



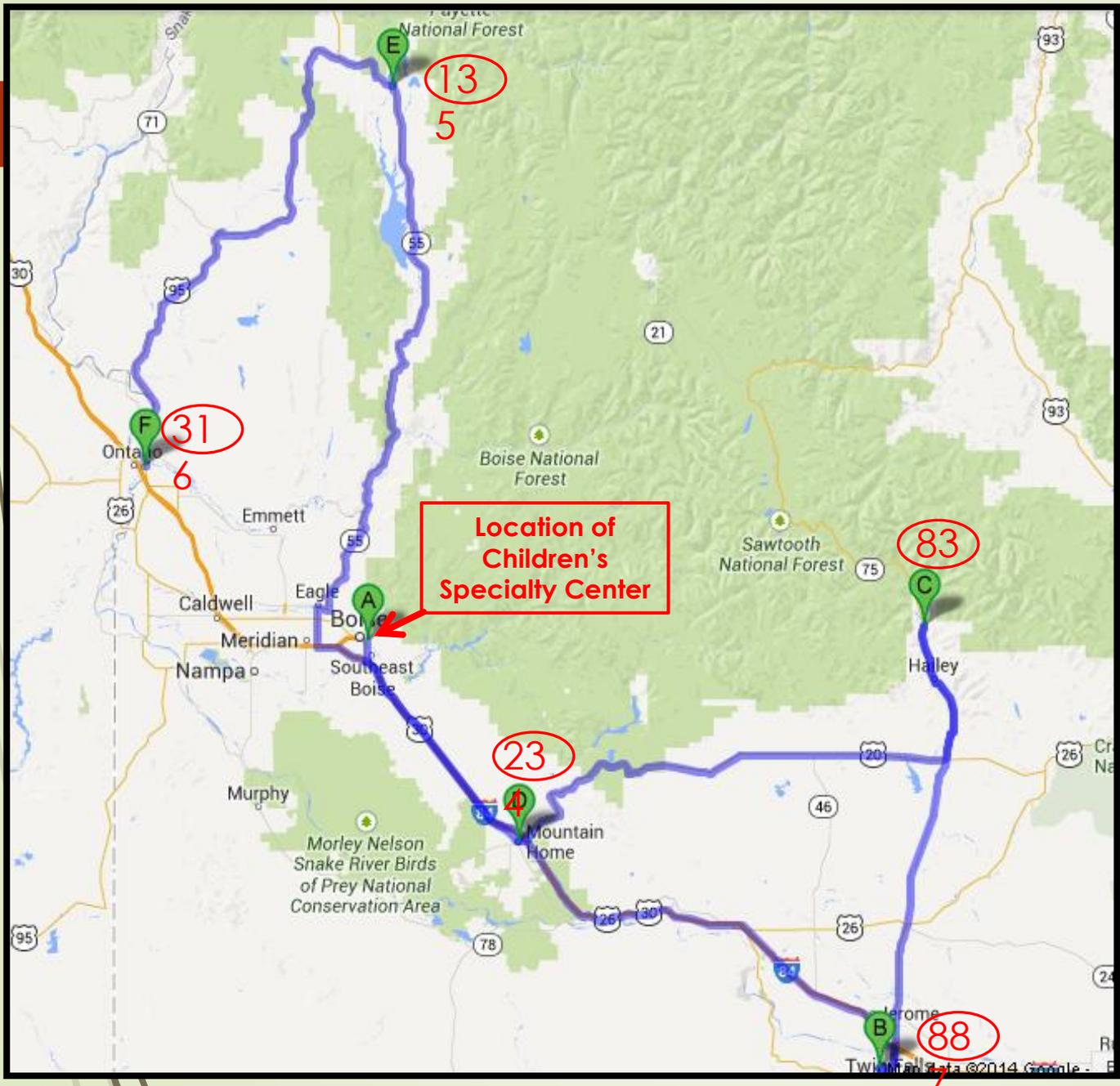
# Pediatric Subspecialty Care in Idaho

- ▶ With few exceptions, pediatric subspecialists are mainly located in Boise at the Children's Specialty Center (CSC)
  - ▶ Because of a growing need, CSC continues to recruit and hire pediatric subspecialists
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# SW Idaho Subspecialty Care Data

- ▶ April 2013 – April 2014 data
  - ▶ Over 7700 pediatric subspecialty visits to CSC with Idaho Medicaid Insurance
  - ▶ 21% (1655) of the 7700 visits came from zip codes outside of the Boise, Meridian, Nampa region



- A – Boise
- B – Twin Falls
- C – Ketchum
- D – Mountain Home
- E – McCall
- F – Fruitland

