Trial record **1 of 1** for: H8O-EW-GWDM

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A Trial Comparing Two Therapies: Basal Insulin/Glargine, Exenatide and Metformin Therapy (BET) or Basal Insulin/Glargine, Bolus Insulin Lispro and Metformin Therapy (BBT) in Subjects With Type 2 Diabetes

ClinicalTrials.gov Identifier: NCT00960661

Recruitment Status: Completed
First Posted: August 18, 2009
Results First Posted: December 17, 2013
Last Update Posted: April 7, 2015

Sponsor:
AstraZeneca

Collaborator:
Eli Lilly and Company

Information provided by (Responsible Party):
AstraZeneca

Study Details | Tabular View | Study Results | Disclaimer

How to Read a Study Record

Study Type:	Interventional
Study Design:	Allocation: Randomized; Intervention Model: Parallel Assignment; Masking: None (Open Label); Primary Purpose: Treatment
Condition:	Type 2 Diabetes Mellitus
Interventions:	Drug: exenatide Drug: insulin lispro Drug: Metformin Drug: Insulin/ Glargine

Participant Flow

Hide Participant Flow

Recruitment Details

Key information relevant to the recruitment process for the overall study, such as dates of the recruitment period and locations
No text entered.

Pre-Assignment Details

Significant events and approaches for the overall study following participant enrollment, but prior to group assignment
1036 patients entered the study, 637 were assigned to the two interventional study groups. 10 patients assigned to treatment groups did not receive study drug.

Reporting Groups

	Description
Enrolled	Patients who enrolled in the basal insulin optimization (BIO) phase
Exenatide (BET)	Basal Insulin/Glargine, Exenatide and Metformin Therapy (BET)
Insulin Lispro (BBT)	Basal Insulin/Glargine, Bolus Insulin Lispro and Metformin Therapy (BBT)

Participant Flow for 2 periods

Period 1: Basal Insulin Optimization Phase (BIO)

	Enrolled	Exenatide (BET)	Insulin Lispro (BBT)
STARTED	1036	0	0
COMPLETED	637	0	0
NOT COMPLETED	399	0	0
Adverse Event	6	0	0
Lost to Follow-up	4	0	0
Entry criteria not met	331	0	0
Withdrawal by Subject	47	0	0
Physician Decision	8	0	0
Sponsor decision	3	0	0

Period 2: Interventional Phase

	Enrolled	Exenatide (BET)	Insulin Lispro (BBT)
STARTED	0	316	321
Intent to Treat Population	0	315 [1]	312 [1]
Per Protocol Population	0	247 [2]	263 [2]
COMPLETED	0	264	275
NOT COMPLETED	0	52	46
Adverse Event	0	17	8
Death	0	1	0
Lost to Follow-up	0	0	2
entry criteria not met	0	3	0
Protocol Violation	0	7	2
Withdrawal by Subject	0	18	29
Physician Decision	0	3	5
sponsor decision	0	1	0
Lack of Efficacy	0	2	0

[1] all randomized participants who took at least one dose of study drug

[2] all randomized participants who completed study and had no violations

Baseline Characteristics

Hide Baseline Characteristics

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.
per protocol population

Reporting Groups

	Description
Exenatide (BET)	Basal Insulin/Glargine, Exenatide and Metformin Therapy (BET)
Insulin Lispro (BBT)	Basal Insulin/Glargine, Bolus Insulin Lispro and Metformin Therapy (BBT)
Total	Total of all reporting groups

Baseline Measures

	Exenatide (BET)	**Insulin Lispro (BBT)**	**Total**
Overall Participants Analyzed [Units: Participants]	**247**	**263**	**510**
Age [Units: Participants]			
<=18 years	**0**	**0**	**0**
Between 18 and 65 years	**180**	**182**	**362**
>=65 years	**67**	**81**	**148**
Age [Units: Years] Mean (Standard Deviation)	**59.5 (9.6)**	**59.4 (9.27)**	**59.5 (9.43)**

Gender [Units: Participants]			
Female	**119**	**130**	**249**
Male	**128**	**133**	**261**
prior use of Sulfonylurea (SU) [Units: Participants]			
YES	**85**	**99**	**184**
NO	**162**	**164**	**326**
Glycosylated hemoglobin (HbA1c) [Units: Percent] Mean (Standard Deviation)	**8.27 (0.983)**	**8.21 (0.871)**	**8.24 (0.927)**

Outcome Measures

Hide All Outcome Measures

1. Primary: Change in Glycosylated Hemoglobin (HbA1c) From Baseline to Week 30 [Time Frame: Baseline, 30 weeks]

Measure Type	Primary
Measure Title	Change in Glycosylated Hemoglobin (HbA1c) From Baseline to Week 30
Measure Description	Change in HbA1c from baseline following 30 weeks of therapy (i.e. HbA1c at week 30 minus HbA1c at baseline).
Time Frame	Baseline, 30 weeks

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.
Participants analyzed for this endpoint included the per protocol population, 247 and 263, respectively.

