OBJECTIVES: This study examined resource utilization and direct, indirect, and procedure-related costs associated with pho-
tocagulation and vitrectomy procedures among employees with
diabetic retinopathy (DR). METHODS: Health care utilization
and costs of DR employees age 18–64 were examined using
Indirect costs (work loss, absenteeism) were estimated using dis-
cability claims and absenteeism information. The study sample
included employees who had at least one diagnosis of DR based
on ICD-9 codes and were enrolled continuously for 12 months.
Cost outcomes were examined over a randomly chosen 12-
month (study) period following the DR diagnosis. Annual total
(i.e., health care plus indirect) costs (2005 USD) were compared
between DR employees who did and did not undergo a pro-
cedure. Utilization and costs were measured on the procedure date
and during the 30-day follow-up period. RESULTS: The study
sample consisted of 2,098 DR employees. The average age was
51 years; 67.4% were male and 64.7% had type 1 diabetes.
Approximately 11.8% (n = 247) of DR employees received pho-
tocagulation procedures during the study period; 2.1% (n = 44)
received vitrectomies. DR employees with photocoagulations
had average total costs that were approximately double those of
other DR employees ($34,539 vs. $16,041, p < 0.001); employ-
es with vitrectomies had costs that were over 3.5 times higher
than non-vitrectomy DR employees ($63,933 vs. $17,239, p <
0.001). Indirect costs accounted for about 10% of these differ-
ences. More than half (58.7%) of employees had multiple pho-
tocagulations within the study period and the majority of employees
with vitrectomies received multiple procedures on the same
day. Most (76%) photocoagulations were performed in physi-
cians’ offices; nearly all (96%) vitrectomies were performed
in an outpatient or ambulatory surgery setting. CONCLUSION:
Photocoagulation and vitrectomy procedures were associated
with substantially higher costs among DR employees. Indirect
costs were a substantial but not dominant driver of cost
differences.

A PHARMACOECONOMIC EVALUATION FOR THE
TREATMENT OF MEXICAN PATIENTS WITH DIABETES TYPE 2
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OBJECTIVES: Diabetes mellitus type 2 (DM2) is a high preval-
ence disease in Mexico which represented expenditures in the
Mexican Health System above US$450 million. The purpose of
this study was to compare the cost-effectiveness ratios between
multiple pharmacologic treatments for adult patients with DM2
who didn’t reach metabolic control (HbA1C < 7%) using oral
hypoglycemic agents or diet from the Mexican health care
payer's perspective. METHODS: We used a ten-year Markov
analysis model to estimate costs and effectiveness. Markov
model includes several DM2 complications stages (retinopathy,
cardiovascular diseases, neuropathy, nephropathy and death).
Effectiveness measure was the number of life years gained (LYG).
Transition probabilities were obtained from international pub-
lished literature (UKPDS studies). Comparators were: NPH
insulin, glargine insulin, inhalable insulin, NPH insulin + met-
formin and pioglitazone + metformin. Resource use estimations
were performed employing hospital records in second and third
health care level hospitals from the Social Security Mexican Insti-
tute in Mexico City (n = 311). Costs included emergency, out-
patient and inpatient services, drugs, comorbidities procedures,
etc. Costs and LYG were discounted 5% annually. One-way and
probabilistic sensitivity analyses were performed and acceptabil-
ity curves were constructed. RESULTS: Expected costs for
patients using inhalable insulin resulted in US$17,997, followed
by NPH insulin (US$19,433), glargine insulin (US$20,338),
NPH insulin + metformin (US$19,642) and pioglitazone + met-
formin (US$25,258). LYG per patient resulted in 8.13 yrs with
inhaled insulin vs. 8.05 yrs with the other therapies in average.
ICERs for inhalable insulin against other therapies resulted
within the range US$2213–US$3141. Results were robust to
Monte Carlo first order sensitivity analysis and acceptability
curves showed that inhalable insulin was the option most cost-
effective with a 69.9% of certainty. CONCLUSION: Despite its
higher cost in the Mexican market, inhalable insulin was the in
long term the most cost—effective option for the treatment of
DM2 patients who didn’t reach metabolic control.

THE COST-EFFECTIVENESS OF VACUUM ASSISTED
CLOSURE® (V.A.C.) THERAPY FOR THE TREATMENT OF
DIABETIC FOOT WOUNDS
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OBJECTIVES: To determine the cost-effectiveness of V.A.C.
Therapy compared to advanced wound dressings (Dermagraft
and Apligraf), for diabetic foot ulcer patients treated in the U.S.
METHODS: A Markov model was designed to estimate the cost
per amputation avoided and the cost per quality-adjusted life
year (QALY) of V.A.C. Therapy compared to advanced dress-
ings. Over a one-year period, the Markov model simulated 1000
patients using transition probabilities obtained from the litera-
ture. The health states used in the model were: uninfected ulcer,
infected ulcer, infected ulcer post-amputation, healed, healed
post-amputation, amputation, and death. Unhealed V.A.C.
treated patients were switched to the advanced dressing after
three months of treatment while unhealed advanced dressing
-treated patients continued on their advanced dressing for any
remaining months. RESULTS: The model results demonstrate
that V.A.C. Therapy dominates the advanced dressing compar-
ator. Over one-year, V.A.C. will result in more QALYs gained
(0.54 versus 0.53 per person), less amputations (0.0011 versus
0.0012, per person) and a higher percentage of healed wounds
(61% vs. 59%) and 0.68 more ulcer free months (5.79 vs. 5.11)
at an overall lower cost of care ($52,830 vs. $61,757; per
person). CONCLUSION: The model results indicate that V.A.C.
Therapy is less costly and more effective than the advanced dress-
ing comparator. The results are robust to changes of key par-
eters, including the comparator (traditional versus advanced),
transition probabilities, cost of V.A.C., and the utility weights.
Extending the model for a longer period (three years) resulted
in even greater cost savings in the V.A.C. arm (e.g., the incremen-
tal cost would be −$10,101 and the incremental QALY would
be 0.009, per person, using a 3.5% discount rate for costs and
benefits).