12 APPENDIX 1: COMPARISON OF EXISTING TAXONOMIES FOR ADVERSE EVENTS REPORTING AND PSIP DATA

List of the taxonomies included in the comparison (Table 2, Table 1 for legend):

- **NCC-MERP** : National Coordinating Council for Medication Error Reporting and Prevention http://www.nccmerp.org

The American **N**ational **C**oordinating **C**ouncil for **M**edication **E**rror **R**eporting and **P**revention is an independent body comprised of 23 national organizations. Its objectives are to promote reporting, develop and broadly disseminate NCC MERP's recommendations and to collaborate with other interested stakeholders to address special topics related to medication errors and patient safety initiatives.

- **AAQTE** : Association for Quality Assurance in Therapeutics and Evaluation (Fr.) http://adiph.org/aaqte/index.html

The Association for Quality Assurance in Therapeutics and Evaluation (Association pour l'Assurance Qualité en Thérapeutique et l'Evaluation) was established in 1994 and merged with the French Society of Clinical Pharmacy (SFPC) in 2006. The SFPC aims at developing a safety culture about Adverse Events.

- **USP-ISMP** : U.S. Pharmacopeia (USP) - Institute for Safe Medication Practices (ISMP) https://www.ismp.org/orderForms/reporterrortoISMP.asp

The USP-ISMP Medication Errors Reporting Program (MERP) operated by the U.S. Pharmacopeia (USP) in cooperation with the Institute for Safe Medication Practices (ISMP) is a confidential national voluntary reporting program that provides expert analysis of the system causes of medication errors and disseminates recommendations for prevention.

- **MedWatch** US FDA: http://www.fda.gov/medwatch

MedWatch is the US Food and Drug Administration (FDA) voluntary report system. It concerns adverse reactions, products quality problems and product use errors.

- **ICPS** International Classification for Patient Safety (ICPS): http://www.who.int/patientsafety/taxonomy/en/

The Conceptual Framework for the International Classification for Patient Safety (ICPS) is a taxonomy developed by the World Alliance for patient safety. The goal of this categorization is to develop a comprehensive standard classification on patient safety, useable by all World Health Organization Member States to facilitate improved information sharing, learning and system change in order to reduce health care-related harm.

- **DPSD** Danish Patient Safety Database (DK)

Reporting patient safety incidents in Denmark is by law mandatory. In the Capital Region several reporting systems are collected into a common database.

- **JCAHO** Joint Commission on Accreditation of Healthcare Organizations (US) [13]

This Patient Safety Event Taxonomy aims at facilitating a common approach for the patient safety event reports and to conduct root cause analyses in a consistent fashion.

Table 1. Legend of the color code used in the comparison table.

1	Information absent (or not explicitly requested in the instruction for free text area)
2	Information related (but not identical or not described with enough precision)
3	information identical to the label mentioned in the column "items"
3	information identical to the label mentioned in the column "items" and exclusively in the referred taxonomy

Table 2. Comparison of the different taxonomies.

