

Canadian Emergency Department Information System (CEDIS) Presenting Complaint List (Version 1.0)

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Introduction

Pressures related to emergency department (ED) overcrowding and cost containment make it increasingly important to characterize the patients we serve and analyze the work we do; but until recently, few EDs have been able to track or describe their case mix, care processes, workloads, utilization, efficiency or patient outcomes. Regional health authorities across Canada have identified electronic data collection as a priority.

Many EDs are developing information systems, but without coordination they are likely to establish different datasets and conflicting data definitions.^{1,2} Resulting variations in the way that ED data are defined and captured will limit their future utility.³ Recognizing this, the Canadian Association of Emergency Physicians (CAEP), the National Emergency Nurses Affiliation (NENA), and l'Association des médecins d'urgence du Québec (AMUQ) launched the Canadian Emergency Department Information System (CEDIS) initiative — a program to develop and implement common national ED information gathering systems. In 2001, the CEDIS group published a common national ED dataset² that EDs and hospital administrators can use as a template for future information gathering.

A system that allows EDs to classify patients and define comparable case-mix groupings will help EDs describe their patient populations, workloads, staffing and resource needs, and enable comparison across sites and regions. Emergency department case-mix groups will be based in

part on the *Canadian Emergency Department Triage and Acuity Scale* (CTAS), which has been prospectively validated and adopted by most Canadian EDs.^{4,5} However, CTAS defines only acuity; therefore the CEDIS Working Group proposed that ED case-mix groups should be based on both presenting complaint and CTAS triage level. Currently, most Canadian EDs rely on free-text capture of presenting complaints, which precludes categorization, analysis or comparison between sites. Our objective was to develop a standardized presenting complaint list for Canadian EDs that can form the basis for future ED case-mix groups. This would facilitate clinical quality improvement, research and benchmarking at a local, regional and national level.

Methods

The CEDIS Working Group is made up of emergency physicians, nurses, administrators and researchers who are active in the field of ED informatics and data management. This group, sanctioned by CAEP, NENA and AMUQ, includes pediatric and adult clinicians, as well as representatives from large and small hospitals from all regions of the country. The formation of the CEDIS Working Group is described in a previous article.² At a series of meetings in 2001 and 2002, the working group agreed that its first and second priorities were to define standard ED data elements and to compile a common presenting complaint list for Canadian EDs.

At the time of the CEDIS collaboration, 3 affiliated EDs

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(St. Paul's Hospital [SPH], Vancouver, BC, University of Alberta Hospital, Edmonton, Alta., and Sir Mortimer B. Davis–Jewish General Hospital, Montreal, Que.) were already using electronic presenting complaint lists developed by local emergency physicians, nurse educators, clinicians, health records technicians and information technology personnel. The SPH list was compiled by cataloguing all patient presenting complaints over a 1-year period and then supplementing these with key elements from CTAS,^{4,5} *Emergency Triage* (the Manchester Group),⁶ the *Reason for Visit Classification* (www.cdc.gov/nchs/data/ahcd/rvc97.pdf; accessed 2002 Nov 22) and the DEEDS (Data Elements for Emergency Department Systems) dataset.⁷ To ensure that no important presenting complaints were missed, the list was updated after an additional year of triage complaint data collection. Similar methodology was used to develop the 72-item University of Alberta Hospital and the 181-item Sir Mortimer B. Davis–Jewish General Hospital lists. These lists, which have been in clinical use for 4, 1 and 8 years respectively, served as the foundation for the final CEDIS list.

After completion of the adult list, pediatric emergency physicians and nurses were consulted, and the Calgary Children's Hospital ED submitted their list of presenting complaint codes. These were compared to the draft CEDIS list, and several missing pediatric codes were added. One of the authors (E.G.) assembled the final common set, which consists of several major categories with presenting complaints mapping to each.

Throughout the process, care was taken to include only symptoms and presenting complaints — not diagnoses. For example, a chief complaint of “asthma,” would map to “shortness of breath.” The collated list was circulated to CEDIS Working Group members for feedback, and adopted at a final meeting in April 2002. A health records technician then attached International Classification of Diseases (ICD)-10 codes⁸ to the CEDIS presenting complaint list to facilitate accurate data entry. To assess internal validity, one of the authors (E.G.) reviewed actual patient presenting complaints from the SPH site for the year 2002 to determine what proportion would be captured within the CEDIS Presenting Complaint List (Version 1.0).