Reporting Groups

	Description
Exenatide (BET)	Basal Insulin/Glargine, Exenatide and Metformin Therapy (BET)
Insulin Lispro (BBT)	Basal Insulin/Glargine, Bolus Insulin Lispro and Metformin Therapy (BBT)

Measured Values

	Exenatide (BET)	Insulin Lispro (BBT)
Participants Analyzed	**247**	**263**
Change in Glycosylated Hemoglobin (HbA1c) From Baseline to Week 30 [Units: Percent of hemoglobin] Least Squares Mean (Standard Error)	**-1.13 (0.053)**	**-1.10 (0.051)**

Statistical Analysis 1 for Change in Glycosylated Hemoglobin (HbA1c) From Baseline to Week 30

Groups [1]	All groups
Statistical Test Type [2]	Non-Inferiority or Equivalence
Statistical Method [3]	Mixed model repeated measures
P Value [4]	0.6273
Mean Difference (Final Values) [5]	-0.04
95% Confidence Interval	-0.18 to 0.11

[1] Additional details about the analysis, such as null hypothesis and power calculation:

The primary objective is to test the hypothesis that BET is non inferior to BBT with respect to change in HbA1c from baseline to Week 30.

[2] Details of power calculation, definition of non-inferiority margin, and other key parameters:

Non inferiority was concluded if the upper limit of the 95% confidence interval (CI) for the treatment contrast (BET minus BBT) at week 30 was less than the non inferiority margin.

[3] Other relevant method information, such as adjustments or degrees of freedom:

No text entered.

[4] Additional information, such as whether or not the p-value is adjusted for multiple comparisons and the a priori threshold for statistical significance:

The primary mixed-model repeated measures (MMRM) model included baseline HbA1c as covariate, treatment, country, prior use of SUs, week of visit, and treatment-by-week interaction as fixed effects and patient and error as random effects.

[5] Other relevant estimation information:

No text entered.

2. Secondary: Percentage of Participants Achieving HbA1C < 7.0% [Time Frame: Week 30]

Measure Type	Secondary
Measure Title	Percentage of Participants Achieving HbA1C < 7.0%
Measure Description	Percentage of participants achieving HbA1C < 7.0%
Time Frame	Week 30

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.
Participants included in the analysis = 244 and 263, respectively. These numbers derived from the per protocol population (247 and 263, respectively) with no missing data for this endpoint (244, 263, respectively).

Reporting Groups

	Description
Exenatide (BET)	Basal Insulin/Glargine, Exenatide and Metformin Therapy (BET)
Insulin Lispro (BBT)	Basal Insulin/Glargine, Bolus Insulin Lispro and Metformin Therapy (BBT)

Measured Values

	Exenatide (BET)	**Insulin Lispro (BBT)**

Participants Analyzed	**244**	**263**
Percentage of Participants Achieving HbA1C < 7.0% [Units: Percentage of participants]	**46.7**	**42.6**

No statistical analysis provided for Percentage of Participants Achieving HbA1C < 7.0%

3. Secondary: Percent of Participants Achieving HbA1c ≤ 6.5%. [Time Frame: Week 30]

Measure Type	Secondary
Measure Title	Percent of Participants Achieving HbA1c ≤ 6.5%.
Measure Description	Percent of participants achieving HbA1c ≤ 6.5%.
Time Frame	Week 30

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.
Participants included in the analysis = 244 and 263, respectively. These numbers derived from the per protocol population (247 and 263, respectively) with no missing data for this endpoint (244, 263, respectively).

Reporting Groups

	Description
Exenatide (BET)	Basal Insulin/Glargine, Exenatide and Metformin Therapy (BET)
Insulin Lispro (BBT)	Basal Insulin/Glargine, Bolus Insulin Lispro and Metformin Therapy (BBT)

Measured Values

	Exenatide (BET)	**Insulin Lispro (BBT)**
Participants Analyzed	**244**	**263**

Percent of Participants Achieving HbA1c ≤ 6.5%. [Units: Percentage of participants]	**26.2**	**25.5**

No statistical analysis provided for Percent of Participants Achieving HbA1c ≤ 6.5%.