categories	items	PSIP	NCCMERP	AAQTE	USP-ISMP	medwatch	ICPS	DPSD	JCAHO
Who fills in the report	Name	1	1	3	2	3	1	1	1
	Profession	1	1	3	1	3	3	1	3
	Email	1	1	1	3	3	1	1	1
	Department	1	1	3	1	1	1	3	1
	Role	1	1	3	1	1	1	1	1
	Name and address of the hospital	3	1	3	1	1	1	1	1
	Type of care setting	3	1	1	1	1	1	3	1
	Date of initial report	1	3	1	1	3	1	1	1
	Date of follow-up report	1	3	1	2	3	1	1	1
	ID number of the incident report	1	1	1	1	1	1	1	1
Patient data	Age	3	3	3	1	3	3	3	3
	Gender	3	3	3	1	3	3	3	3
	Weight	1	3	1	1	3	1	3	1
	Identification	3	3	1	1	3	1	1	1
	Height	1	1	1	1	1	1	3	3
	Social economic status	1	1	1	1	1	1	1	3
	Education level	1	1	1	1	1	1	1	3
	Race and ethnicity	1	1	1	1	1	1	1	3
	Distance from the hospital	3	1	1	1	1	1	1	1
	Does the patient come from the hospital's country (state) ?	3	1	1	1	1	1	1	1
	Does the patient come from the hospital's region ?	3	1	1	1	1	1	1	1
	Does the patient come from the hospital's department ?	3	1	1	1	1	1	1	1
Stay data	Medical units of the step	3	2	2	1	1	1	2	3
	Duration of the stay	3	2	2	1	1	1	1	1
	Expected duration for the stays of this DRG	3	1	1	1	1	1	1	1
	Standard deviation of the duration for the stays of this DRG	3	1	1	1	1	1	1	1
	Duration of the step of the stay	3	1	1	1	1	1	1	1
	Number of medical units visited during the stay	3	1	1	1	1	1	1	1
	Number of stays used to compute the various DRG-based statistics (duration_exp, death_exp, duration_icu_exp, throught_icu_exp)	3	1	1	1	1	1	1	1
	Back and forth between medical units	3	1	1	1	1	1	2	1
	Transfer to another "short hospitalization" hospital	3	1	1	1	1	1	2	1
	Delay up to next hospitalization	3	1	1	1	1	1	1	1
	Death during the stay	3	2	2	2	2	1	2	1
	Expected proportion of death in this DRG	3	1	1	1	1	1	1	1

Table 2 (continued). Comparison of the different taxonomies.

categories	items	PSIP	NCCMERP	AAQTE	USP-ISMP	medwatch	ICPS	DPSD	JCAHO
Diagnoses	DRG (Diagnostic Related Group)	3	1	1	1	1	1	1	1
	Principal diagnosis of step of the stay	3	1	3	1	2	1	3	3
	Admission diagnostic	1	1	1	1	1	1	3	1
	Allergy	2	1	1	1	1	1	3	1
	Theoretical MDC of the principal diagnosis	3	1	1	1	1	1	1	1
	Number of different theoretical MDCs (Major Diagnostic Categories)	3	1	1	1	1	1	1	1
	Associated diagnosis	3	2	2	1	2	1	2	3
	Number of different associated diagnosis	3	1	1	1	1	1	1	1
	Gravity score	3	1	1	1	1	1	1	1
	Duration of disease		1	1	1	1	1	1	3
Intensive Care Unit	Taken care of in intensive care/resuscitation unit ?	3	2	3	1	1	1	1	1
	Expected proportion of stays with intensive care/resuscitation for this DRG	3	1	1	1	1	1	1	1
	Duration in an intensive care/resuscitation unit	3	1	1	1	1	1	1	1
	Standard deviation of the duration in an intensive care/resuscitation unit	3	1	1	1	1	1	1	1
	Expected duration in an intensive care/resuscitation unit	3	1	1	1	1	1	1	1
	Gravity score	3	1	1	1	1	1	1	1
	Delay before ICU/resuscitation step	3	1	1	1	1	1	1	1
Drug	Commercial name	3	3	3	3	3	1	3	1
	ATC Code	3	3	1	2	1	1	1	1
	Dosage form (tablet, oral, etc)	3	3	3	3	1	2	1	1
	Unit dose-multiple dose	2	3	3	1	1	1	1	1
	Manufacturer or institution prepared	1	3	1	1	1	1	1	1
	Compounded Ingredients	2	3	1	1	1	1	1	1
	Strength	2	3	1	3	1	1	1	1
	Delay between the entry and the administration	3	2	1	1	1	1	1	1
	Total drug dose administered during this day	3	2	1	1	1	1	1	1
	Unit used for the total dose	3	1	1	1	1	1	1	1
	Dose	1	3	1	1	3	1	3	1

Table 2 (continued). Comparison of the different taxonomies.