Results

Table 1 summarizes Version 1.0 of the CEDIS Presenting Complaint List, which incorporates 18 major categories and 161 presenting complaints with their corresponding ICD-10 codes. Two codes, denoted by asterisks, are not actual ICD-10 codes. One is a code created for “minor com-

plaints not otherwise specified” and the other is a code for “traumatic cardiac arrest.” We found it difficult to use the ICD system to create an emergency presenting complaint list. Many common ED presenting complaints do not have corresponding ICD-10 codes; therefore, in some cases we assigned the ICD-10 code that most closely approximated the CEDIS presenting complaint. The advantage of using ICD-10 numeric codes linked to the presenting complaint list is that it allows comparisons with other sites or organizations using ICD-10 data and enhances the ability to aggregate information for regional comparisons.

A review of 2002 SPH coding data showed that 98.8% of patient presenting complaints were successfully coded using the proposed CEDIS classification scheme. Retrospective assessment of the complaints that were not successfully coded (e.g., those coded as “minor complaint not otherwise specified”) suggested that most, if not all, could have been “fitted” into the CEDIS model. The reasons for lack of accurate coding in these cases included unfamiliarity with the codes by newer triage nurses, the heavy demands of triage at busy times of the day, and patients who had multiple complaints.

Discussion

Aging populations, acute care cutbacks, hospital closures, overcrowding and the need to improve efficiency have increased the demand for clinical, research and administrative data.⁹ Several important datasets have been created, including the Canadian Institute for Health Information (CIHI) National Ambulatory Care Registry System (NACRS),¹⁰ DEEDS (USA, 1997)⁶ and the Victorian Emergency Minimal Dataset (VEMD, Australia, 1998).¹¹ These datasets include a dedicated field for ED presenting complaint but do not list a specific set of chief complaints.

In 1979, the US Department of Health, Education, and Welfare published the *Reason for Visit Classification*, which evolved from earlier classification schemes and contained over 400 specific codes. Unfortunately, this list was created for ambulatory care and its complaints are most relevant to family practice. ICD (the International Classification of Diseases group) and SNOMED[®] (Systematized Nomenclature of Medicine; www.snomed.org) have also proposed vehicles for presenting complaint use, but these lack a structure suitable for ED use. NACRS,¹⁰ the CIHI's dataset for ambulatory care, has been widely implemented in Ontario and some other regions of Canada, but it also focuses on ambulatory care settings and does not provide a presenting complaint field.

In 2001, Aronsky and colleagues¹² published what is, to

Table 1. Canadian Emergency Department Information System (CEDIS) Presenting Complaint List (Version 1.0)

Presenting complaints	ICD-10 codes	Descriptors
CARDIOVASCULAR		
Cardiac arrest (non-traumatic)	I46.9	Cardiac arrest, unspecified
Cardiac arrest (traumatic)	I46.9T	* Cardiac arrest, unspecified
Chest pain	R07.4	Chest pain, unspecified
Palpitations / Irregular heart beat	R00.2	Palpitations
Hypertension	I10.0	Benign hypertension
General weakness	R53	Malaise and fatigue
Syncope / Pre-syncope	R55	Syncope and collapse
Edema, generalized	R60.1	Generalized edema
Bilateral leg swelling / Edema	R60.0	Localized edema
Cool pulseless limb	I99	Other and unspecified disorders of circulatory system
Unilateral reddened hot limb: DVT symptoms	M79.89	Other specified soft tissue disorders, unspecified site
ENT – Ears		
Earache	H92.0	Otalgia
Foreign body	T16	Foreign body in ear
Loss of hearing	H91.9	Hearing loss – unspecified
Tinnitus / Dysacusis	H93.1	Tinnitus
Discharge	H92.1	Otorrhea
Ear injury	S00.4	Superficial injury of the ear
ENT – Mouth, Throat, Neck		
Dental / Gum problem	K06.9	Disorder of gingiva and edentulous alveolar ridge, unspecified
Facial trauma	S00.8	Superficial injury of other parts of the head.
Sore throat	J02.9	Acute pharyngitis, unspecified
Neck swelling/pain	R22.1	Localized swelling, mass and lump, neck
Neck trauma	S19.9	Unspecified injury of neck
Difficulty swallowing / Dysphagia	R13.8	Other unspecified dysphasia
Facial pain (non-traumatic / non-dental)	R52.0	Acute pain
ENT – Nose		
Epistaxis	R04.0	Epistaxis
Nasal congestion / Hay fever	J31.0	Rhinitis
Foreign body, nose	T17.1	Foreign body in nostril
URTI complaints	J06.9	Acute upper respiratory infection, unspecified
Nasal trauma	S00.3	Superficial injury of the nose
ENVIRONMENTAL		
Frostbite / Cold injury	T35.7	Unspecified frostbite of unspecified site
Noxious inhalation	T59.9	Toxic effects of gases, fumes and vapors, unspecified
Electrical injury	T75.4	Effects of electric current
Chemical exposure	T65.9	Toxic effect of unspecified substance
Hypothermia	T68	Hypothermia
GASTROINTESTINAL		
Abdominal pain	R10.4	Other and unspecified abdominal pain
Anorexia	R63.0	Anorexia
Constipation	K59.0	Constipation
Diarrhea	K52.9	Noninfective gastroenteritis and colitis, unspecified
Foreign body in rectum	T18.5	Foreign body in anus and rectum
Groin pain/mass	R190	Intra-abdominal and pelvic swelling, mass and lump
Nausea and/or vomiting	R11.8	Other and unspecified nausea and vomiting
Rectal/Perineal pain	K62.8	Other specified diseases of anus and rectum
Vomiting blood	K92.0	Hematemesis
Blood in stool / Melena	K92.1	Melena
Jaundice	R17	Unspecified jaundice
Hiccoughs	R06.6	Hiccoughs
Abdominal mass/distention	R19.0	Intra-abdominal and pelvis swelling, mass and lump
Anal/Rectal trauma	S36690	Injury NOS of rectum, without open wound into cavity

