

ORIGINAL ARTICLE

Setting Priorities for Clinical Practice Guidelines (CPGs) in the Emergency Department of a Teaching Hospital

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ABSTRACT

Design, localization and implementation of Clinical Practice Guidelines (CPGs) is a time consuming and costly task. Hence, it seems necessary to set some priorities for different CPGs. This cross-sectional study was conducted in the year 2012 in Imam Hossein Hospital. All emergency medicine specialists participated in this study. The data collection instrument was a questionnaire consisting of two parts. The first part of the questionnaire consisted of 41 effective criteria in prioritization, design and localization of clinical practice guidelines (CPGs) covering ten major fields, meanwhile the second part contained a list of diseases/conditions prevalent in the emergency department. Given the importance of each issue and the need to prioritize the design and development of clinical practice guidelines for given disease/condition, a score of one to nine (the least important to the most important) was assigned to each of the effective fields. The data was analyzed using SPSS, Ver. 18 and the level of statistical significance was considered to be $p < 0.05$. Among effective ten fields in identifying and prioritizing the diseases and conditions that required design and development of clinical practice guidelines, high effectiveness potential of such guidelines had the utmost importance and influence in the opinions of the experts. The most important priorities for preparing clinical practice guidelines were identified as the followings:

Acute coronary syndrome (ACS) and seizure in terms of high burden of the diseases, ACS regarding information requirements in health care sector, ACS and seizure with respect to feasibility, pulmonary embolism (PE) and spinal injuries as the first priority in terms of effectiveness, ACS and stroke as the most important priorities in terms of economic impacts on the health care system, procedural sedation and analgesia (PSA) in terms of heterogeneity of treatment, ACS, as the first priority in terms of social impacts/justice, orthopedic trauma in terms of consumers' preferences, ACS in terms of adverse events, ACS regarding disease prevention and health promotion and finally ACS as the first priority covering all such fields. Given the need for rapid intervention in the case of admission of the emergency patients and the emergency events, design, development and implementation of clinical practice guidelines in this section provides uniformity for practices of the physicians and makes it easier to predict the future needs and requirements. By implementation of and acting in accordance with the clinical practice guidelines, financial and human resources of the health care system may be saved and resources can be redirected to the fields in dire need.

Keywords: Acute coronary syndrome (ACS), CPGs

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INTRODUCTION

Clinical practice guidelines are the texts prepared in a systematic manner to help the physician and patient for decision-making about appropriate health care regarding specific clinical conditions [1-3]. The clinical practice guidelines are to provide explicit recommendations with clear objectives to influence medical practice [4-6].

Emergency department is one of the key wards at a hospital, which requires attention given the nature of the urgent needs of the emergency patients on the one hand, and the diversity and the range of diseases, on the other hand. Several things can be done to enhance the accuracy, speed and quality of services provided in this department, and one of them is defining the standards and methods of unified practice called "Clinical Practice Guidelines". There are several advantages for preparing clinical practice guidelines including uniformity of the provided services, reduced medical errors, reduced administrative

costs and taking actions fast in given situations [7-9]. Thus, the national health care system should ensure having access to the best evidences for evidence-based decision-making and ultimately the availability of the safe and effective services. One of the mechanisms to ensure the achievement of patient satisfaction and subsequently to facilitate the treatment processes is developing clinical practice guidelines. Clinical practice guidelines are a systematic approach in different countries and health care systems in several parts of the world; i.e. solutions prepared in other cultural, ethnic and organizational settings. Therefore prioritizing the diseases for developing or localizing their guidelines is an undeniable necessity for our current health care system.

Since defining, designing, localizing and implementing CPGs is time consuming and costly, it seems necessary to set some priorities for different CPGs. Due to the limited resources of the health care system, CPGs cannot be defined for all diseases and conditions; moreover, the nature of certain diseases cannot be captured in definite guidelines. This study investigated the emergency medicine experts' opinions regarding the factors affecting the selection of a topic for defining and localizing the relevant CPGs, which ultimately may lead to the selection of some diseases/conditions for localization of CPGs.