○ = # patients from that region seen at the CSC



# Pediatric Telemedicine – Benefits

- 1) Studies in Pediatric telemedicine have demonstrated positive gains in meaningful outcomes in Pediatric Telehealth care.
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Using Telemedicine to Provide Pediatric Subspecialty Care to Children With Special Health Care Needs in an Underserved Rural Community  
James P. Marcin, Jeff Ellis, Roland Mawis, Eule Nagrampa, Thomas S. Nesbitt and Robert J. Dimand  
*Pediatrics* 2004;113:1

Fig 2. Parent/guardian satisfaction with telemedicine (mean  $\pm$  standard error of the mean) recorded by using the 5-point Likert scale (3 = good; 4 = very good; 5 = excellent).

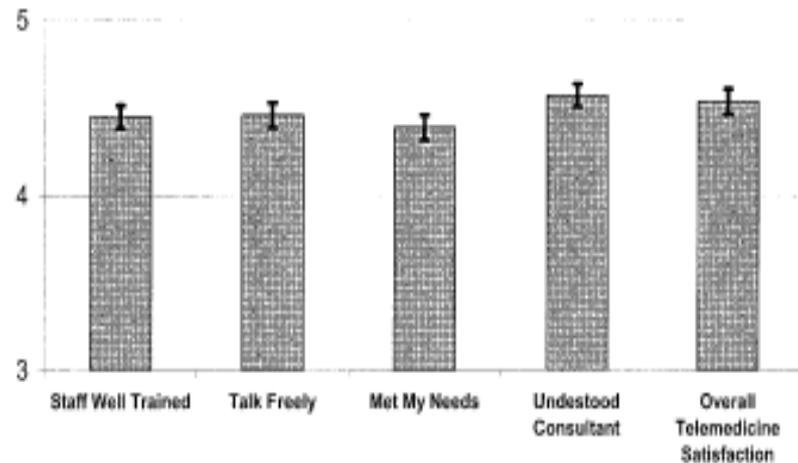
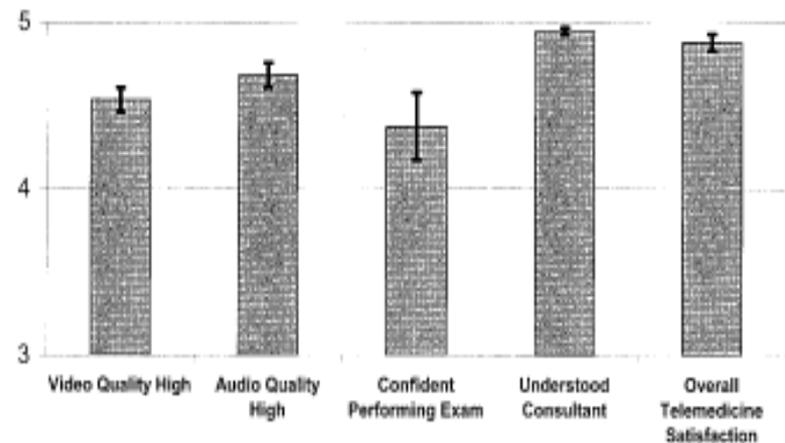


Fig 3. Provider satisfaction with telemedicine (mean  $\pm$  standard error of the mean) recorded by using the 5-point Likert scale (3 = good; 4 = very good; 5 = excellent).



# Pediatric Telemedicine – Benefits

- 1) Studies in Pediatric telemedicine have demonstrated positive gains in meaningful outcomes in Pediatric Telehealth care.
- 2) Pub Med Search “Pediatrics AND Telemedince”
  - ✓ 43 Articles representing studies or reports from 16 subspecialties
  - ✓ 3 technical reports
  - ✓ 2 reports on School Based Health Centers
  - ✓ Pediatric subspecialties/services represented
  - ✓ Ophthalmology, Developmental Pediatrics, Child Abuse and Neglect, Neurology, Diabetes (Endocrinology), Genetic, NICU, Mental Health Services, Critical Care, Obesity, Palliative Care, Radiology, Hematology/Oncology, Dermatology, Cardiology, Pulmonology.

# Regional Data

## Telemedicine is Equivalent to In Person Visits to Manage Pediatric Type 1 Diabetes

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### Background

- Access to routine pediatric diabetes care can be diminished in the western United States secondary to geographic barriers and uneven distribution of pediatric endocrinologists throughout the country.
- The Barbara Davis Center for Diabetes is located in Aurora, Colorado and provides type 1 diabetes (T1D) care to the majority of youth in Colorado, and portions of the surrounding 5-state area.
- Telemedicine has been used in the education of adult type 2 diabetes patients.