4. Secondary: Change in Fasting Blood Glucose (FBG) From Baseline to Week 30. [Time Frame: Baseline, Week 30]

Measure Type	Secondary
Measure Title	Change in Fasting Blood Glucose (FBG) From Baseline to Week 30.
Measure Description	Change in fasting blood glucose (FBG) from Baseline to Week 30 using MMRM model. The model included the respective baseline outcome as covariate, treatment, country, prior use of SUs, week of visit, and treatment-by-week interaction as fixed effects and patient and error as random effects.
Time Frame	Baseline, Week 30

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.
Participants included in the analysis = 243 and 262, respectively. These numbers derived from the per protocol population (247 and 263, respectively) with no missing data for this endpoint (243, 262, respectively).

Reporting Groups

	Description
Exenatide (BET)	Basal Insulin/Glargine, Exenatide and Metformin Therapy (BET)
Insulin Lispro (BBT)	Basal Insulin/Glargine, Bolus Insulin Lispro and Metformin Therapy (BBT)

Measured Values

	Exenatide (BET)	Insulin Lispro (BBT)
Participants Analyzed	**243**	**262**
Change in Fasting Blood Glucose (FBG) From Baseline to Week 30. [Units: mmol/L] Least Squares Mean (Standard Error)	**-0.46 (0.155)**	**0.18 (0.150)**

No statistical analysis provided for Change in Fasting Blood Glucose (FBG) From Baseline to Week 30.

5. Secondary: Change in Total Cholesterol From Baseline to Week 30 [Time Frame: Baseline, week 30]

Measure Type	Secondary
Measure Title	Change in Total Cholesterol From Baseline to Week 30
Measure Description	Change in total cholesterol from baseline to Week 30 using ANCOVA model. The model included the respective secondary outcome as dependent variable, country, prior use of SU's and treatment groups as factors, and the respective outcomes baseline value as a covariate.
Time Frame	Baseline, week 30

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.
Participants included in the analysis = 237 and 254, respectively. These numbers derived from the per protocol population (247 and 263, respectively) with no missing data for this endpoint (237, 254, respectively).

Reporting Groups

	Description

Exenatide (BET)	Basal Insulin/Glargine, Exenatide and Metformin Therapy (BET)
Insulin Lispro (BBT)	Basal Insulin/Glargine, Bolus Insulin Lispro and Metformin Therapy (BBT)

Measured Values

	Exenatide (BET)	Insulin Lispro (BBT)
Participants Analyzed	**237**	**254**
Change in Total Cholesterol From Baseline to Week 30 [Units: mmol/L] Least Squares Mean (Standard Error)	**-0.14 (0.050)**	**-0.03 (0.049)**

No statistical analysis provided for Change in Total Cholesterol From Baseline to Week 30

6. Secondary: Change in High Density Lipoprotein (HDL) From Baseline to Week 30 [Time Frame: Baseline, week 30]

Measure Type	Secondary
Measure Title	Change in High Density Lipoprotein (HDL) From Baseline to Week 30
Measure Description	Change in High Density Lipoprotein (HDL) from baseline to Week 30 using ANCOVA model.The model included the respective secondary outcome as dependent variable, country, prior use of SU's and treatment groups as factors, and the respective outcomes baseline value as a covariate.
Time Frame	Baseline, week 30

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.

Participants included in the analysis = 237 and 254, respectively. These numbers derived from the per protocol population (247 and 263, respectively) with no missing data for this endpoint (237, 254, respectively).

Reporting Groups

	Description
Exenatide (BET)	Basal Insulin/Glargine, Exenatide and Metformin Therapy (BET)
Insulin Lispro (BBT)	Basal Insulin/Glargine, Bolus Insulin Lispro and Metformin Therapy (BBT)

Measured Values

	Exenatide (BET)	**Insulin Lispro (BBT)**
Participants Analyzed	**237**	**254**
Change in High Density Lipoprotein (HDL) From Baseline to Week 30 [Units: mmol/L] Least Squares Mean (Standard Error)	**-0.04 (0.012)**	**0.03 (0.012)**

No statistical analysis provided for Change in High Density Lipoprotein (HDL) From Baseline to Week 30

7. Secondary: Change in Low Density Lipoprotein (LDL) From Baseline to Week 30 [Time Frame: Baseline, Week 30]

Measure Type	Secondary
Measure Title	Change in Low Density Lipoprotein (LDL) From Baseline to Week 30
Measure Description	Change in Low Density Lipoprotein (LDL) from baseline to week 30 using ANCOVA model.The model included the respective secondary outcome as dependent variable, country, prior use of SU's and treatment groups as factors, and the respective outcomes baseline value as a covariate.
Time Frame	Baseline, Week 30

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.
Participants included in the analysis = 232 and 245, respectively. These numbers derived from the per protocol population (247 and 263, respectively) with no missing data for this endpoint (232, 245, respectively).