METHOD

This cross-sectional study was conducted in 2012 in Imam Hossein Hospital, i.e. a teaching hospital in Tehran. All emergency medicine specialists working in the hospitals affiliated with Shahid Beheshti University of Medical Sciences participated in this study.

The data collection instrument was a questionnaire comprised of two parts. The first part of the questionnaire consisted of 41 effective criteria in prioritization, design and localization of clinical practice guidelines (CPGs) covering ten major fields, provided by review of literature. In fact, this part was a guideline for further details about each of the ten fields. The second part of the questionnaire contained a list of diseases/conditions prevalent in the emergency department. The list was provided to the experts and they were asked, given the importance of each issue and the need to prioritize the design and development of clinical practice guidelines for given disease/condition, to assign a score of one to nine (the least important to the most important) to each of the influential fields. The validity of the questionnaire was realized by submitting it to the experts and obtaining their feedbacks, while the reliability of the data collection instrument was determined through the pilot study and Cronbach's alpha test (82%). The data was analyzed using SPSS, Ver. 18 and the level of statistical significance was considered to be $p < 0.05$.

RESULTS AND DISCUSSION

In total, 30 questionnaires completed by emergency medicine professors were collected. Table 1 represents the rank and score of each of the factors influencing the development of clinical practice guidelines.

Table 1: The rank and score of each of the factors influencing the development of clinical practice guidelines

Rank	Field	Total score	Mean score
1	Effectiveness	4460	6.91
2	Feasibility	4120	6.38
3	Heterogeneity of treatment	3949	6.12
4	Disease burden	3681	5.7
5	Economic impacts on the health care system	3399	5.27
6	Information requirements in health care sector	3271	5.07
7	Consumers' preferences	3253	5.04
8	Disease prevention and health promotion	3148	4.88
9	Social impacts/justice	3095	4.8
10	Adverse events	3011	4.67

According to the above table, after obtaining experts' opinions, among ten effective fields in identifying and prioritizing the diseases and conditions that required the design and development of clinical practice guidelines, high effectiveness potential of guidelines had the utmost importance and effect in the opinions of the experts.

Table 2: The total scores of each of the diseases/emergency conditions for 10 fields

Row	Disease/condition	Disease burden	Information requirements in health care sector	Feasibility	Effectiveness	Economic impacts on the health care system	Heterogeneity of treatment	Social impacts/justice	Consumers' preferences	Adverse events	Disease prevention and health promotion	Total	Rank
1	Abdominal pain	118	85	109	122	94	122	85	82	80	88	985	16
2	Abdominal trauma	99	94	104	113	96	103	87	89	83	91	959	20
3	Acute CNS infection	94	76	100	114	73	85	79	60	72	68	821	28
4	Acute coronary syndrome (ACS)	139	122	143	131	117	121	114	108	116	125	1236	1
5	Atrial fibrillation (AF)	108	86	108	118	103	110	96	73	84	90	976	18
6	Back pain	94	69	108	119	86	104	57	87	58	63	845	27
7	Bioterrorism	23	68	67	94	67	65	60	61	55	61	621	36
8	Chemoterrorism	25	63	64	89	68	61	57	61	54	65	607	37
9	Cyanosis	54	63	57	92	68	88	51	60	53	54	640	35
10	Depressed consciousness	134	105	136	132	111	121	100	105	106	106	1156	3
11	Diabetic ketoacidosis (DKA)	116	82	127	132	98	110	61	84	61	98	969	19
12	Genitourinary system trauma	47	76	82	87	69	110	56	69	38	59	693	33
13	Geriatric trauma	72	73	95	106	78	82	77	70	67	74	794	29
14	GI bleeding	109	71	103	112	86	101	80	88	76	74	900	25
15	Head injury	122	83	129	119	100	96	79	105	93	84	1010	13
16	Headache	130	109	130	123	92	132	92	99	99	85	1091	8
17	Hemoptysis	55	62	62	84	77	60	68	70	69	72	679	34
18	Hypertensive emergencies	105	101	110	121	84	137	84	92	72	79	985	16
19	Multiple trauma	128	99	113	131	104	114	105	96	103	100	1093	7
20	Orthopedic trauma	126	94	103	120	98	131	90	116	91	87	1056	10
21	Pediatric trauma	98	81	117	132	84	101	85	84	83	84	949	22
22	Pneumonia	99	82	124	119	97	111	69	80	71	82	934	23
23	Poisoned patient	97	105	118	131	94	112	93	95	93	98	1036	11
24	Post-Exposure prophylaxis (PEP)	57	63	91	124	81	83	64	73	59	86	781	30
25	Procedural sedation and analgesia (PSA)	125	103	137	128	111	142	95	111	99	112	1163	2
26	Pulmonary embolism (PE)	96	87	121	133	96	104	99	89	95	98	1018	12
27	Radiation injuries	27	59	66	84	64	52	55	57	54	55	573	38
28	Renal colic	98	75	112	123	91	114	54	90	49	67	873	26
29	Seizure	139	106	143	131	100	126	104	102	99	99	1149	6
30	Severe sepsis	138	113	122	125	109	121	112	106	112	98	1156	3
31	Spinal injuries	80	77	118	133	93	92	82	92	86	79	932	24
32	Stroke	135	112	124	125	117	125	103	105	92	113	1151	5
33	Syncope	127	115	114	113	112	112	104	96	93	102	1088	9
34	Thoracic trauma	101	80	125	118	83	112	89	83	87	81	959	20
35	Trauma in pregnancy	43	76	87	121	71	74	78	75	69	65	759	31
36	True vertigo	135	89	123	128	85	121	75	84	77	74	991	15
37	Ventricular tachycardia (VT)	68	72	105	124	59	72	65	67	71	49	752	32
38	Weakness	120	95	123	109	83	122	91	89	92	83	1007	14

