. Diabetes AND type 2 AND type two AND adult onset diabetes AND women AND treatment AND insulin AND initiation
  - ii. ("diabetes mellitus, type 2"[MeSH Terms] OR "type 2 diabetes mellitus"[All Fields] OR "type 2 diabetes"[All Fields]) AND initiation[All Fields] AND ("insulin"[MeSH Terms] OR "insulin"[All Fields])
  - iii. ("diabetes mellitus, type 2"[MeSH Terms] OR "type 2 diabetes mellitus"[All Fields]) AND starting[All Fields] AND ("insulin"[MeSH Terms] OR "insulin"[All Fields]) AND initiation[All Fields]

### Part 3

Three strategies:

Cochrane Systematic Reviews was searched using the following terms (chosen because it is the foremost standard in EBM: Searched diabetes and insulin.

*The Cochrane Central Register of Controlled Trials (CENTRAL) 2009 Issue 4*  
 Copyright © 2009 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.

Title	Comparison of glycaemic control in patients with Type 2 diabetes on basal insulin and fixed combination oral antidiabetic treatment: results of a pilot study. <a href="#">Links</a> <a href="#">Export Central Citation</a>
-------	--

Author(s)	De Mattia G, Laurenti O, Moretti A
Source	Acta diabetologica
Date of Publication	2009 Mar
Volume	46
Issue	1
Pages	67-73
Abstract	<p>This randomised, open-label, two-way cross-over study compared the coefficient of variance (CV) of fasting and postprandial blood glucose (FBG and PPBG) with insulin glargine (glargine) versus neutral protamine Hagedorn (NPH) insulin treatment in patients with Type 2 diabetes (T2DM). Patients (N=20) on oral antidiabetic drugs (OADs) were treated with NPH (at bedtime) or glargine (at dinnertime) for 12 weeks of each cross-over treatment period; OADs were continued. The FBG CV was calculated from self-monitored BG values and PPBG using venous blood samples, or continuous glucose monitoring system (CGMS). Both insulins provided similar improvements in glycaemic control; however, PPBG was significantly lower after a standard meal test (performed at 13:00 h the day after insulin injection) with glargine versus NPH (p=0.02). Thirteen versus 15 patients experienced <math>\geq 1</math> episode of hypoglycaemia with glargine versus NPH. The results suggest that glargine plus OADs is more effective in reducing PPBG fluctuations during the day than NPH plus OADs.</p>
Medical Subject Headings (MeSH)	<p><a href="#">Administration, Oral</a>; <a href="#">Blood Glucose [*metabolism]</a>; <a href="#">Cross-Over Studies</a>; <a href="#">Diabetes Mellitus, Type 2 [*blood; *drug therapy]</a>; <a href="#">Glyburide [*therapeutic use]</a>; <a href="#">Hypoglycemia [prevention &amp; control]</a>; <a href="#">Hypoglycemic Agents [administration &amp; dosage; *therapeutic use]</a>; <a href="#">Insulin [*analogs &amp; derivatives; therapeutic use]</a>; <a href="#">Insulin, NPH [*therapeutic use]</a>; <a href="#">Metformin [*therapeutic use]</a>; <a href="#">Monitoring, Ambulatory</a>; <a href="#">Pilot Projects</a></p> <p>MeSH check words Aged; Female; Humans; Male; Middle Aged</p>
Correspondence Address	Department of Internal Medicine, University of Rome Sapienza, Viale del Policlinico, 155, 00161 Rome, Italy. giancarlo.demattia@alice.it
Accession Number	PUBMED 19030772
Cochrane Group Code	<a href="#">SR-ENDOC</a>
Publication Type	Comparative Study; Journal Article; Randomized Controlled Trial; Research Support, Non-U.S. Gov't
ID	CN-00683037

[Intervention Protocol]