Reporting Groups

	Description
Exenatide (BET)	Basal Insulin/Glargine, Exenatide and Metformin Therapy (BET)
Insulin Lispro (BBT)	Basal Insulin/Glargine, Bolus Insulin Lispro and Metformin Therapy (BBT)

Measured Values

	Exenatide (BET)	**Insulin Lispro (BBT)**
Participants Analyzed	**232**	**245**
Change in Low Density Lipoprotein (LDL) From Baseline to Week 30 [Units: mmol/L] Least Squares Mean (Standard Error)	**-0.12 (0.042)**	**-0.03 (0.042)**

No statistical analysis provided for Change in Low Density Lipoprotein (LDL) From Baseline to Week 30

8. Secondary: Change in Body Weight From Baseline to Week 30. [Time Frame: baseline, week 30]

Measure Type	Secondary
Measure Title	Change in Body Weight From Baseline to Week 30.
Measure Description	

	Change in body weight from baseline to Week 30 using MMRM model.The model included the respective baseline outcome as covariate, treatment, country, prior use of SUs, week of visit, and treatment-by-week interaction as fixed effects and patient and error as random effects.
Time Frame	baseline, week 30

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.
Participants analyzed were 247 and 263, respectively. These were from the per protocol population (247, 263, respectively) with no missing data (247, 263, respectively).

Reporting Groups

	Description
Exenatide (BET)	Basal Insulin/Glargine, Exenatide and Metformin Therapy (BET)
Insulin Lispro (BBT)	Basal Insulin/Glargine, Bolus Insulin Lispro and Metformin Therapy (BBT)

Measured Values

	Exenatide (BET)	**Insulin Lispro (BBT)**
Participants Analyzed	**247**	**263**
Change in Body Weight From Baseline to Week 30. [Units: Kg] Least Squares Mean (Standard Error)	**-2.45 (0.255)**	**2.11 (0.247)**

No statistical analysis provided for Change in Body Weight From Baseline to Week 30.

9. Secondary: Change in Systolic Blood Pressure (SBP) From Baseline to Week 30 [Time Frame: Baseline, Week 30]

Measure Type	Secondary

Measure Title	Change in Systolic Blood Pressure (SBP) From Baseline to Week 30
Measure Description	Change in Systolic Blood Pressure (SBP) from baseline to Week 30 using MMRM model.The model included the respective baseline outcome as covariate, treatment, country, prior use of SUs, week of visit, and treatment-by-week interaction as fixed effects and patient and error as random effects.
Time Frame	Baseline, Week 30

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.
Participants included in the analysis = 207 and 227, respectively. These numbers derived from the per protocol population (247 and 263, respectively) with no missing data for this endpoint (207, 227, respectively).

Reporting Groups

	Description
Exenatide (BET)	Basal Insulin/Glargine, Exenatide and Metformin Therapy (BET)
Insulin Lispro (BBT)	Basal Insulin/Glargine, Bolus Insulin Lispro and Metformin Therapy (BBT)

Measured Values

	Exenatide (BET)	**Insulin Lispro (BBT)**
Participants Analyzed	**207**	**227**
Change in Systolic Blood Pressure (SBP) From Baseline to Week 30 [Units: mmHg] Least Squares Mean (Standard Error)	**-4.13 (0.952)**	**0.37 (0.919)**

No statistical analysis provided for Change in Systolic Blood Pressure (SBP) From Baseline to Week 30

10. Secondary: Change in Diastolic Blood Pressure (DBP) From Baseline to Week 30 [Time Frame: baseline, Week 30]

Measure Type	Secondary
Measure Title	Change in Diastolic Blood Pressure (DBP) From Baseline to Week 30
Measure Description	Change in Diastolic Blood Pressure (DBP) from baseline to Week 30 using MMRM model.The model included the respective baseline outcome as covariate, treatment, country, prior use of SUs, week of visit, and treatment-by-week interaction as fixed effects and patient and error as random effects.
Time Frame	baseline, Week 30

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.
Participants included in the analysis = 207 and 227, respectively. These numbers derived from the per protocol population (247 and 263, respectively) with no missing data for this endpoint (207, 227, respectively).