Table 3: Ten diseases/emergency conditions in need of the development of clinical practice guidelines regarding disease burden

Rank	Disease/emergency condition	Total score
1	Acute coronary syndrome (ACS)	139
2	Seizure	139
3	Severe sepsis	138
4	Stroke	135
5	True vertigo	135
6	Depressed consciousness	134
7	Headache	130
8	Multiple trauma	128
9	Syncope	127
10	Orthopedic trauma	126

Given the total scores assigned by the experts to each of the diseases/emergency conditions in the field of disease burden, acute coronary syndrome (ACS) and seizure with a total score of 139 were identified as the first priority for preparing clinical practice guidelines with regard to the high burden of the diseases.

Table 4: Ten diseases/emergency conditions in need of the development of clinical practice guidelines regarding information requirements in health care sector

Rank	Disease/emergency condition	Total score
1	Acute coronary syndrome (ACS)	122
2	Syncope	115
3	Severe sepsis	113
4	stroke	112
5	Headache	109
6	Seizure	106
7	Depressed consciousness	105
8	Poisoned patient	105
9	Procedural sedation and analgesia (PSA)	103
10	Hypertensive emergencies	101

Given the total scores assigned by the experts to each of the diseases/emergency conditions in the field of information requirements in health care sector, acute coronary syndrome (ACS) with a total score of 122 was identified as the first priority for preparing clinical practice guidelines with regard to the information requirements in health care sector.

Table 5: Ten diseases/emergency conditions in need of the development of clinical practice guidelines regarding feasibility

Rank	Disease/emergency condition	Total score
1	Acute coronary syndrome (ACS)	143
2	Seizure	143
3	Procedural sedation and analgesia (PSA)	137
4	Depressed consciousness	136
5	Headache	130
6	Head Injury	129
7	Diabetic ketoacidosis (DKA)	127
8	Thoracic trauma	125
9	stroke	124
10	Pneumonia	124

Given the total scores assigned by the experts to each of the diseases/emergency conditions in the field of feasibility, acute coronary syndrome (ACS) and seizure with a total score of 143 were identified as the first priority for preparing clinical practice guidelines with regard to the feasibility.