Different insulin regimens for type 2 diabetes mellitus

Andrew J Farmer<sup>1</sup>, Daniel S Lasserson<sup>2</sup>, Rafael Perera<sup>3</sup>, Paul P Glasziou<sup>3</sup>, Rury Holman<sup>4</sup>

<sup>1</sup>The Health Centre, Thame, Oxfordshire, UK. <sup>2</sup>Dept. Primary Health Care, University of Oxford, Oxford, UK. <sup>3</sup>Department of Primary Health Care, University of Oxford, Oxford, UK. <sup>4</sup>Diabetes Trials Unit, University of Oxford, Oxford, UK

Contact address: Andrew J Farmer, The Health Centre, East Street, Thame, Oxfordshire, OX9 3JZ, UK. [andrew.farmer@dphpc.ox.ac.uk](mailto:andrew.farmer@dphpc.ox.ac.uk). (Editorial group: [Cochrane Metabolic and Endocrine Disorders Group](#).)

*Cochrane Database of Systematic Reviews*, Issue 4, 2009 (Status in this issue: *Unchanged*)  
Copyright © 2009 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.  
DOI: 10.1002/14651858.CD006299

This version first published online: 18 October 2006 in Issue 4, 2006. (Help document - [Dates and Statuses](#) explained).

This record should be cited as: Farmer AJ, Lasserson DS, Perera R, Glasziou PP, Holman R. Different insulin regimens for type 2 diabetes mellitus (Protocol). *Cochrane Database of Systematic Reviews* 2006, Issue 4. Art. No.: CD006299. DOI: 10.1002/14651858.CD006299.

---

Abstract

This is the protocol for a review and there is no abstract. The objectives are as follows:

To assess the effects of different insulin regimens for type 2 diabetes mellitus.

CINAHL Plus with Full Text [Choose Databases »](#)

Suggest Subject Terms

## EBSCOhost Search

- in
- join operator   in
- join operator   in  [Add Row](#)

<input type="button" value="Search"/>	<input type="button" value="Clear"/>
---------------------------------------	--------------------------------------

## Main Toolbar

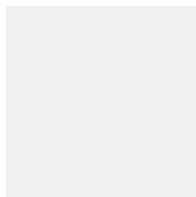
- [Basic Search](#)
- [Advanced Search](#)
- [Visual Search](#)
- [Search History/Alerts](#)
- [Preferences »](#)

## Related Information

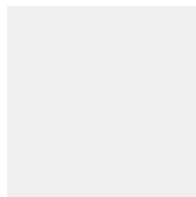
### Similar Results

[Find Similar Results](#) using SmartText Searching.

## Results Navigation



Result 14 of 66



[Return to Result List](#) | [Refine Search](#)

## Format and Delivery Options

### View:

- Citation

### Delivery Options:

- 
- 
- 
- 
- 
- 
- 

### Citation Detail

Title: State of Alaska 2008 recommendations for the management of diabetes type 2.  
Authors: [Stillwater B](#)  
Source: [Alaska Nurse](#) (ALASKA NURSE), 2008 Aug; 58(3): 8-9

Publication Type:

journal article - practice guidelines, tables/charts

Language:

English

Major Subjects:

[Diabetes Mellitus, Non-Insulin-Dependent](#) -- [Therapy](#) -- [Alaska Preventive Health Care](#)

Minor Subjects:

[Age Factors](#); [Alaska](#); [Information Resources](#); [Native Americans](#); [Preventive Health Care](#) -- [Utilization](#); [Race Factors](#); [Whites](#); [World Wide Web](#)

Journal Subset:

Nursing; USA

ISSN:

0002-4546

MEDLINE Info:

*NLM UID:* 0042336

Publisher Info:

URL: [www.cinahl.com/cgi-bin/refsvc?jid=965&accno=2010118683](http://www.cinahl.com/cgi-bin/refsvc?jid=965&accno=2010118683)

Entry Date:

20090102

Accession Number:

2010118683

Persistent link to this record (Permalink):

<http://ezproxy>

Database:

CINAHL Plus with Full Text

View Links:

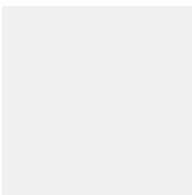
[Find Full-Text](#)

## Format and Delivery Options

**View:**

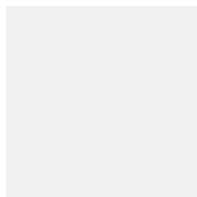
- Citation

**Delivery Options:**

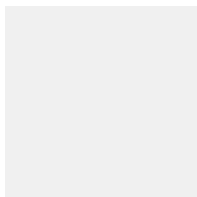
- 

- 
- 
- 
- 
- 
- 

## Results Navigation



Result 14 of 66



[Return to Result List](#) | [Refine Search](#)

[Top of Page](#)

- [EBSCO Support Site](#)
  - [Privacy Policy](#)
  - [Terms of Use](#)
  - [Copyright](#)
-



---

Decision-making: *initiating insulin therapy* for adults with *diabetes*.

Author(s):

[McDowell JR](#); [Coates V](#); [Davis R](#); [Brown F](#); [Dromgoole P](#); [Lowes L](#); [Turner EV](#); [Thompson K](#)

Author's Address:

Division of Nursing & Health Care, University of Glasgow, UK.  
j.r.mcdowell@clinmed.gla.ac.uk

Source:

[Journal Of Advanced Nursing](#) [J Adv Nurs] 2009 Jan; Vol. 65 (1), pp. 35-44.

Publication Type:

Journal Article; Research Support, Non-U.S. Gov't; Review

Language:

English

Journal Information:

*Country of Publication:* England *NLM ID:* 7609811 *Publication Model:* Print *Cited Medium:* Internet *ISSN:* 1365-2648 (Electronic) *Subsets:* MEDLINE; Nursing

MeSH Terms:

[Decision Making\\*](#)  
[Diabetes Mellitus, Type 2/\\*drug therapy](#)  
[Hypoglycemic Agents/\\*therapeutic use](#)  
[Insulin/\\*therapeutic use](#)  
[Nurse's Role/\\*psychology](#)  
[Nursing Assessment/\\*methods](#)  
[Adult](#); [Attitude of Health Personnel](#); [Diabetes Mellitus, Type 2/nursing](#); [Great Britain](#); [Health Knowledge, Attitudes, Practice](#); [Humans](#); [Patient Participation](#); [Professional Autonomy](#); [Questionnaires](#); [Young Adult](#)

Abstract:

AIM: This paper is a report of a study to describe nurses' perceptions of decision-making and the evidence base for the initiation of *insulin therapy*. BACKGROUND: Several theoretical perspectives and professional's attributes underpin decision-making to commence *insulin therapy*. The management of *type 2 diabetes* is moving from secondary to primary care and this affects how clinical decisions are made, by whom and the evidence base for these decisions. METHOD: A postal survey was conducted with a stratified sample of 3478 *Diabetes* Specialist Nurses and Practice Nurses with a special interest in *diabetes* across the four countries of the United Kingdom. A total of 1310 valid responses were returned, giving a response rate of 37.7%. The questionnaire was designed for the study and pilot-tested before use. Responses were given using Likert-*type* scales. Data were collected during 2005 and 2006, and one reminder was sent. RESULTS: People with *diabetes* are seen as having little influence in decision-making. Consultant physicians appear to be influential in most decisions, and the nursing groups held varying perceptions of who made clinical decisions. Nurses' identified different responsibilities for those working solely in secondary care from those working in both community and secondary care. Practice nurses were not as involved as anticipated. CONCLUSION: Nurses working with people with *diabetes* need to encourage them to

become more active partners in care. Clinical guidelines can assist in decision-making where nurses are least experienced in *initiating insulin therapy*.