Reporting Groups

	Description
Exenatide (BET)	Basal Insulin/Glargine, Exenatide and Metformin Therapy (BET)
Insulin Lispro (BBT)	Basal Insulin/Glargine, Bolus Insulin Lispro and Metformin Therapy (BBT)

Measured Values

	Exenatide (BET)	**Insulin Lispro (BBT)**
Participants Analyzed	**207**	**227**
Change in Diastolic Blood Pressure (DBP) From Baseline to Week 30	**-0.64 (0.594)**	**-0.14 (0.572)**

[Units: mmHg] Least Squares Mean (Standard Error)		

No statistical analysis provided for Change in Diastolic Blood Pressure (DBP) From Baseline to Week 30

11. Secondary: Daily Insulin Glargine Dose at Baseline and at Week 30 [Time Frame: Baseline, week 30]

Measure Type	Secondary
Measure Title	Daily Insulin Glargine Dose at Baseline and at Week 30
Measure Description	Daily Insulin Glargine Dose at baseline and at Week 30
Time Frame	Baseline, week 30

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.
Participants analyzed were from the per protocol population (247, 263) with no missing data for this endpoint (247, 263, respectively).

Reporting Groups

	Description
Exenatide (BET)	Basal Insulin/Glargine, Exenatide and Metformin Therapy (BET)
Insulin Lispro (BBT)	Basal Insulin/Glargine, Bolus Insulin Lispro and Metformin Therapy (BBT)

Measured Values

	Exenatide (BET)	**Insulin Lispro (BBT)**
Participants Analyzed	**247**	**263**

Daily Insulin Glargine Dose at Baseline and at Week 30 [Units: IU/day] Mean (Standard Deviation)		
Baseline	**61.5 (30.94)**	**61.1 (35.24)**
Week 30	**56.9 (29.35)**	**51.5 (31.44)**

No statistical analysis provided for Daily Insulin Glargine Dose at Baseline and at Week 30

12. Secondary: Major Hypoglycemia Rate Per Year [Time Frame: 30 weeks]

Measure Type	Secondary
Measure Title	Major Hypoglycemia Rate Per Year
Measure Description	Mean (standard deviation) of major hyperglycemia episodes experienced per year. Rates per year were calculated for each individual as the number of episodes divided by the total number of days in the study (from randomization to last visit date), then multiplied by 365.25. Major hypoglycemia was defined as any symptoms consistent with hypoglycemia resulting in loss of consciousness or seizure that shows prompt recovery in response to administration of glucagon or glucose OR documented hypoglycemia (blood glucose <3.0 mmol/L [54 mg/dL]) and requiring the assistance of another person because of severe impairment in consciousness or behavior.
Time Frame	30 weeks

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.
The As-treated population includes all randomized participants who had taken at least one dose of study drug.

Reporting Groups

	Description
Exenatide (BET)	Basal Insulin/Glargine, Exenatide and Metformin Therapy (BET)
Insulin Lispro (BBT)	Basal Insulin/Glargine, Bolus Insulin Lispro and Metformin Therapy (BBT)

Measured Values

	Exenatide (BET)	Insulin Lispro (BBT)
Participants Analyzed	**315**	**312**
Major Hypoglycemia Rate Per Year [Units: Rate per year] Mean (Standard Deviation)	**0.0 (0.23)**	**0.1 (0.39)**

No statistical analysis provided for Major Hypoglycemia Rate Per Year

13. Secondary: Minor Hypoglycemia Rate Per Year [Time Frame: 30 weeks]

Measure Type	Secondary
Measure Title	Minor Hypoglycemia Rate Per Year
Measure Description	Mean (standard deviation) of minor hyperglycemia episodes experienced per year. Rates per year were calculated for each individual as the number of episodes divided by the total number of days in the study (from randomization to last visit date), then multiplied by 365.25. Minor hypoglycemia was defined as any time a participant feels that he or she is experiencing a sign or symptom associated with hypoglycemia that is either self-treated by the participant or resolves on its own AND has a concurrent finger stick blood glucose <3.0 mmol/L (54 mg/dL)
Time Frame	30 weeks

Population Description

Explanation of how the number of participants for analysis was determined. Includes whether analysis was per protocol, intention to treat, or another method. Also provides relevant details such as imputation technique, as appropriate.

The As-treated population includes all randomized participants who had taken at least one dose of study drug.

