

## Background

- Insulin pumps are a critical component of automated insulin delivery (AID) systems along with continuous glucose monitors (CGMs). AID systems improve glycemic outcomes and quality of life in youth with type 1 diabetes (T1D) and their caregivers.
- Approximately 400 patients in our practice (~ 45%) are not consistently using insulin pumps, with lower uptake in those with public health insurance and who identify as Hispanic or non-Hispanic Black.

## Aim Statement

Increase the % of pediatric patients with T1D at UWHK who are active insulin pump users from 55 to 65% by May 2025, specifically reducing disparities in use by insurance type and race/ethnicity.

## Methods

- Surveys completed by patients not using insulin pumps and ambulatory diabetes staff and providers about perceived barriers (Figure 1).
- Stakeholder team established to identify goals, set project direction, and identify key drivers & change ideas (Figure 2).
- Initial PDSA cycles focused on diabetes technology fair: a group education visit aimed to increase access to insulin pump education.
- Chart review conducted to quantify annual insulin pump starts.
- SPC and run charts display measures monthly.

### Outcome Measures

- % of T1D patients with diabetes >12 mo who are active insulin pump users (P chart)
- % of T1D patients with diabetes >12 mo who are active insulin pump users stratified by self-reported race/ethnicity and insurance type (run chart)

