Facilitating a switch from analogue to human insulin in type-2 diabetics – a collaborative practice based approach
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BACKGROUND

- In 2018, an estimated 13.2% of American adults with diabetes delayed filling their insulin, took less, or skipped a dose due to cost
- Recent studies demonstrate human insulins exhibit no significant difference in HgA1c or hypoglycemic events while improving costs to the patient and health care system
- Models estimate a 20% increase in the amount of insulin required to manage diabetes between 2018 and 2030, with an increase in diabetic patients to 552 million by 2030

OBJECTIVES

- Appreciate the reasons, process, and benefit of implementing a switch from insulin analogues to human insulin
- Identify possible barriers to the implementation of human insulin on a health system formulary
- Identify additional interventions made by clinical pharmacists integrated into a primary care clinic

METHODS

- IRB Exempt
- Developed Collaborative Practice Agreement with SFM and SIM providers
- Prospective Study

Inclusion:
- ≤18 years old
- HgA1c ≤8% within 6 months
- Currently using insulin analogue and willing to switch to human insulin

Exclusion:
- CKD stage 3 or 4, or on dialysis
- History of hospitalization due to hypoglycemia

Patient Visit:
- Face-to-face appointment
- Initial 60 min, Follow-up 15-30 min

Insulin Dosing Algorithm:

- Start patient on human insulin in a safe and effective manner
- Implement insulin dose by dose strategy
- Continue to expand participation with diabetes education

RESULTS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean</td>
<td>69</td>
</tr>
<tr>
<td>Men (%)</td>
<td>14 (78)</td>
</tr>
<tr>
<td>Daily medications, mean</td>
<td>11; range: 6-16</td>
</tr>
<tr>
<td>Insulin pen before pilot (%)</td>
<td>10 (56)</td>
</tr>
<tr>
<td>Insulin vial before pilot (%)</td>
<td>6 (33)</td>
</tr>
<tr>
<td>Vial and pen before pilot (%)</td>
<td>2 (11)</td>
</tr>
<tr>
<td>Baseline HgA1c, mean</td>
<td>7.6, Range: 6.0 - 11.7</td>
</tr>
</tbody>
</table>

Average: 7.6 6.8 -0.7

CONCLUSIONS

- A more efficient and effective method of identifying and enrolling patients is needed
- Use of human insulin was noninferior to insulin analogues in safety and effectiveness
- Use of human insulin may result in significant cost savings to the patient and to the health system as a whole
- Expansion of pharmacists into primary care clinics may improve follow-up, adherence, and optimization of patient medications
- Collaboration with Diabetes Education improved access to care

FUTURE IMPLICATIONS

- Expand pharmacist participation in the transition and management of patients on human insulin
- Continue to expand participation with diabetes education and improve access to care
- Long-term goal: Expansion of pharmacist integration into primary care clinics for the management of chronic disease states

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REFERENCES

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