Reporting Groups

	Description
Exenatide (BET)	Basal Insulin/Glargine, Exenatide and Metformin Therapy (BET)
Insulin Lispro (BBT)	Basal Insulin/Glargine, Bolus Insulin Lispro and Metformin Therapy (BBT)

Measured Values

	Exenatide (BET)	Insulin Lispro (BBT)
Participants Analyzed	**315**	**312**
Minor Hypoglycemia Rate Per Year [Units: Rate per year] Mean (Standard Deviation)	**2.1 (5.08)**	**5.0 (12.83)**

No statistical analysis provided for Minor Hypoglycemia Rate Per Year

Serious Adverse Events

Hide Serious Adverse Events

Time Frame	No text entered.
Additional Description	As treated population, non-serious includes treatment emergent adverse events in both BIO (lead in) and intervention phases.

Reporting Groups

	Description
Exenatide (BET)	Basal Insulin/Glargine, Exenatide and Metformin Therapy (BET)
Insulin Lispro (BBT)	Basal Insulin/Glargine, Bolus Insulin Lispro and Metformin Therapy (BBT)

Serious Adverse Events

	Exenatide (BET)	Insulin Lispro (BBT)
Total, Serious Adverse Events		
# participants affected / at risk	**23/315 (7.30%)**	**26/312 (8.33%)**
Blood and lymphatic system disorders		
Anaemia		
# participants affected / at risk	**0/315 (0.00%)**	**1/312 (0.32%)**
Cardiac disorders		
Angina unstable		
# participants affected / at risk	**2/315 (0.63%)**	**1/312 (0.32%)**
Cardiac failure congestive		
# participants affected / at risk	**1/315 (0.32%)**	**0/312 (0.00%)**
Coronary artery disease		
# participants affected / at risk	**1/315 (0.32%)**	**1/312 (0.32%)**
Acute myocardial infarction		
# participants affected / at risk	**0/315 (0.00%)**	**2/312 (0.64%)**
Angina pectoris		
# participants affected / at risk	**0/315 (0.00%)**	**1/312 (0.32%)**
Cardiac failure		
# participants affected / at risk	**0/315 (0.00%)**	**1/312 (0.32%)**
Myocardial ischaemia		
# participants affected / at risk	**0/315 (0.00%)**	**1/312 (0.32%)**
Eye disorders		
Vitreous haemorrhage		
# participants affected / at risk	**2/315 (0.63%)**	**0/312 (0.00%)**
Diabetic retinopathy		
# participants affected / at risk	**1/315 (0.32%)**	**0/312 (0.00%)**
Cataract		
# participants affected / at risk	**0/315 (0.00%)**	**1/312 (0.32%)**

Glaucoma		
# participants affected / at risk	**0/315 (0.00%)**	**1/312 (0.32%)**
Gastrointestinal disorders		
Abdominal pain		
# participants affected / at risk	**1/315 (0.32%)**	**0/312 (0.00%)**
Gastrooesophageal reflux disease		
# participants affected / at risk	**1/315 (0.32%)**	**0/312 (0.00%)**
Nausea		
# participants affected / at risk	**1/315 (0.32%)**	**0/312 (0.00%)**
Constipation		
# participants affected / at risk	**0/315 (0.00%)**	**1/312 (0.32%)**
Hepatobiliary disorders		
Cholecystitis acute		
# participants affected / at risk	**0/315 (0.00%)**	**1/312 (0.32%)**
Cholecystitis chronic		
# participants affected / at risk	**0/315 (0.00%)**	**1/312 (0.32%)**
Infections and infestations		
Osteomyelitis		
# participants affected / at risk	**1/315 (0.32%)**	**0/312 (0.00%)**
Pyelonephritis		
# participants affected / at risk	**1/315 (0.32%)**	**0/312 (0.00%)**
Urinary tract infection		
# participants affected / at risk	**1/315 (0.32%)**	**1/312 (0.32%)**
Bacterial infection		
# participants affected / at risk	**0/315 (0.00%)**	**1/312 (0.32%)**
Escherichia urinary tract infection		
# participants affected / at risk	**0/315 (0.00%)**	**1/312 (0.32%)**
Pneumonia		
# participants affected / at risk	**0/315 (0.00%)**	**2/312 (0.64%)**
Post procedural infection		
# participants affected / at risk	**0/315 (0.00%)**	**1/312 (0.32%)**
Pyelonephritis acute		

