OBJECTIVE
The main goal of this study was to assess the reduction of complications and costs with continuous subcutaneous insulin infusion (CSII) versus multiple daily injections (MDI) in uncontrolled type 2 diabetic patients (T2D) in the UK.

MATERIAL AND METHODS
The incidence of diabetes-related complications was based on the Core Diabetes Model (CDM).
The CDM is a peer-reviewed, validated model, which employs standard Markov techniques to describe the long-term incidence and progression of diabetes-related complications.
A complete description of the CORE Diabetes Model, including validations, can be found in the literature.
The cohort characteristics was based on the Opt2mise study for age, diabetes duration, gender proportion and HbA1c (Table 1).

Table 1: Cohort and intervention characteristics

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<th>Characteristic</th>
<th>CSII</th>
<th>MDI</th>
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<tr>
<td>Mean baseline age</td>
<td>56 years</td>
<td>56 years</td>
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<tr>
<td>Mean baseline HbA1c</td>
<td>9.0 %</td>
<td>9.0 %</td>
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<tr>
<th>Proportion of male</th>
<th>HbA1c reduction CSII</th>
<th>HbA1c reduction MDI</th>
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<tr>
<td>54.4 %</td>
<td>1.1 %</td>
<td>0.40 %</td>
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No major hypoglycemic events were observed for CSII compared to 1.2/100 patients year in the MDI arm.
The consumption of insulin was based on the study done by Reznik et al. The price of the insulin came from the official UK tariffs 2015.

RESULTS
CSII usage allows a reduction of diabetes-related complications. At 5 years, incidence reductions in complications associated with eye diseases, renal diseases, ulcer/amputation and cardiovascular diseases (CVD) were 24%, 26%, 19% and 10% (Figures 1 and 2). These reductions in complications translate to a 12% decrease in healthcare costs per patient over 5 years. Over a lifetime horizon, the cumulative incidence of CVD for CSII is higher than the one for MDI. This counter intuitive result can be explain by the survival paradox, as the population on CSII lives longer and that the risk of CVD is strongly linked to age.
The time alive and free from complications is extended with use of CSII compared with MDI. End stage renal disease is delayed by 1 year, neuropathy by 1.08 years, amputation by 0.87 year, myocardial infarction, stroke by 0.81 and 0.71 year respectively.

CONCLUSIONS
Improvements in HbA1c with a decrease in overall insulin requirement observed with CSII versus MDI, may offer important reductions in diabetes-related complications and associated costs-offsets in a UK setting for uncontrolled T2DM patients.

REFERENCES