Table 6: Ten diseases/emergency conditions in need of the development of clinical practice guidelines regarding effectiveness

Rank	Disease/emergency condition	Total score
1	Pulmonary embolism (PE)	133
2	Spinal injuries	133
3	Depressed consciousness	132
4	Diabetic ketoacidosis (DKA)	132
5	Pediatric trauma	132
6	Acute coronary syndrome(ACS)	131
7	Multiple trauma	131
8	Seizure	131
9	Poisoned patient	131
10	Procedural sedation and analgesia (PSA)	128

Given the total scores assigned by the experts to each of the diseases/emergency conditions in the field of effectiveness, pulmonary embolism (PE) and spinal injuries with a total score of 133 were identified as the first priority for preparing clinical practice guidelines with regard to the effectiveness.

Table 7: Ten diseases/emergency conditions in need of the development of clinical practice guidelines regarding economic impacts on the health care system

Rank	Disease/emergency condition	Total score
1	Stroke	117
2	Acute coronary syndrome (ACS)	117
3	Syncope	112
4	Procedural sedation and analgesia (PSA)	111
5	Depressed consciousness	111
6	Severe sepsis	109
7	Multiple trauma	104
8	Atrial fibrillation (AF)	103
9	Seizure	100
10	Head injury	100

Given the total scores assigned by the experts to each of the diseases/emergency conditions in the field of economic impacts on the health care system, acute coronary syndrome (ACS) and stroke with a total score of 117 were identified as the first priority for preparing clinical practice guidelines with regard to the economic impacts on the health care system.

Table 8: Ten diseases/emergency conditions in need of the development of clinical practice guidelines regarding heterogeneity of treatment

Rank	Disease/emergency condition	Total score
1	Procedural sedation and analgesia (PSA)	142
2	Hypertensive emergencies	137
3	Headache	132
4	Orthopedic trauma	131
5	Seizure	126
6	Stroke	125
7	Weakness	122
8	Abdominal pain	122
9	Acute coronary syndrome (ACS)	121
10	Severe sepsis	121

Given the total scores assigned by the experts to each of the diseases/emergency conditions in the field of heterogeneity of treatment, procedural sedation and analgesia (PSA) with a total score of 142 was identified as the first priority for preparing clinical practice guidelines with regard to the heterogeneity of treatment.

Table 9: Ten diseases/emergency conditions in need of the development of clinical practice guidelines regarding social impacts/justice

Rank	Disease/emergency condition	Total score
1	Acute coronary syndrome (ACS)	114
2	Severe sepsis	112
3	Multiple trauma	105
4	Seizure	104
5	Syncope	104
6	stroke	103
7	Depressed consciousness	100
8	Pulmonary embolism (PE)	99
9	Atrial fibrillation (AF)	96
10	Procedural sedation and analgesia (PSA)	95

Given the total scores assigned by the experts to each of the diseases/emergency conditions in the field of social impacts/justice, acute coronary syndrome (ACS) with a total score of 114 was identified as the first priority for preparing clinical practice guidelines with regard to the social impacts/justice.

Table 10: Ten diseases/emergency conditions in need of the development of clinical practice guidelines regarding consumers' preferences

Rank	Disease/emergency condition	Total score
1	Orthopedic trauma	116
2	Procedural sedation and analgesia (PSA)	111
3	Acute coronary syndrome (ACS)	108
4	Severe sepsis	106
5	Depressed consciousness	105
6	Head injury	105
7	stroke	105
8	Seizure	102
9	Headache	99
10	Multiple trauma	96

Given the total scores assigned by the experts to each of the diseases/emergency conditions in the field of consumers' preferences, orthopedic trauma with a total score of 116 was identified as the first priority for preparing clinical practice guidelines with regard to the consumers' preferences.

Table 11: Ten diseases/emergency conditions in need of the development of clinical practice guidelines regarding adverse events

Rank	Disease/emergency condition	Total score
1	Acute coronary syndrome (ACS)	116
2	Severe sepsis	112
3	Depressed consciousness	106
4	Multiple trauma	103
5	Procedural sedation and analgesia (PSA)	99
6	Seizure	99
7	Headache	99
8	Pulmonary embolism (PE)	95
9	Syncope	93
10	Poisoned patient	93

Given the total scores assigned by the experts to each of the diseases/emergency conditions in the field of adverse events, acute coronary syndrome (ACS) with a total score of 116 was identified as the first priority for preparing clinical practice guidelines with regard to the adverse events.