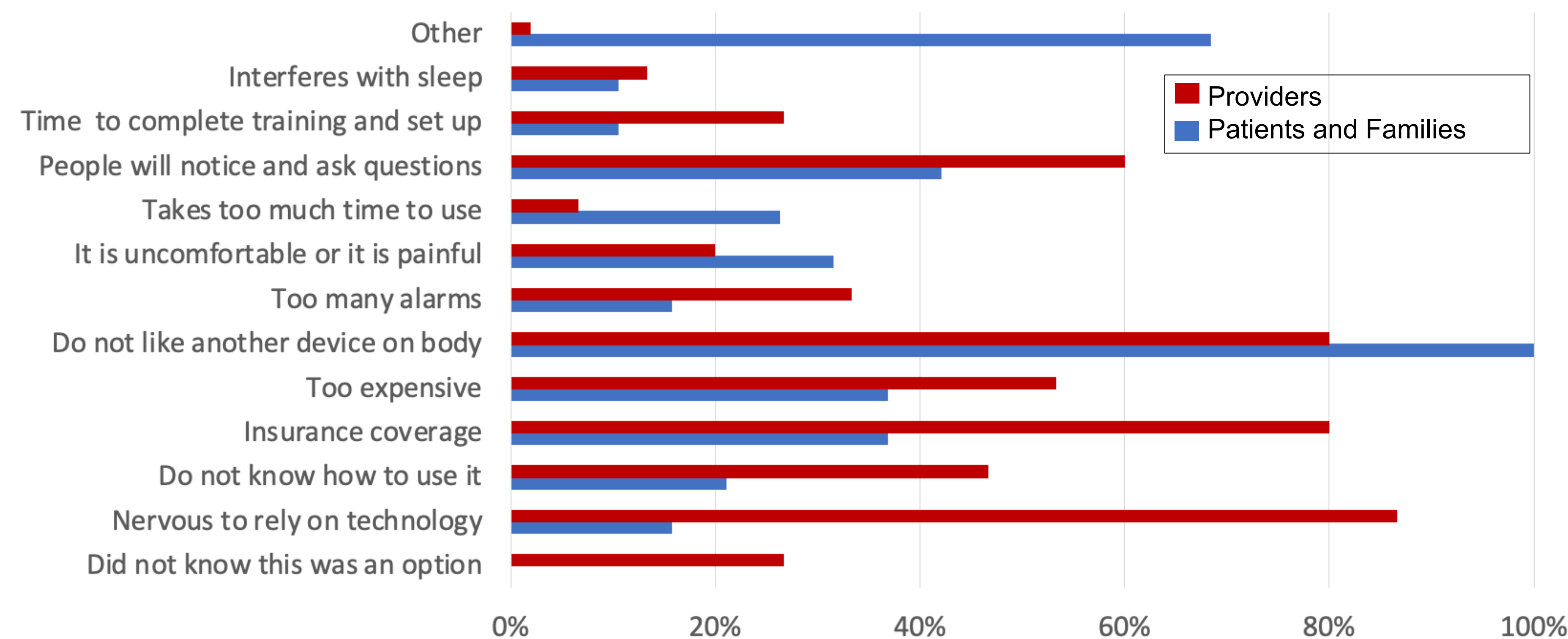
### Process Measures

- Annual pump starts
- Attendance at diabetes tech fair

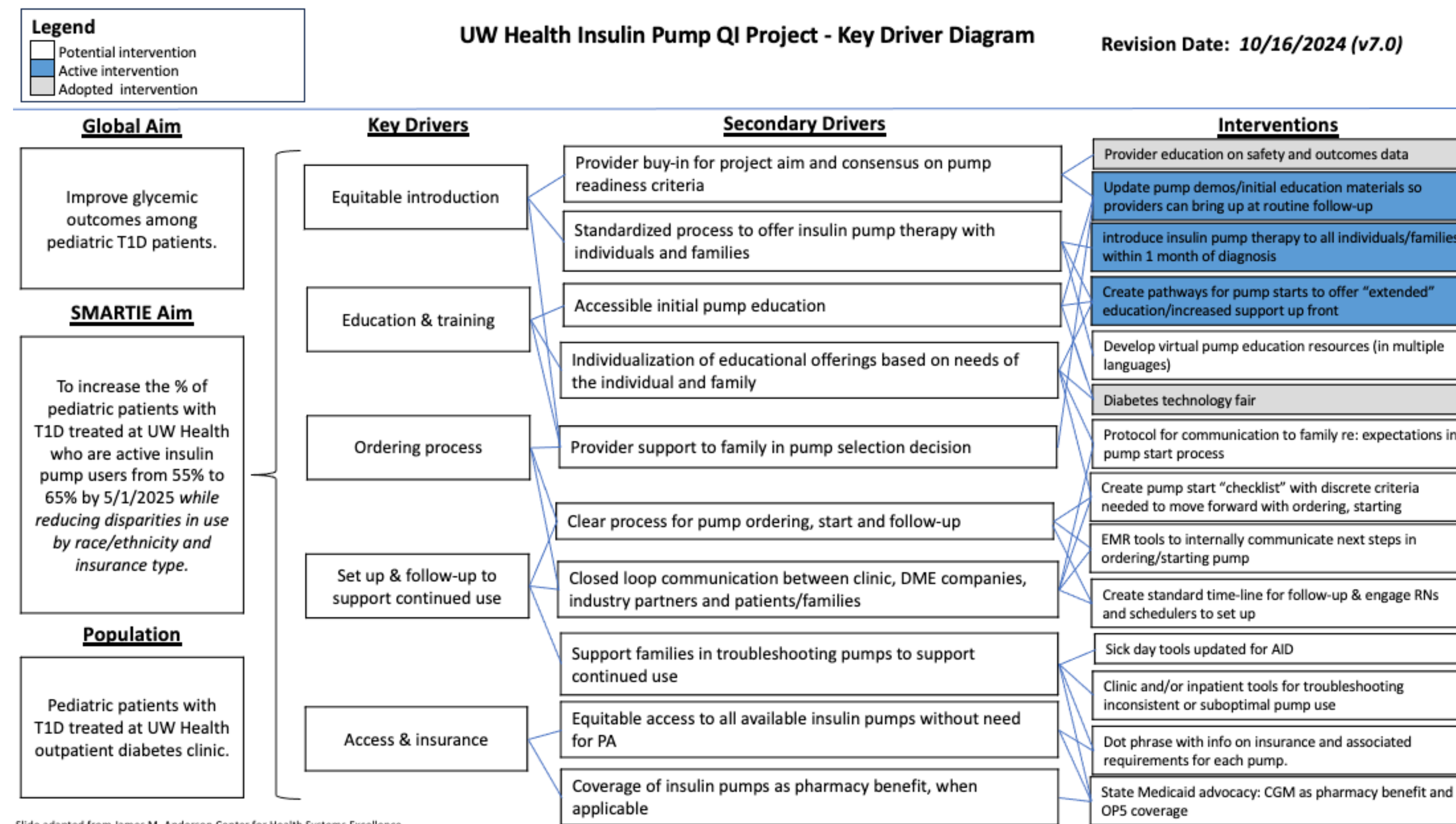
### Balancing Measures

- Time from ordering to obtaining pump
- Time from scheduling to completing tech visit

**Figure 1** Survey responses from providers (red) and patients and families (blue) when asked to select all the reasons they (or their patients) are not current on insulin pump (% of total respondents).