### Objective

To determine if the use of telemedicine in Wyoming would increase adherence to ADA clinical care standards, including quarterly visits with pediatric endocrinologists as well as improving family satisfaction with clinical care.

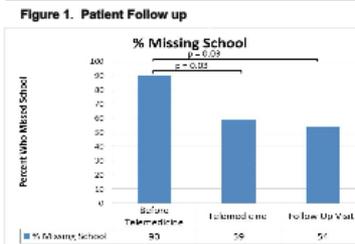
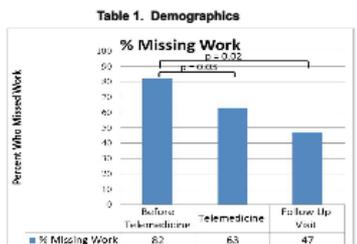
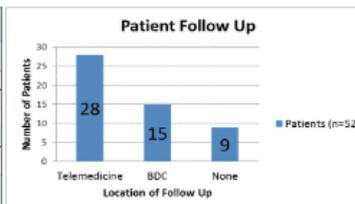
### Methods

- All patients with T1D (ages 12 months – 22 years) seen by telemedicine May 2012–October 2013 were eligible
- Consent obtained on 52 patients
- Surveys sent to all consented eligible patients (n=52), 42 completed surveys were returned
- Diabetes care from physician provided using videoconferencing equipment
- Visits occurred at hospital diabetes centers in Casper or Cheyenne, Wyoming
- Families could meet with local diabetes educator after telemedicine visit

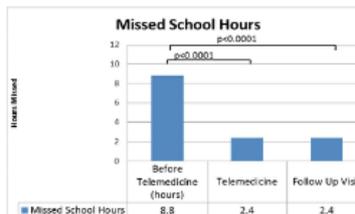
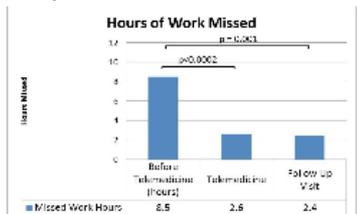
### Results

- Patients were mostly male, aged 2-19 years, with a duration of T1D 0.2-14.7 years (Table 1).
- Baseline and Post-Telemedicine A1Cs were  $9.4 \pm 1.7\%$  and  $9.4 \pm 2.0\%$ ,  $p=0.02$  by paired t-test for equivalence at the first follow up visit.
- 28/52 patients followed up in telemedicine for their routine diabetes care (Figure 1).
- 82% of families missed work for diabetes care pre-telemedicine, 63% missed work at the first telemedicine visit ( $p=0.02$ ), and 47% ( $p=0.03$ ) missed work at telemedicine follow up (Figure 2, 3).
- Before telemedicine, 90% of youth missed school for visits compared to 60% at the first telemedicine visit and 55% at subsequent telemedicine visits,  $p<0.0001$  (Figure 2, 3).

	Telemedicine Subjects
Number of T1D youth enrolled	52
Age	12.6 ± 3.7 years
Gender	78% male
BMI (mean ± SD)	21 ± 5.9 kg/m <sup>2</sup>
BMI percentile (mean ± SD)	83.5 ± 23.6%
D duration (mean ± SD)	5.7 ± 4.2 years
Mean A1c at first telemedicine visit	9.4% ± 1.7%



**Figure 2. Percent Missed Work and School.** N=42 before telemedicine, N=28 at the first telemedicine visit. Question for missing work was omitted by 2 families pre-telemedicine, 1 family at the first telemedicine visit, and 5 families for follow up visit.



**Figure 3. Hours of Work and School Missed.** N=42 before telemedicine, N=28 at the first telemedicine visit. Question for missed school was omitted by 1 family pre-telemedicine and 4 families for follow up visit.



### Summary

- When compared to in person visits, telemedicine in WY has resulted in:
- Parents missing fewer days of work, and fewer hours of work when they have to take time off.
  - Students missing less school.
  - Equivalent glycemic control (no change in hemoglobin A1C)
  - >50% of families choosing to return to telemedicine for a second visit

### Conclusions

- Telemedicine is equivalent to in person visits to maintain A1C, while families miss significantly less school and work.
- Increased access and decreased financial burden may improve overall diabetes care and compliance for rural patients over time.

### Acknowledgments

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  - CHCO: Dr. Fred Thomas, Courtney Chavez, April Davis
- Local Hospitals:**
- Cheyenne Regional Medical Center
  - Diabetes Care Center at the Wyoming Medical Center