# participants affected / at risk	0/315 (0.00%)	1/312 (0.32%)
Injury, poisoning and procedural complications		
Ankle fracture		
# participants affected / at risk	1/315 (0.32%)	0/312 (0.00%)
Fall		
# participants affected / at risk	1/315 (0.32%)	0/312 (0.00%)
Lower limb fracture		
# participants affected / at risk	1/315 (0.32%)	0/312 (0.00%)
Meniscus lesion		
# participants affected / at risk	0/315 (0.00%)	1/312 (0.32%)
Investigations		
Ureteroscopy		
# participants affected / at risk	1/315 (0.32%)	0/312 (0.00%)
Musculoskeletal and connective tissue disorders		
Musculoskeletal chest pain		
# participants affected / at risk	1/315 (0.32%)	0/312 (0.00%)
Exostosis		
# participants affected / at risk	0/315 (0.00%)	1/312 (0.32%)
Osteoarthritis		
# participants affected / at risk	0/315 (0.00%)	1/312 (0.32%)
Rotator cuff syndrome		
# participants affected / at risk	0/315 (0.00%)	1/312 (0.32%)
Neoplasms benign, malignant and unspecified (incl cysts and polyps)		
Pancreatic carcinoma		
# participants affected / at risk	1/315 (0.32%)	0/312 (0.00%)
Rectal cancer		
# participants affected / at risk	0/315 (0.00%)	1/312 (0.32%)
Uterine leiomyoma		
# participants affected / at risk	0/315 (0.00%)	1/312 (0.32%)
Nervous system disorders		

Carotid artery thrombosis		
# participants affected / at risk	**1/315 (0.32%)**	**0/312 (0.00%)**
Encephalopathy		
# participants affected / at risk	**1/315 (0.32%)**	**0/312 (0.00%)**
Haemorrhagic stroke		
# participants affected / at risk	**1/315 (0.32%)**	**0/312 (0.00%)**
Ischaemic stroke		
# participants affected / at risk	**1/315 (0.32%)**	**0/312 (0.00%)**
Cerebral haemorrhage		
# participants affected / at risk	**0/315 (0.00%)**	**1/312 (0.32%)**
Hypoglycaemic coma		
# participants affected / at risk	**0/315 (0.00%)**	**1/312 (0.32%)**
Renal and urinary disorders		
Calculus ureteric		
# participants affected / at risk	**1/315 (0.32%)**	**0/312 (0.00%)**
Calculus urinary		
# participants affected / at risk	**1/315 (0.32%)**	**0/312 (0.00%)**
Renal failure acute		
# participants affected / at risk	**1/315 (0.32%)**	**0/312 (0.00%)**
Nephrolithiasis		
# participants affected / at risk	**0/315 (0.00%)**	**2/312 (0.64%)**
Skin and subcutaneous tissue disorders		
Rash		
# participants affected / at risk	**1/315 (0.32%)**	**0/312 (0.00%)**
Diabetic foot		
# participants affected / at risk	**0/315 (0.00%)**	**1/312 (0.32%)**
Surgical and medical procedures		
Arterial bypass operation		
# participants affected / at risk	**0/315 (0.00%)**	**1/312 (0.32%)**
Percutaneous coronary intervention		
# participants affected / at risk	**0/315 (0.00%)**	**1/312 (0.32%)**
Vascular disorders		

Hypertensive crisis		
# participants affected / at risk	**1/315 (0.32%)**	**0/312 (0.00%)**

Other Adverse Events

Hide Other Adverse Events

Time Frame	No text entered.
Additional Description	As treated population, non-serious includes treatment emergent adverse events in both BIO (lead in) and intervention phases.

Frequency Threshold

Threshold above which other adverse events are reported	1.5%

Reporting Groups

	Description
Exenatide (BET)	Basal Insulin/Glargine, Exenatide and Metformin Therapy (BET)
Insulin Lispro (BBT)	Basal Insulin/Glargine, Bolus Insulin Lispro and Metformin Therapy (BBT)

Other Adverse Events

	Exenatide (BET)	**Insulin Lispro (BBT)**
Total, Other (not including serious) Adverse Events		
# participants affected / at risk	**228/315 (72.38%)**	**175/312 (56.09%)**
Blood and lymphatic system disorders		
anemia		
# participants affected / at risk	**1/315 (0.32%)**	**5/312 (1.60%)**
Gastrointestinal disorders		