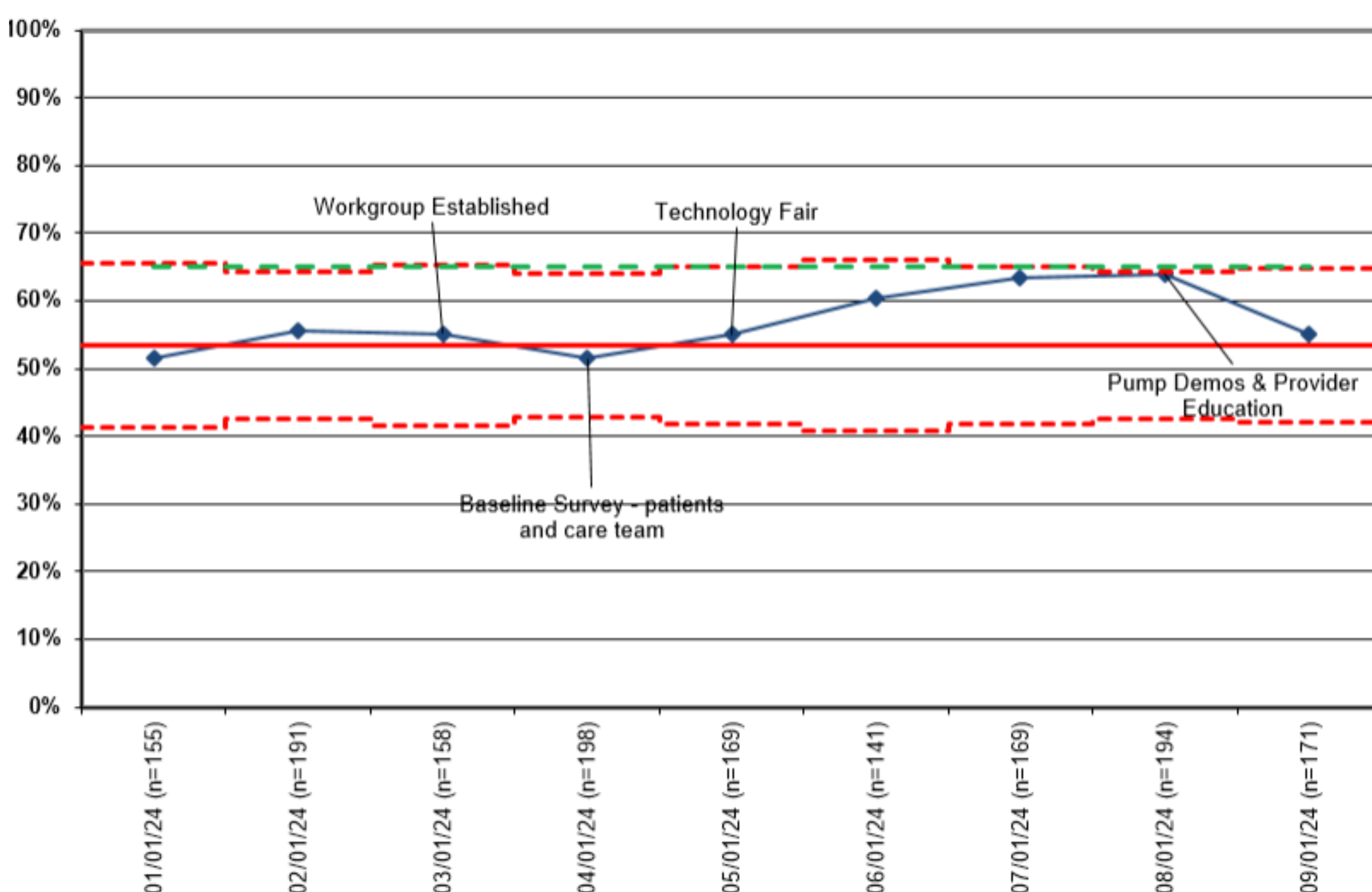


**Figure 2** Key Driver Diagram: Drivers addressed and change ideas implemented in this project (grey) and other ongoing interventions (blue).

