CURRENT USE OF SENSOR-AUGMENTED INSULIN PUMPS (SAP) IN ROUTINE CARE IN GERMANY AND AUSTRIA: DATA FROM THE DIABETES PROSPECTIVE FOLLOW-UP (DPV) REGISTRY

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Background and Aims

Data on the real-world use of pumps and glucose sensors are needed to monitor the dissipation of new technology into everyday practice.

Methods

The German/Austrian DPV registry is based on an electronic health record (contact: http://www.d-p-v.eu). Anonymized data are available for centralized analysis. By October 2017 the registry included 117957 patients with type-1 diabetes from 465 institutions (hospitals, rehab units and private practices) (Figure 1).
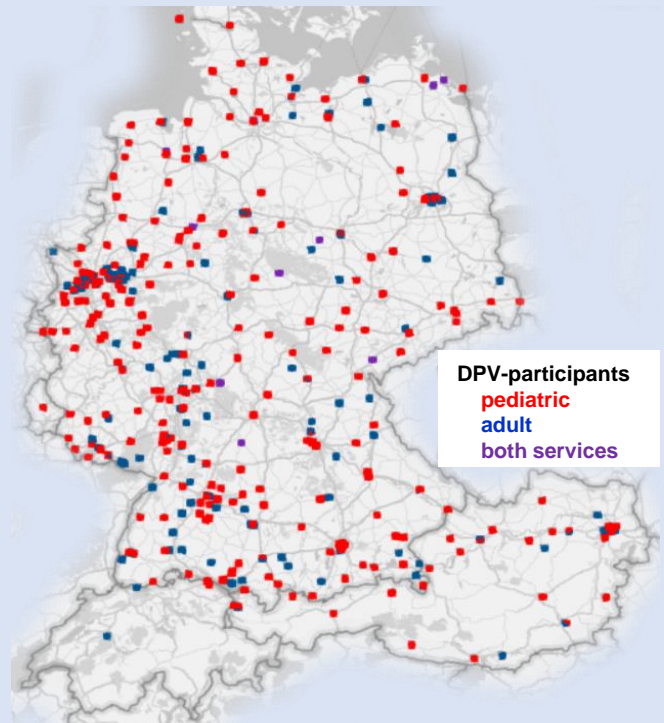
Results

35788 patients used insulin pumps, with increasing rates in all age-groups during the last 20 years. Fastest increase was seen in young toddlers (Figure 2).

8981 pump patients additionally used continuous subcutaneous glucose monitoring (rtCGM or isCGM/FGM – at least for part of the year), again with preponderance of younger patients (Fig. 3).
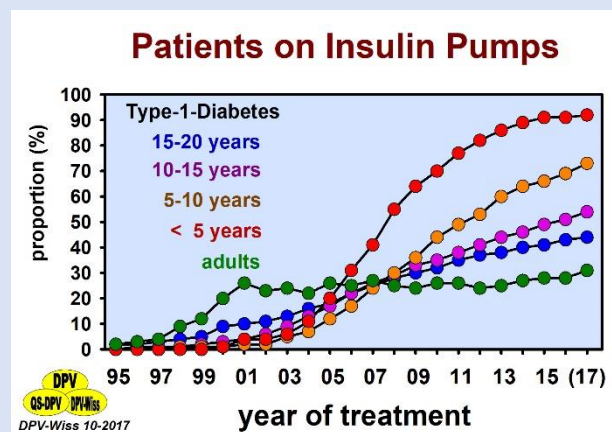
31.8 % of pump patients reported use of bolus calculator, 3.8 % a low glucose suspend (LGS) and an additional 3.4 % used predicted low glucose suspend (PLGS). Patients with LGS / PLGS were slightly younger (15.7 / 10.4 years compared to 16.8 years for all CSII patients), while metabolic control (HbA1c) was comparable (7.5 % versus 7.6 % in SAP and 8.0 % in CSII patients without CGM/FGM). In contrast, the rate of severe hypoglycemia (definition: help required) was lower in LGS (11.7 events per 100 patient-years) or PLGS (12.8 events) compared to patients with SAP (16.4 events per 100 patient-years).
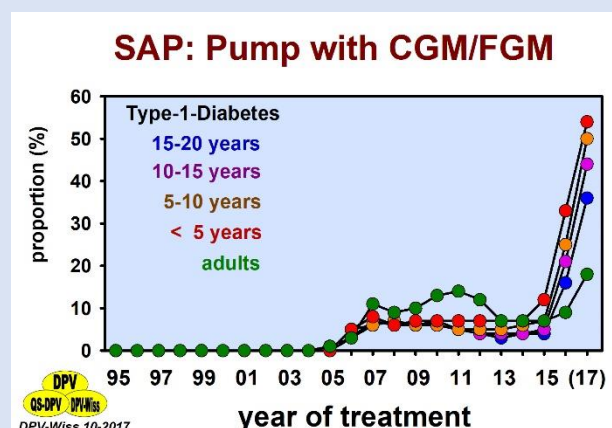
Conclusion

The combination of insulin delivery by CSII and glucose monitoring systems (sensor-augmented insulin pump - SAP) is used by increasing numbers of type-1 patients in the real world. In this registry, the use of automatic suspension of basal rate infusion during (LGS) or before (PLGS) hypoglycemia is associated with lower rates of reported severe hypoglycemia, while HbA1c-values are comparable. SAP, LGS and PLGS are predominantly used in younger subjects.

DPV-participants
pediatric
adult
both services

Patients on Insulin Pumps

Type-1-Diabetes
15-20 years
10-15 years
5-10 years
< 5 years
adults

proportion (%)

year of treatment

DPV-Wiss 10-2017

SAP: Pump with CGM/FGM

Type-1-Diabetes
15-20 years
10-15 years
5-10 years
< 5 years
adults

proportion (%)

year of treatment

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