Diarrhoea		
# participants affected / at risk	**34/315 (10.79%)**	**16/312 (5.13%)**
Dyspepsia		
# participants affected / at risk	**19/315 (6.03%)**	**3/312 (0.96%)**
Nausea		
# participants affected / at risk	**102/315 (32.38%)**	**5/312 (1.60%)**
Vomiting		
# participants affected / at risk	**39/315 (12.38%)**	**3/312 (0.96%)**
Abdominal pain		
# participants affected / at risk	**11/315 (3.49%)**	**1/312 (0.32%)**
Constipation		
# participants affected / at risk	**7/315 (2.22%)**	**2/312 (0.64%)**
Gastritis		
# participants affected / at risk	**6/315 (1.90%)**	**3/312 (0.96%)**
Abdominal pain upper		
# participants affected / at risk	**6/315 (1.90%)**	**2/312 (0.64%)**
toothache		
# participants affected / at risk	**1/315 (0.32%)**	**6/312 (1.92%)**
General disorders		
pain in extremity		
# participants affected / at risk	**5/315 (1.59%)**	**6/312 (1.92%)**
Immune system disorders		
seasonal allergy		
# participants affected / at risk	**5/315 (1.59%)**	**1/312 (0.32%)**
Infections and infestations		
Bronchitis		
# participants affected / at risk	**18/315 (5.71%)**	**6/312 (1.92%)**
Influenza		
# participants affected / at risk	**18/315 (5.71%)**	**16/312 (5.13%)**
Nasopharyngitis		
# participants affected / at risk	**37/315 (11.75%)**	**20/312 (6.41%)**
Urinary tract infection		

# participants affected / at risk	11/315 (3.49%)	7/312 (2.24%)
Pharyngitis		
# participants affected / at risk	9/315 (2.86%)	7/312 (2.24%)
Gastroenteritis		
# participants affected / at risk	8/315 (2.54%)	2/312 (0.64%)
upper respiratory tract infection		
# participants affected / at risk	3/315 (0.95%)	6/312 (1.92%)
tooth infection		
# participants affected / at risk	2/315 (0.63%)	7/312 (2.24%)
Metabolism and nutrition disorders		
Decreased appetite		
# participants affected / at risk	12/315 (3.81%)	0/312 (0.00%)
Musculoskeletal and connective tissue disorders		
Back Pain		
# participants affected / at risk	12/315 (3.81%)	5/312 (1.60%)
arthralgia		
# participants affected / at risk	4/315 (1.27%)	9/312 (2.88%)
musculoskeletal pain		
# participants affected / at risk	3/315 (0.95%)	7/312 (2.24%)
Osteoarthritis		
# participants affected / at risk	2/315 (0.63%)	5/312 (1.60%)
Nervous system disorders		
Headache		
# participants affected / at risk	18/315 (5.71%)	11/312 (3.53%)
Dizziness		
# participants affected / at risk	10/315 (3.17%)	4/312 (1.28%)
Psychiatric disorders		
anxiety		
# participants affected / at risk	2/315 (0.63%)	5/312 (1.60%)
Respiratory, thoracic and mediastinal disorders		

Cough		
# participants affected / at risk	**5/315 (1.59%)**	**4/312 (1.28%)**
Vascular disorders		
hypertension		
# participants affected / at risk	**2/315 (0.63%)**	**6/312 (1.92%)**

Limitations and Caveats

Hide Limitations and Caveats

Limitations of the study, such as early termination leading to small numbers of participants analyzed and technical problems with measurement leading to unreliable or uninterpretable data
No text entered.

More Information

Hide More Information

Certain Agreements:

Principal Investigators are **NOT** employed by the organization sponsoring the study.

There is **NOT** an agreement between Principal Investigators and the Sponsor (or its agents) that restricts the PI's rights to discuss or publish trial results after the trial is completed.

Results Point of Contact:

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Publications of Results:

Diamant M, Nauck MA, Shaginian R, Malone JK, Cleall S, Reaney M, de Vries D, Hoogwerf BJ, MacConell L, Wolffenbuttel BH; 4B Study Group. Glucagon-like peptide 1 receptor agonist or bolus insulin with optimized basal insulin in type 2 diabetes. Diabetes Care. 2014 Oct;37 (10):2763-73. doi: 10.2337/dc14-0876. Epub 2014 Jul 10.

Responsible Party:	AstraZeneca
ClinicalTrials.gov Identifier:	NCT00960661 History of Changes
Other Study ID Numbers:	**H8O-EW-GWDM**
First Submitted:	August 17, 2009
First Posted:	August 18, 2009
Results First Submitted:	September 5, 2013
Results First Posted:	December 17, 2013
Last Update Posted:	April 7, 2015