

Appendix A.1. Medication Prescribing Error Definitions Used in Included Studies

Study	Medication Prescribing Error Definition Used in Study
<p>Maria J. Huertas Fernandez et al. (1)</p>	<p>“A medication error is a mistake originating in any of the various phases of the medication usage system.”</p> <p>+</p> <p>“The National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP) defines such an error as any preventable incident that may harm the patient or lead to an inappropriate use of medication in cases where the medicine is controlled by health care professionals, patients or consumers. It includes errors committed in the areas of prescription, notification, labelling, filling, names, preparation, dispensation, distribution, administration, education, follow-up and usage”</p>
<p>Aziz et al. (2)</p>	<p>“Any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures, and systems, including prescribing, order communication, product labeling, packaging, and nomenclature, compounding, dispensing, distribution, administration, education, monitoring, and use. (NCCMRP 2015)”</p>
<p>Collins et al. (3)</p>	<p>“Prescribing errors was provided: Prescribing errors were categorized as either Errors in clinical decision making, or errors in transcription or errors related to prescribing policy”</p>
<p>Meisenberg et al.(4)</p>	<p>“Errors were defined distinctly as those mistakes with potential for harm, including errors involving drug, dose, or schedule, among other aspects. Table 2 lists the classifications of both problems and errors”</p>
<p>Nerich(5)</p>	<p>“A prescribing medication error (PME) was defined as any abnormality occurring in the prescription process and discovered by pharmacists. Then, prescribing physicians (resident or senior) were contacted to check and to confirm their prescriptions. In case of error, the computerized prescription medical order was corrected. Inter-observer reliability was not evaluated”</p>
<p>Lichtner et al.(6)</p>	<p>“Errors, or incidents, are understood as resulting from the dynamic interaction of the elements of the sociotechnical system, not from one element alone (i.e. the human or the EMM system).</p> <p>In broad terms, incidents are defined as ‘any unplanned event resulting in, or with the potential for, injury, damage or other loss’ (NSW Health, 2014).”</p>
<p>Voeffray et al. (7)</p>	<p>“to errors in the processes of ordering, transcribing, dispensing, administering or monitoring drugs. 2 They can lead to adverse drug events, some of which are preventable”</p>

Appendix A.2. Severity of Medication Errors According to NCC-MERP Classification (8).

Classification	NCC-MERP Category	Definition
No error	A	Circumstances or event that have the capacity to cause harm
Error, no harm	B	An error occurred, but the error did not reach the patient (near miss)
	C	An error occurred that reach the patient but did not cause patient harm
	D	An error occurred that reach the patient and required monitoring to confirm that it resulted in no harm to the patient and/or required intervention to preclude harm
Error, harm	E	An error occurred that may have contributed to or resulted in temporary harm to the patient and required intervention
	F	An error occurred that may have contributed to or resulted in temporary harm to the patient and required initial or prolonged hospitalization
	G	An error occurred that may have contributed to or resulted in permanent patient harm
	H	An error occurred that require intervention necessary to sustain life
Error death	I	An error occurred that may have contributed to or resulted in the patient's death
Unknown	U	Unknown outcome

Appendix A.C.

WEB OF SCIENCE, Scopus, Embase and science direct. Search strategies :

Ovid Search Strategy: WEB OF SCIENCE. 2000 - 2020
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|--|
| 1 Medical Order Entry System |
| 2 Computerized Provider Order Entry System |
| 3 Computerized prescriber order entry |
| 4 Computerized physician order entry |
| 5 Electronic physician order entry |
| 6 Electronic order entry |
| 7 Computerized Order Entry |
| 8 Electronic Prescribing |
| 9 CPOE |
| 10 Clinical Decision Support System |
| 11 DSS |
| 12 CDSS |
| 13 1 OR 2 OR 3 OR ... 12 |
| 14 Medication error |
| 15 Error reporting |
| 16 Error reduction |
| 17 Patient safety |
| 18 Safety |
| 19 14 OR 15 OR 16 OR 17 OR 18 |
| 20 Chemotherapy |
| 21 Neoplasm |
| 22 Cancer Care Unit |
| 23 Oncology department |

24 **20 OR 21 OR 22 OR 23**

S25 Limiters – Published Date 2000-2020

S26 Limiters – English Language

Ss= 13 and 19 and 24

WEB OF SCIENCE. 2000 - 2020

ts=("Medical Order Entry System" OR "Computerized Provider Order Entry System" OR "Computerized prescriber order entry" OR "Computerized physician order entry" OR "Electronic physician order entry" OR "Electronic order entry" OR

"Computerized Order Entry" OR "Electronic Prescribing" OR "CPOE" OR "Clinical Decision Support System" OR "CDSS"
OR "DSS")

AND

ts=("Medication error" OR "Error reporting" OR "Error reduction" OR "Patient safety" OR "Safety")

AND

ts=("Chemotherapy" OR "Neoplasm" OR "Cancer Care Unit" OR "Oncology department" OR "Oncology Service
Hospital")

Ovid Search Strategy:

Scopus. 2000 - 2020

- 1 Medical Order Entry System
- 2 Computerized Provider Order Entry System
- 3 Computerized prescriber order entry
- 4 Computerized physician order entry
- 5 Electronic physician order entry
- 6 Electronic order entry
- 7 Computerized Order Entry
- 8 Electronic Prescribing
- 9 CPOE
- 10 Clinical Decision Support System
- 11 DSS
- 12 CDSS
- 13 1 OR 2 OR 3 OR ... 12**
- 14 Medication error
- 15 Error reporting
- 16 Error reduction
- 17 Patient safety
- 18 Safety
- 19 14 OR 15 OR 16 OR 17 OR 18**
- 20 Chemotherapy
- 21 Neoplasm
- 22 Cancer Care Unit
- 23 Oncology department