categories	items	PSIP	NCCMERP	AAQTE	USP-ISMP	medwatch	ICPS	DPSD	JCAHO
Drug	Route	3	3	1	1	3	1	1	1
	Frequency	1	3	1	1	3	1	3	1
	Name of manufacturer	1	3	1	1	3	1	1	1
	Name of Labeler or Distributor	1	3	1	1	3	1	1	1
	Event abated after use stopped ?	1	1	1	1	3	1	1	1
	Event reappeared after reintroduction	1	1	1	1	3	1	1	1
	Lot	1	1	1	1	3	1	1	1
	Expiration date	1	1	1	1	3	1	1	1
	Date of use	2	1	1	1	3	1	1	1
Procedures	Number of different acts	3	1	1	1	1	1	1	1
	Act	3	1	2	1	1	1	1	1
	Delay between the entry and the act realization	3	1	1	1	1	1	1	1
Lab results	Delay between the entry and the sample	3	2	2	1	2	1	1	1
	Kind of biology record	3	2	2	1	2	1	3	1
	Value	3	2	2	1	2	1	3	1
	Unit used for the value	3	2	2	1	2	1	3	1
	Inferior bound	3	1	1	1	1	1	3	1
	Superior bound	3	1	1	1	1	1	3	1
Reports of the stays (ex discharge letter)	Kind of text	3	1	1	1	1	1	1	1
	Filename	3	1	1	2	1	1	1	1
Description of the event	Date of event (weekend, holiday)	1	3	3	1	3	3	1	1
	Time of error	1	3	3	1	2	3	1	1
	Stage of the medication use process	1	2	3	1	2	3	1	1
	Type of discipline involved	1	2	1	1	1	3	1	1
	Place where the error occurred (ambulatory, hospitalization, consultation)	1	2	3	2	1	3	1	1
	Type of report (adverse event, product use error, product problem or problem with different manufacturer of same medicine)	1	1	1	1	3	1	1	1
	Should the patient had to take the drug ?	1	2	3	1	1	1	1	1
	Which patient should take the drug ?	1	2	3	1	1	1	1	1
	Medical devices used	1	2	3	1	3	1	1	1

Table 2 (continued). Comparison of the different taxonomies.

categories	items	PSIP	NCCMERP	AAQTE	USP-ISMP	medwatch	ICPS	DPSD	JCAHO
Description of the event	Commentary about the preparation and the dispending of sterile medical devices	1	1	3	1	1	1	1	1
	Steps of the incident	1	2	3	1	2	1	1	1
	People involved (error made, perpetuated or discovered)	1	3	2	1	1	2	1	1
	Profession of the people involved	1	1	1	1	1	3	1	1
	Environment	1	2	3	1	1	1	1	1
	Socio-technical organization	1	2	3	1	1	1	1	1
	Medical knowledge	1	2	3	2	1	1	1	1
	Actions following the incident	1	2	3	1	1	1	1	1
	How the incident was detected ?	1	1	3	2	1	1	1	1
Type of error	The failure to administer an ordered dose to a patient before the next scheduled dose, if any. This excludes patients who refuse to take a medication or a decision not to administer.]	1	3	1	1	1	1	1	1
	Resulting in Over dosage	1	3	1	1	1	3	1	1
	Resulting in Under dosage	1	3	1	1	1	1	1	1
	Extra Dose	1	3	1	1	1	1	1	1
	Wrong quantity	1	1	1	1	1	3	1	1
	Wrong Strength/Concentration	1	3	1	1	1	1	1	1
	wrong dispensing label	1	1	1	1	1	3	1	1
	Wrong Drug	1	3	1	1	1	3	1	1
	Wrong Dosage Form	1	3	1	1	1	1	1	1
	Wrong Technique (includes inappropriate crushing of tablets)	1	3	1	1	1	1	1	1
	Wrong Route of Administration	1	3	1	1	1	3	1	1
	Wrong rate (too fast or too slow)	1	3	1	1	1	1	1	1
	Wrong formulation or presentation	1	1	1	1	1	3	1	1
	Wrong duration	1	3	1	1	1	1	1	1
	Wrong time	1	3	1	1	1	1	1	1
	Wrong patient	1	3	3	1	1	3	1	1
	Omitted medicine or dose	1	1	1	1	1	3	1	1
	Wrong storage	1	1	1	1	1	3	1	1
	Drug-Drug Interaction	1	3	1	1	1	1	1	1
	Drug-Food/Nutrient Interaction	1	3	1	1	1	1	1	1
	Documented Allergy	1	3	1	1	1	1	1	1
	Drug-Disease Interaction	1	3	1	1	1	3	1	1
	Clinical (e.g., blood glucose, prothrombin, blood pressure,)	1	3	1	1	1	1	1	1
	Deteriorated Drug Error (Dispensing drug which has expired)	1	3	1	1	1	3	1	1
	Preventable	1	2	2	2	1	1	1	1