Number of References:

34

CAS Registry Number:

0 (Hypoglycemic Agents)

11061-68-0 (*Insulin*)

Entry Date(s):

*Date Created:* 20090105 *Date Completed:* 20090305

Update Code:

20090305

PMID:

19120581

Persistent link to this record (Permalink):

<http://ezproxy>

Database:

MEDLINE with Full Text

View Links:

[Find Full-Text](#)

## Format and Delivery Options

**View:**

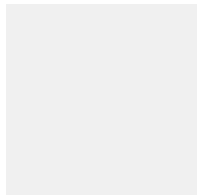
- Citation

**Delivery Options:**

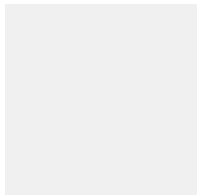
- 
- 
- 

- 
- 
- 
- 

## Results Navigation



Result 5 of 36



[Return to Result List](#) | [Refine Search](#)



Searching: MEDLINE with Full Text [Choose Databases »](#)

## EBSCOhost Search

- in
- join operator   in
- join operator   in

[Add Row](#)

Search	Clear
--------	-------

## Main Toolbar

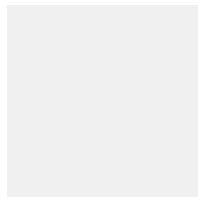
- [Basic Search](#)
- [Advanced Search](#)
- [Visual Search](#)
- [Search History/Alerts](#)
- [Preferences »](#)

## Related Information

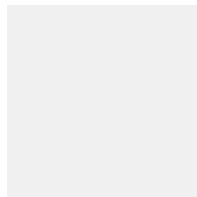
### Similar Results

[Find Similar Results](#) using SmartText Searching.

## Results Navigation



Result 14 of 36



[Return to Result List](#) | [Refine Search](#)

-

## Format and Delivery Options

### View:

- Citation

### Delivery Options:

-

- 
- 
- 
- 
- 
- 

## Citation Detail

Title:

The effectiveness of *insulin* initiation regimens in patients with *type 2 diabetes* mellitus: a large national medical records review study comparing a basal *insulin* analogue to premixed *insulin*.

Author(s):

[Sun P](#); [Wang R](#); [Jacobson S](#)

Author's Address:

Kailo Research Group, Indianapolis, IN, USA.

Source:

[Current Medical Research And Opinion](#) [Curr Med Res Opin] 2007 Dec; Vol. 23 (12), pp. 3017-23.

Publication Type:

Journal Article; Research Support, Non-U.S. Gov't; Review

Language:

English

Journal Information:

*Country of Publication:* England *NLM ID:* 0351014 *Publication Model:* Print Cited  
*Medium:* Internet *ISSN:* 1473-4877 (Electronic) *Subsets:* MEDLINE

MeSH Terms:

[Diabetes Mellitus, Type 2/\\*drug therapy](#)

[Insulin/\\*analogs & derivatives](#)

[Insulin/\\*therapeutic use](#)

[Adult](#); [Aged](#); [Aged, 80 and over](#); [Diabetes Mellitus, Type 2/blood](#); [Female](#); [Hemoglobin A, Glycosylated/analysis](#); [Humans](#); [Male](#); [Middle Aged](#); [Randomized Controlled Trials as Topic](#); [Treatment Outcome](#)

Abstract:

**OBJECTIVES:** The objective of the study was to compare the level of HbA(1c) reduction between a once-daily basal *insulin* analogue (glargine, GLG) and two twice-daily premixed *insulin* analogue formulations (premixed *insulin* lispro 75/25, PIL; premixed human *insulin* 70/30, PHI) in patients with *type 2 diabetes* mellitus (T2DM) *initiating insulin therapy*. **RESEARCH DESIGN AND METHODS:** Data were extracted from a US national medical records database for this retrospective, 18-month, observational, cohort study. Patients with T2DM were initiated on GLG (n = 3624), PIL (n = 895) or PHI (n = 3647). A combined premixed *insulin* group (CPI; n = 4542) was formed for data analyses. Propensity score methods were used to adjust for 19 baseline characteristics. **MAIN OUTCOME MEASURES:** Adjusted and unadjusted reductions in HbA(1c) at six time points post-*insulin* initiation for a period of 18 months. **RESULTS:** Reductions in mean HbA(1c) relative to baseline were demonstrated by all cohorts for all treatment periods. After adjusting for baseline differences, the CPI cohort consistently demonstrated greater reductions in HbA(1c) (0.04-0.14%; p < 0.05), compared to the GLG cohort. The PIL cohort consistently demonstrated the greatest reductions in HbA(1c) (0.26-0.65%; p < 0.05), compared to the GLG cohort. **LIMITATIONS:** Retrospective study design and vulnerabilities to patient drop-outs. **CONCLUSIONS:** In clinical practice settings, greater reductions in HbA(1c) were found in patients with premixed *insulin* than with a basal *insulin* analogue with the greatest reduction observed with premixed *insulin* lispro 75/25, confirming the observations of randomized, controlled trials.

Number of References:

19

CAS Registry Number:

0 (Hemoglobin A, Glycosylated)

0 (basal *insulin*)

0 (hemoglobin A1c protein, human)

11061-68-0 (*Insulin*)

Entry Date(s):

*Date Created:* 20071219 *Date Completed:* 20080222

Update Code:

20081217

PMID:

17961295

Persistent link to this record (Permalink):

<http://ezproxy>

Database:

MEDLINE with Full Text

View Links:

[Find Full-Text](#)

---

Advancing *therapy* in *type 2 diabetes* mellitus with early, comprehensive progression from oral agents to *insulin therapy*.

Author(s):

[Vinik A](#)

Author's Address:

Strefitz *Diabetes* Research Institute, Eastern Virginia Medical School, Norfolk, Virginia, USA. [Vinikai@evms.edu](mailto:Vinikai@evms.edu)

Source:

[Clinical Therapeutics](#) [Clin Ther] 2007 Jun; Vol. 29 (6 Pt 1), pp. 1236-53.

Publication Type:

Journal Article; Review

Language:

English

Journal Information:

*Country of Publication:* United States *NLM ID:* 7706726 *Publication Model:* Print Cited  
*Medium:* Internet *ISSN:* 1879-114X (Electronic) *Subsets:* MEDLINE

MeSH Terms:

[Diabetes Mellitus, Type 2/\\*drug therapy](#)  
[Hypoglycemic Agents/\\*therapeutic use](#)  
[Insulin/\\*therapeutic use](#)  
[Administration, Inhalation](#); [Administration, Oral](#); [Algorithms](#); [C-Reactive Protein/drug effects](#); [Diabetes Complications/prevention & control](#); [Diabetes Mellitus, Type 2/blood](#); [Hemoglobin A, Glycosylated/analysis](#); [Humans](#); [Infusion Pumps, Implantable](#); [Insulin-Secreting Cells/drug effects](#); [Thiazolidinediones/therapeutic use](#)

Abstract:

**BACKGROUND:** Early and intensive glycemic control is necessary to prevent or minimize the development of microvascular and macrovascular complications in individuals with *type 2 diabetes* mellitus. However, many patients are unable to attain glycemic control, partly due to protracted treatment with oral antidiabetic drugs (OADs) despite inadequate control and barriers to *initiating insulin therapy*. Patients at different stages of disease may benefit from the early introduction of intensive glycemic control. **OBJECTIVE:** This article discusses some of the potential barriers to achieving and maintaining optimal glycemic levels in patients whose blood glucose is sub-optimally controlled with OADs and reviews the benefits of early introduction of intensive glycemic control in patients at various stages of disease, with an emphasis on *insulin*