24 **20 OR 21 OR 22 OR 23**

S25 Limiters – Published Date 2000-2020

S26 Limiters – English Language

Ss= 13 and 19 and 24

Scopus. 2000 – 2020

((TITLE-ABS-KEY(Medical Order Entry System) OR TITLE-ABS-KEY(Computerized Provider Order Entry System) OR TITLE-ABS-KEY(Computerized prescriber order entry) OR TITLE-ABS-KEY(Computerized physician order entry) OR TITLE-ABS-KEY(Electronic physician order entry) OR TITLE-ABS-KEY(Electronic order entry) OR TITLE-ABS-KEY(Computerized Order Entry) OR TITLE-ABS-KEY(Electronic Prescribing) OR TITLE-ABS-KEY(Cpoe) OR TITLE-ABS-KEY(Clinical Decision Support Systems) OR TITLE-ABS-KEY(Cdss) OR TITLE-ABS-KEY(Dss))) AND ((TITLE-ABS-KEY(Medication error) OR TITLE-ABS-KEY(Error reduction) OR TITLE-ABS-KEY(Error reporting) OR TITLE-ABS-KEY(Patient safety) OR TITLE-ABS-KEY(safety))) AND ((TITLE-ABS-KEY(Cancer Care Unit) OR TITLE-ABS-KEY(Oncology department) OR TITLE-ABS-KEY(Oncology Service Hospital) OR TITLE-ABS-KEY(Chemotherapy) OR TITLE-ABS-KEY(Neoplasms)))

Ovid Search Strategy: Embase . 2000 - 2020

- 1 Medical Order Entry System
 - 2 Computerized Provider Order Entry System
 - 3 Computerized prescriber order entry
 - 4 Computerized physician order entry
 - 5 Electronic physician order entry
 - 6 Electronic order entry
 - 7 Computerized Order Entry
 - 8 Electronic Prescribing
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 - 13 1 OR 2 OR 3 OR ... 12**
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 - 24 **20 OR 21 OR 22 OR 23**
 - S25 Limiters – Published Date 2000-2020
 - S26 Limiters – English Language
- Ss= 13 and 19 and 24**

Embase. 2000 – 2020

'physician order entry system':ti,ab,kw OR 'computerized provider order entry':ti,ab,kw OR 'computerized prescriber order entry':ti,ab,kw OR 'computerized physician order entry':ti,ab,kw OR 'electronic physician order entry':ti,ab,kw OR 'electronic order entry':ti,ab,kw OR 'computerized order entry':ti,ab,kw OR 'electronic prescribing':ti,ab,kw OR cpoe:ti,ab,kw OR 'clinical decision support system':ti,ab,kw OR cdss:ti,ab,kw OR dss:ti,ab,kw

AND

'medication error':ti,ab,kw OR 'error reporting':ti,ab,kw OR 'error reduction':ti,ab,kw OR 'patient safety':ti,ab,kw OR safety:ti,ab,kw

AND

chemotherapy:ti,ab,kw OR 'oncology ward':ti,ab,kw OR 'oncology department':ti,ab,kw OR 'cancer center':ti,ab,kw OR neoplasm:ti,ab,kw

Ovid Search Strategy:

Science direct.. 2000 - 2020

- | | |
|---|--|
| <p>1 Medical Order Entry System
2 Computerized Provider Order Entry System
3 Clinical Decision Support System
4 1 OR 2 OR 3 OR ... 12
14 Medication error
15 Error reporting
18 Safety
19 14 OR 15 OR 18
20 Chemotherapy
22 Cancer Care Unit
24 20 OR 22</p> | |
|---|--|

S25 Limiters – Published Date 2000-2020

S26 Limiters – English Language

Ss= 4 and 19 and 24

Science direct. 2000 – 2020

((("Medical Order Entry System" OR "Computerized Provider Order Entry System" OR "Electronic physician order entry" OR "Clinical Decision Support System") AND ("Medication error" OR "Error reporting" OR "Safety")) AND ("Chemotherapy" OR "Cancer Care Unit"))

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 2. Aziz MT, Ur-Rehman T, Qureshi S, Bukhari NI. Reduction in chemotherapy order errors with computerised physician order entry and clinical decision support systems. *Health Information Management Journal*. 2015;44(3):13-22.
 3. Collins CM, Elsaid KA. Using an enhanced oral chemotherapy computerized provider order entry system to reduce prescribing errors and improve safety. *International Journal for Quality in Health Care*. 2011;23(1):36-43.
 4. Meisenberg BR, Wright RR, Brady-Copertino CJ. Reduction in chemotherapy order errors with computerized physician order entry. *Journal of Oncology Practice*. 2014;10(1):e5-e9.
 5. Nerich V, Limat S, Demarchi M, Borg C, Rohrllich P-S, Deconinck E, et al. Computerized physician order entry of injectable antineoplastic drugs: an epidemiologic study of prescribing medication errors. *International Journal of Medical Informatics*. 2010;79(10):699-706.
 6. Lichtner V, Baysari M, Gates P, Dalla-Pozza L, Westbrook JI. Medication safety incidents in paediatric oncology after electronic medication management system implementation. *European journal of cancer care*. 2019;28(6):e13152.
 7. Voeffray M, Pannatier A, Stupp R, Fucina N, Leyvraz S, Wasserfallen J-B. Effect of computerisation on the quality and safety of chemotherapy prescription. *BMJ Quality & Safety*. 2006;15(6):418-21.
 8. nccmerp. NCC MERP Index for Categorizing Medication Errors. 2001:<https://www.nccmerp.org/sites/default/files/indexColor2001-06-12.pdf>.