Table 12: Ten diseases/emergency conditions in need of the development of clinical practice guidelines regarding disease prevention and health promotion

Rank	Disease/emergency condition	Total score
1	Acute coronary syndrome (ACS)	125
2	Stroke	113
3	Procedural sedation and analgesia (PSA)	112
4	Depressed consciousness	106
5	Syncope	102
6	Multiple trauma	100
7	Seizure	99
8	Severe sepsis	98
9	Poisoned patient	98
10	Pulmonary embolism (PE)	98

Given the total scores assigned by the experts to each of the diseases/emergency conditions in the field of disease prevention and health promotion, acute coronary syndrome (ACS) with a total score of 125 was identified as the first priority for preparing clinical practice guidelines with regard to the disease prevention and health promotion.

Table 13: Ten diseases/emergency conditions in need of the development of clinical practice guidelines regarding all influential fields

Rank	Disease/emergency condition	Total score
1	Acute coronary syndrome (ACS)	1236
2	Procedural sedation and analgesia (PSA)	1163
3	Depressed consciousness	1156
4	Severe sepsis	1156
5	stroke	1151
6	Seizure	1149
7	Multiple trauma	1093
8	Headache	1091
9	Syncope	1088
10	Orthopedic trauma	1056

Given the total scores assigned by the experts to each of the diseases/emergency conditions in all fields, acute coronary syndrome (ACS) with a total score of 1236 was identified as the first priority for preparing clinical practice guidelines with regard to all fields.

Clinical guidelines are only consisted of a set of clinical recommendations, and they cannot describe the whole process of diagnosis and treatment. Moreover, clinical guidelines are the tools to assist decision-making. Therefore, it is imperative to identify the cases in which physicians need help, so that clinical guidelines can be developed for the same cases. What we must be careful about in the process of developing clinical guidelines is that the developed clinical guidelines should have the same characteristics and features that will play a key role in clinical decision-making. Since clinical decision-

making is a multi-dimensional and multi-variable problem, the best decision is one with the best outcome. Clinical decision-making involves review of the clinical practice for the management of the patients and selecting the most appropriate practice for various clinical conditions. Implementation of guidelines also should be closely related to the development structure and process. The same issues and concerns considered in the formulation of the guidelines should also be considered in implementation of them, since it is essential that the role of clinical guidelines will be defined in clinical decision-making, both during development and during planning for implementation. Inadequate knowledge and attitudes towards evidence-based medicine and evidence-based decision-making, lack of scientific resources available to meet the needs, lack of motivations and devoting insufficient time for adopting clinical guidelines on the part of faculty members, and poor organization of human resources are the major challenges faced by health regulators [12-15].

Given the numerous topics proposed by the experts and found in the relevant literature, naturally definition, design, development and localization of guidelines for all diseases and conditions that are considered urgent is inexcusable and even impossible due to the limited time, financial and human resources. Therefore, setting priorities and selecting several key fields are of great importance. Among 10 studied fields for prioritizing the development of clinical practice guidelines, the highest score was given to effectiveness, followed by feasibility and heterogeneity of treatment, meanwhile the lowest score was assigned to adverse events. The results show the importance of effectiveness over other components. In other words, for the development of clinical practice guidelines, physicians consider its effectiveness and feasibility, and actually localization in a proper manner, much more important. This indicates that if the guidelines cannot be effective, they will not be adopted and practiced.

Cardiovascular diseases obtained the highest score while radiation injuries earned the lowest one in terms of need for designing clinical practice guidelines. Since cardiovascular diseases are currently growing in number and impose higher risks for patients than other diseases do, and their course of treatment is different compared to other diseases, designing treatment guidelines for them is of great importance. Among ten dimensions for cardiovascular diseases, disease burden, feasibility and effectiveness were the most important ones.

Cardiovascular diseases had the highest priority in terms of disease burden. This shows the higher burden and costs of these diseases than any other disease, and therefore, the necessity to design clinical guidelines for them becomes even more important.