**therapy.** METHODS: Relevant English-language articles published from 1996 to 2006 were identified through searches of the National Center for Biotechnology PubMed database. Search terms included *insulin*, *insulin therapy*, *type 2 diabetes*, *insulin* analogs, early insulinization, and *diabetes* prevention, among others. Studies were assessed regarding designs, primary and secondary efficacy parameters, glycosylated hemoglobin (HbA<sub>1c</sub>), fasting plasma glucose, incidence of hypoglycemia, and other safety assessments. Inclusion criteria were multicenter, randomized, open-label, parallel-group trials, as well as retrospective observational studies, conducted in Europe or the United States. Additional analyses and guideline-based recommendations are included. RESULTS: The landmark results of the United Kingdom Prospective *Diabetes* Study, which found that an intensive strategy in 3867 newly diagnosed patients with *type 2 diabetes* was associated with stricter glycemic control than was conventional care (HbA<sub>1c</sub> over 10 years, 7.0% vs 7.9%; P < 0.001), as well as a 25% reduction in the risk for microvascular complications (P = 0.01). Early initiation of *insulin therapy* concomitantly with OADs appeared well tolerated in the populations studied, was effective in recently diagnosed patients, and may also confer anti-inflammatory and antiatherogenic effects. Characteristics associated with newer formulations of *insulin* (eg, basal *insulin* analogues as well as rapid-acting *insulin* analogues, the *insulin* pump, or inhaled *insulin*) may help overcome barriers associated with *initiating insulin therapy*. CONCLUSIONS: Based on the literature, early and persistent intensification of antidiabetic *therapy* is an approach that most likely will achieve optimal glycemic control in patients with *type 2 diabetes* and help prevent associated complications. Greater clinical experience with newer therapeutic approaches, including incretin mimetics and dipeptidyl peptidase-IV inhibitors, will provide insight into their place in the spectrum of *diabetes* treatments. ((c) 2007 Excerpta Medica, Inc.)

Number of References:

114

CAS Registry Number:

0 (Hemoglobin A, Glycosylated)  
0 (Hypoglycemic Agents)  
0 (Thiazolidinediones)  
0 (hemoglobin A1c protein, human)  
11061-68-0 (*Insulin*)  
9007-41-4 (C-Reactive Protein)

Entry Date(s):

*Date Created: 20071126 Date Completed: 20090915 Latest Revision: 20090918*

Update Code:

20090918

PMID:

18036387

Persistent link to this record (Permalink):

<http://ezproxy>

Database:

MEDLINE with Full Text



View Links:

[Find Full-Text](#)

## Format and Delivery Options

View:

- Citation

Delivery Options:

•

•

•

•

•

•

.

## Results Navigation

Result 18 of 36

[Return to Result List](#) | [Refine Search](#)

[Top of Page](#)

- [EBSCO Support Site](#)
- [Privacy Policy](#)
- [Terms of Use](#)
- [Copyright](#)

© 2009 EBSCO Industries, Inc. All rights reserved.

### [EBSCO Publishing](#)

---

Advancing *therapy* in *type 2 diabetes* mellitus with early, comprehensive progression from oral agents to *insulin therapy*.

Author(s):

[Vinik A](#)

Author's Address:

Strelitz *Diabetes* Research Institute, Eastern Virginia Medical School, Norfolk, Virginia, USA. [Vinikai@evms.edu](mailto:Vinikai@evms.edu)

Source:

[Clinical Therapeutics](#) [Clin Ther] 2007; Vol. 29 Spec No, pp. 1236-53.