Table 2 (continued). Comparison of the different taxonomies.

categories	items	PSIP	NCCMERP	AAQTE	USP-ISMP	medwatch	ICPS	DPSD	JCAHO
Cause of error - communication	Communication (Verbal miscommunication Abbreviations Non-metric units of measurement (e.g., apothecary) Trailing Zero Leading Zero Decimal Point Misread or Didn't Read Misinterpretation of the order	1	3	1	2	1	2	1	2
Cause of error - labeling	Name of drug confusion	1	3	1	2	1	3	1	1
	Labeling	1	3	1	2	1	3	1	1
Cause of error human factor	Knowledge Deficit	1	3	1	2	1	3	1	1
	perception understanding	1	1	1	2	1	3	1	1
	Rule based	1	1	1	2	1	3	1	3
	Slip/Lapse error	1	1	1	2	1	3	1	1
	Technical error in execution (physical)	1	1	1	2	1	3	1	1
	Performance Deficit	1	3	1	2	1	1	1	1
	Failure to synthesize on available information	1	1	1	2	1	3	1	1
	Miscalculation of Dosage or Infusion Rate	1	3	1	2	1	1	1	1
	Computer Error : Incorrect selection from a list by computer operator Incorrect programming into the database. Inadequate screening for allergies, interactions, etc.	1	3	1	2	1	1	1	1
	Error in Stocking/Restocking/Cart Filling	1	3	1	2	1	1	1	1
	Drug Preparation Error : Failure to activate delivery system Wrong Diluents Wrong Amount of Diluent Wrong amount of active ingredient added to the final product Wrong drug added	1	3	1	2	1	1	1	1
	Transcription Error : Original to Paper/Carbon paper Original to Computer Original to Facsimile Recopying MAR	1	3	1	2	1	1	1	1

Table 2 (continued). Comparison of the different taxonomies.

categories	items	PSIP	NCCMERP	AAQTE	USP-ISMP	medwatch	ICPS	DPSD	JCAHO
Cause of error human factor	Stress (high volume workload, etc.)	1	3	1	2	1	1	1	1
	Fatigue/Lack of Sleep	1	3	1	2	1	3	1	1
	Distraction	1	1	1	2	1	3	1	1
	Action of the patient	1	1	1	1	1	1	1	3
	Negligence	1	1	1	1	1	1	1	3
	Recklessness	1	1	1	1	1	1	1	3
	Intentional rule violations	1	1	1	1	1	1	1	3
	Confrontational or intimidating behavior	1	3	1	2	1	1	1	1
	Skill based	1	1	1	1	1	1	1	3
	Knowledge based	1	1	1	1	1	1	1	3
Cause of error Behavior / violation	Noncompliance	1	1	1	2	1	3	1	1
	Routine violation	1	1	1	2	1	3	1	1
	Risky behavior	1	1	1	2	1	3	1	1
	Reckless behavior	1	1	1	2	1	3	1	1
	Problem with substance abuse	1	1	1	2	1	3	1	1
	Criminal act	1	1	1	2	1	3	1	1
Cause of error - packaging design	Dosage form	1	3	1	2	1	1	1	1
	Inappropriate Packaging or Design	1	3	1	2	1	1	1	1
	Devices	1	3	1	2	1	1	1	1

Table 2 (continued). Comparison of the different taxonomies.