With regard to the information requirements for the studied disorders, again cardiovascular diseases earned the highest score. From viewpoint of information requirements, cardiovascular diseases were considered as important as nine other diseases, namely syncope, severe sepsis, stroke, headache, seizure, depressed consciousness, poisoned patient, procedural sedation and analgesia and hypertensive emergencies.

Regarding the feasibility, ten diseases with the highest priorities included acute coronary syndrome, seizure, procedural sedation and analgesia, depressed consciousness, headache, head injury, diabetic ketoacidosis, thoracic trauma, stroke and pneumonia. This indicates that for implementation of the clinical guidelines, ten diseases listed above had more importance.

Effectiveness is the most important component among these ten components and it means achieving better treatment by preparing clinical guidelines. Based on this component, respectively ten diseases had the highest priority, namely: pulmonary embolism, spinal injuries, depressed consciousness, diabetic ketoacidosis, pediatric trauma, acute coronary syndrome, multiple trauma, seizure, poisoned patient and procedural sedation and analgesia.

With regard to the greater economic impacts on health care system by the diseases, ten diseases, i.e. stroke, acute coronary syndrome, syncope, procedural sedation and analgesia, depressed consciousness, severe sepsis, multiple trauma, atrial fibrillation, seizure and head injury had the highest priorities. This indicates that in the opinions of the participants, these diseases are more important to establish clinical guidelines for them.

From the viewpoint of heterogeneity of the diseases, i.e. diseases with different treatment methods, ten diseases namely: procedural sedation and analgesia, hypertensive emergencies, headache, orthopedic trauma, seizure, stroke, weakness, abdominal pain, acute coronary syndrome and severe sepsis were regarded more important by the physicians of the studied emergency department.

The diseases with more social impacts, which developing clinical guidelines for them will more significantly help the society, included acute coronary syndrome, severe sepsis, multiple trauma, seizure, syncope, stroke, depressed consciousness, pulmonary embolism, atrial fibrillation and procedural sedation and analgesia, as these are the most influencing diseases than any other studied disease in this regard.

From the perspective of the consumers, the most important diseases for which clinical guidelines should be developed included orthopedic trauma, procedural sedation and analgesia (PSA), acute coronary syndrome, severe sepsis, depressed consciousness, head injury, stroke, seizure, headache and multiple traumas.

Regarding the adverse events, acute coronary syndrome, severe sepsis, depressed consciousness, multiple trauma, procedural sedation and analgesia, seizure, headache, pulmonary embolism, syncope and poisoned patient were 10 diseases with highest adverse events that should be preferred for preparing clinical guidelines.

Concerning the diseases that their prevention contributes to the health promotion more significantly, acute coronary syndrome, stroke, procedural sedation and analgesia, depressed consciousness, syncope, multiple trauma, seizure, severe sepsis, poisoned patient and pulmonary embolism were regarded more important than other diseases and developing clinical guidelines for them is more effective.

Aggregately speaking and according to ten influential factors, acute coronary syndrome, procedural sedation and analgesia, depressed consciousness, severe sepsis, stroke, seizure, multiple trauma, headache, syncope and orthopedic trauma are more important in terms of preparing clinical practice guidelines than any other disease and investing on these diseases should be taken into consideration.

Given the need for rapid intervention in the case of admission of the emergency patients and the emergency events, design, development and implementation of clinical practice guidelines in this section provides uniformity for practices of the physicians and makes it easier to predict the future needs and requirements.

By implementation of and acting in accordance with the clinical practice guidelines, financial and human resources of the health care system may be saved and resources can be redirected to the fields in dire need.

This study had some limitations. For example, given that this study has only examined the viewpoints of the experts, naturally, the value judgments made for weighting the impact of each of the fields on each disease/emergency condition is not perfect. Since such weighting process is influenced by many factors in the mind of the experts, it may not be sufficiently accurate. It is better to adjust and improve the findings by means of empirical studies separately focusing on each of the fields, or the effects of each field can be evaluated by referring to previous studies. For example, the estimated economic burden of the diseases can be derived from previously conducted studies for each of the diseases, and necessary adjustments may be applied.

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