Publication Type:

Journal Article; Research Support, Non-U.S. Gov't; Review

Language:

English

Journal Information:

*Country of Publication:* United States *NLM ID:* 7706726 *Publication Model:* Print *Cited Medium:* Print *ISSN:* 0149-2918 (Print) *Subsets:* MEDLINE

MeSH Terms:

[Diabetes Mellitus, Type 2/\\*drug therapy](#)

[Hypoglycemic Agents/\\*therapeutic use](#)

[Insulin/\\*therapeutic use](#)

[Administration, Oral](#); [Blood Glucose/metabolism](#); [Diabetes Mellitus, Type](#)

[2/blood; Dose-Response Relationship, Drug; Glycemic Index/drug effects; Humans; Hypoglycemic Agents/administration & dosage; Insulin/administration & dosage; Quality of Life; Treatment Outcome](#)

Abstract:

**BACKGROUND:** Early and intensive glycemic control is necessary to prevent or minimize the development of microvascular and macrovascular complications in individuals with *type 2 diabetes* mellitus. However, many patients are unable to attain glycemic control, partly due to protracted treatment with oral antidiabetic drugs (OADs) despite inadequate control and barriers to *initiating insulin therapy*. Patients at different stages of disease may benefit from the early introduction of intensive glycemic control. **OBJECTIVE:** This article discusses some of the potential barriers to achieving and maintaining optimal glycemic levels in patients whose blood glucose is sub-optimally controlled with OADs and reviews the benefits of early introduction of intensive glycemic control in patients at various stages of disease, with an emphasis on *insulin therapy*. **METHODS:** Relevant English-language articles published from 1996 to 2006 were identified through searches of the National Center for Biotechnology PubMed database. Search terms included *insulin, insulin therapy, type 2 diabetes, insulin* analogs, early insulinization, and *diabetes* prevention, among others. Studies were assessed regarding designs, primary and secondary efficacy parameters, glycosylated hemoglobin (HbA1c), fasting plasma glucose, incidence of hypoglycemia, and other safety assessments. Inclusion criteria were multicenter, randomized, open-label, parallel-group trials, as well as retrospective observational studies, conducted in Europe or the United States. Additional analyses and guideline-based recommendations are included. **RESULTS:** The landmark results of the United Kingdom Prospective *Diabetes* Study, which found that an intensive strategy in 3867 newly diagnosed patients with *type 2 diabetes* was associated with stricter glycemic control than was conventional care (HbA1c over 10 years, 7.0% vs 7.9%;  $P < 0.001$ ), as well as a 25% reduction in the risk for microvascular complications ( $P = 0.01$ ). Early initiation of *insulin therapy* concomitantly with OADs appeared well tolerated in the populations studied, was effective in recently diagnosed patients, and may also confer anti-inflammatory and antiatherogenic effects. Characteristics associated with newer formulations of *insulin* (eg, basal *insulin* analogues as well as rapid-acting *insulin* analogues, the *insulin* pump, or inhaled *insulin*) may help overcome barriers associated with *initiating insulin therapy*. **CONCLUSIONS:** Based on the literature, early and persistent intensification of antidiabetic *therapy* is an approach that most likely will achieve optimal glycemic control in patients with *type 2 diabetes* and help prevent associated complications. Greater clinical experience with newer therapeutic approaches, including incretin mimetics and dipeptidyl peptidase-IV inhibitors, will provide insight into their place in the spectrum of *diabetes* treatments.

Number of References:

114

CAS Registry Number:

0 (Blood Glucose)

0 (Hypoglycemic Agents)

11061-68-0 (*Insulin*)

Entry Date(s):

*Date Created: 20071130 Date Completed: 20080124*

Update Code:

20081217

PMID:

18046925

Persistent link to this record (Permalink):

<http://ezproxy>

Database:

MEDLINE with Full Text

View Links:

[Find Full-Text](#)

Part 3: final step:

Found in CINAHL Plus. Initiating insulin for type 2 diabetes: strategies for success. Journal of Outcomes Management 2009 Mar; 16(3): 127-36.

Found in PubMed. Advancing therapy in type 2 diabetes mellitus with early, comprehensive progression from oral agents to insulin therapy. Clinical Therapeutics [Clin Ther] 2007; vol. 29 Spec No, pp. 1236-53.

Found in Medline with full text. Decision-making: initiating insulin therapy for adults with diabetes. Journal of Advanced Nursing. 2009 Jan. pp. 35-44.