

MEETING ABSTRACT

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# Insulin Prescription Charts at a University Hospital: High Variability of Design Characteristics

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## Background

Diabetes mellitus exists in approximately 10% of hospitalized patients and hyperglycemia arises in 32 to 38% of patients in community hospitals [1-3]. Hyperglycemia is associated with increased morbidity, mortality and hospital costs, regardless of whether a hospitalized patient has a known history of diabetes or not [1,4].

Insulin has frequently been reported to be in the list of top 10 high alert medicines worldwide. The subcutaneous insulin prescribing chart provides a common tool for consistent communication, documentation, interpretation and administration of insulin orders. Evidence indicates that outcomes and safety can be compromised when significant variations in patient care exist [5]. Our objective was to evaluate the quality of design characteristics of subcutaneous insulin prescription charts at a University Hospital.

## Materials and methods

The University Hospital Graz (Austria) consists of 14 adult inpatient departments with 39 general wards. In the past, subcutaneous insulin prescription charts were mainly developed on an individual base by each ward. We collected the currently used subcutaneous insulin prescription charts from all wards from the 1<sup>st</sup> of April 2015 to the 1<sup>st</sup> of June 2015, and analyzed them regarding quality parameters, accordance to international and local standards [6,7].

## Results

20 different charts for in-hospital insulin prescription are currently used at the 39 wards at the University Hospital.

Out of these, 8 are designed for documentation of subcutaneous insulin prescription only and 5 allow combined documentation of insulin and other forms of anti-hyperglycemic therapy. 3 charts are designed to closely (hourly) monitor various vital parameters and 4 charts document insulin therapy combined with the general inpatient medication charts. Selected quality parameters of insulin prescription charts are presented in table 1.

## Conclusion

A distinct variability in design characteristics of insulin prescription charts was found at the University Hospital Graz. This heterogeneity increases the already prevalent complexity of insulin therapy and glycemic management in hospitalized patients. Thus, standardization of a subcutaneous insulin prescribing chart across the wards with guidance including support for correction-schedule may impact the quality of patient care and safety.

## Competing interests

There are no competing interests.

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**Table 1 Quality parameters of 20 currently used insulin prescription charts [n (%)]**

Marked space provided for:		Yes, n (%)
Patient Identification and Characteristics	patient identification label	10 (50)
	name	9 (45)
	declaration of ward	10 (50)
	no label, no name	2 (10)
	type of diabetes	1 (5)
	HbA1c <sup>a</sup>	7 (35)
	BMI <sup>b</sup> or body weight/height	8 (40)
Treatment Issues	Adequate documentation of insulin therapy possible?	9 (45)
	Ordering of bg <sup>c</sup> sampling frequency per day possible?	0 (0)
	Identification of prescribing physician (initials) possible?	2 (10)
	Identification of insulin administering nurse (initials) possible?	5 (25)
	Is a bg <sup>c</sup> target range predefined?	0 (0)
	Is a hypoglycemic range predefined?	0 (0)
	Is a hyperglycemic range predefined?	0 (0)
	Documentation for correctional insulin for hyperglycemia possible?	2 (10)
	Documentation for hypoglycemic treatment possible?	0 (0)

<sup>a</sup> glycated hemoglobin. <sup>b</sup> body mass index. <sup>c</sup> blood glucose.

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