categories	items	PSIP	NCCMERP	AAQTE	USP-ISMP	medwatch	ICPS	DPSD	JCAHO
Cause of error - contributing factors	Lighting	1	3	1	2	1	2	1	1
	Noise Level	1	3	1	2	1	2	1	1
	Frequent Interruptions and distractions	1	3	1	2	1	2	1	1
	Training	1	3	1	2	1	1	1	3
	Staffing	1	3	1	2	1	1	1	3
	selection	1	1	1	1	1	1	1	3
	Lack of availability of health care professional	1	3	1	2	1	1	1	1
	Assignment or placement of a health care provider or inexperienced personnel	1	3	1	2	1	1	1	1
	System for Covering Patient Care (e.g., floating personnel, agency coverage)	1	3	1	2	1	1	1	1
	Policies and procedures	1	3	1	2	1	1	1	1
	Communication systems between health care practitioners	1	3	1	2	1	3	1	1
	Patient counseling	1	3	1	2	1	2	1	1
	Floor Stock	1	3	1	2	1	1	1	1
	Pre-printed medication orders	1	3	1	2	1	1	1	1
	Native language and cultural factors	1	1	1	2	1	1	1	1
	Medical student prescription	1	1	1	2	1	1	1	1
	Design / construction of equipment	1	1	1	1	1	1	1	3
	Malfunction and obsolescence of equipment	1	1	1	1	1	1	1	3
	Availability of equipment	1	1	1	1	1	1	1	3
	Procedures (objectives, documentation, instructions, etc.)	1	1	1	1	1	1	1	3
	Type of process (e.g. time pressure)	1	1	1	1	1	1	1	3
Cause of error - organizational factors	Type of the drug dispensation process	1	1	3	2	1	1	1	1
	Hierarchical culture	1	1	1	2	1	2	1	1
	Hours of on-site pharmacist coverage	1	1	1	2	1	1	1	1
	Use of CPOE (and use of it for clinical purposes)	1	1	1	2	1	1	1	1
	Chain of command	1	1	1	1	1	1	1	3
	Culture of safety	1	1	1	1	1	1	1	3
	External	1	1	1	1	1	1	1	3

categories	items	PSIP	NCCMERP	AAQTE	USP-ISMP	medwatch	ICPS	DPSD	JCAHO
Outcome of the error for the patient	No consequence (* circumstances of error * error did not reach the patient * error did not cause patient harm)	1	3	1	3	1	1	1	3
	An error occurred that may have contributed to or resulted in temporary harm to the patient	1	3	3	2	3	1	1	3
	An error occurred that may have contributed to or resulted in temporary harm to the patient and required intervention to preclude harm	2	3	3	2	3	1	1	3
	An error occurred that may have contributed to or resulted in permanent harm to the patient	2	3	3	2	3	1	1	3
	An error occurred that required to sustain life	2	3	2	2	2	1	1	3
	An error occurred that may have contributed to or resulted in the patient's death.	2	3	3	2	3	1	1	3
	Pathophysiology (n=18)	1	1	1	1	1	3	1	1
	Degree of harm	1	1	1	1	1	3	1	3
	Congenital / birth defect	1	1	1	1	3	1	1	1
	Psychological effect	1	1	1	1	1	1	1	3
Outcome of the error for the institution	An error occurred that reached the patient and required monitoring to confirm that it resulted in no harm to the patient and/or required intervention to preclude harm	1	3	3	2	3	3	1	1
	An error occurred that may have contributed to or resulted in temporary harm to the patient and required intervention to preclude harm	1	3	3	2	3	3	1	3
	Error that required initial or prolonged hospitalization	2	3	3	2	3	3	1	3
	Taken care of in intensive care/resuscitation unit ?	2	2	3	1	1	1	1	3
	Mediatisation	1	1	3	1	1	3	1	1
	Judicial complaint	1	1	3	1	1	3	1	3
	Financial reparation	1	1	3	1	1	3	1	3
	Social	1	1	1	1	1	1	1	3
Prevention proposal	Proposition de prévention	1	1	3	3	1	1	1	3
Organization	Medication ordering (paper based, computerized, command sheet, phone)	1	1	3	1	1	1	1	1
	Pharmacist assessment of the prescription	1	1	3	1	1	1	1	1
	Informatics alert	1	1	3	1	1	1	1	1
	Pharmacist assessment of the preparation	1	1	3	1	1	1	1	1
	Pharmacist assessment of the dispending	1	1	3	1	1	1	1	1