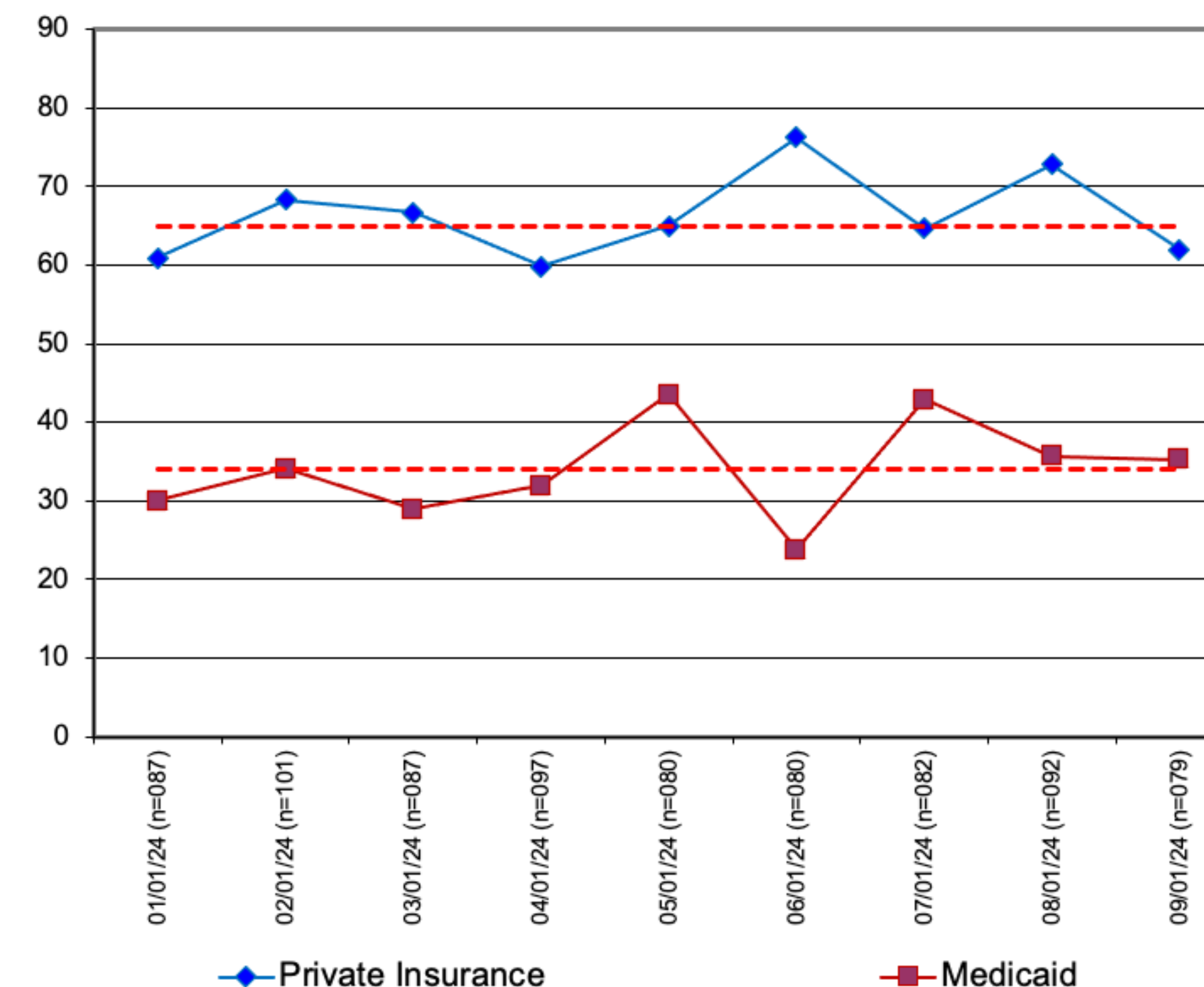


Slide adapted from James M. Anderson Center for Health Systems Excellence

**Figure 3** P-chart showing % of patients with T1D actively using an insulin pump in relation to QI initiatives implemented to date. Only includes patients diagnosed > 12 months.



**Figure 4** Run-chart showing % of patients with T1D and private insurance (blue) vs Medicaid (red) actively using an insulin pump.



## Results

- Patient and provider surveys revealed pump wearability as a major barrier. Some families reported difficulty in scheduling a pump training visit.
- Only 2 of 7 providers reported discussing insulin pumps at diagnosis and none reported discussing insulin pumps at ALL clinic visits. Factors considered included A1c, time since diagnosis, and insurance type.
- After 4 monthly tech fairs, 21 patients and families attended; 18 (85%) ordered insulin pumps. Most attendees were non-Hispanic white and privately insured.
- As of October 2024, 111 pump starts have been completed, compared to 87 in 2023.
- Percent of active pump users is higher than past 12 months, though yet reaching statistical significance (Figure 3).
- Patients with public insurance continue to have lower rates of pump use (Figure 4).

## Conclusions

- Barriers to pump use include wearability of pumps, insurance coverage, availability of training visits, and variable prescribing practices.
- The tech fair was effective and well-received for group pump education, but is limited in its demographic reach.
- Annual pump starts are on track to exceed prior year and pump use appears to be increasing overall.
- Current work is focusing on targeting disparities and includes: detailing patient reported barriers to pump use, introducing pumps to all newly diagnosed patients, creating pump start pathways based on defined patient criteria, order initiation and tracking standardization and utilizing technology demos in clinic.