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Table 1. Canadian Emergency Department Information System (CEDIS) Presenting Complaint List (Version 1.0) — continued

Presenting complaints	ICD-10 codes	Descriptors
GENITOURINARY		
Flank pain	R10.3	Pain localized to other parts of the lower abdomen
Hematuria	R31.8	Other and unspecified hematuria
Genital discharge/lesion	R36	Penile discharge, urethral
Penile swelling	N488	Other specified disorders of penis
Testicular/Scrotal pain and/or swelling	N50.8	Other specified disorders of male genital organs
Urinary retention	R33	Retention of urine
UTI complaints	R39.8	Other unspecified symptoms and signs involving the urinary system
Oliguria	R34	Anuria and oliguria
Polyuria	R35.8	Other and unspecified polyuria
Genital trauma	S30.2	Contusion of external genital organs
MENTAL HEALTH		
Depression / Suicidal	F32.9	Depressive episode, unspecified
Anxiety / Situational crisis	F41.9	Anxiety disorder, unspecified
Hallucinations	R44.3	Hallucinations, unspecified
Insomnia	G47.0	Disorders of initiating and maintaining sleep
Violent behaviour	R45.6	Physical violence
Social problem	Z60.9	Problems related to social environment, unspecified
Homicidal	R46.88	Other symptoms and signs involving appearance and behaviour
Bizzare/Paranoid behaviour	R46.2	Strange and inexplicable behaviour
NEUROLOGIC		
Altered level of consciousness	R41.88	Other and unspecified symptoms and signs involving cognitive function and awareness
Confusion	R41.0	Disorientation
Dizziness / Vertigo	R42	Dizziness and giddiness
Headache	R51	Headache
Seizure	R56.8	Other and unspecified convulsions
Gait disturbance / Ataxia	R26.88	Other and unspecified abnormalities of gait and mobility
Head injury	S09.9	Unspecified injury of head
Tremor	R25.1	Tremor, unspecified
Extremity weakness / Symptoms of CVA	I64	Stroke, not specified as hemorrhage or infarction
Sensory loss / Parasthesias	R44.8	Other and unspecified symptoms and signs involving general sensations and perceptions
OB –GYN		
Menstrual problems	N92.6	Irregular menstruation, unspecified
Foreign body, vagina	T19.2	Foreign body in vulva and vagina
Vaginal discharge	N89.8	Other specified non-inflammatory disorders of vagina
Sexual assault	T74.2	Sexual abuse. Different with child - need to know who abused
Vaginal bleed	N93.9	Abnormal uterine and vaginal bleeding, unspecified
Labial swelling	R22.9	Localized swelling, mass and lump, unspecified
Pregnancy issues <20 wks	O28.80	Other abnormal findings in antenatal screening of mother
Imminent delivery	O62.3	Precipitant labour
Vaginal pain / Dyspareunia	N94.8	Other specified conditions associated with female genital organs and menstrual cycle
OPHTHALMOLOGY		
Discharge, eye	H57.8	Other specified disorders of the eye and adnexa
Chemical exposure, eye	T26.4	Burn of eye and adnexa
Foreign body, eye	T15.9	Foreign body on external eye, part unspecified
Visual disturbance	H53.9	Visual disturbance, unspecified
Eye pain	H57.1	Ocular pain
Itchy/Red eye	H57.9	Disorders of the eye and adnexa, unspecified
Photophobia	H53.1	Subjective visual disturbances
Diplopia	H53.2	Diplopia
Periorbital swelling + Fever	H05.0	Acute inflammation of the orbit
Eye trauma	S05.9	Injury of eye and orbit, part unspecified
Re-check eye	Z09.9	Follow-up examination after unspecified treatment for other conditions

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Table 1. Canadian Emergency Department Information System (CEDIS) Presenting Complaint List (Version 1.0) — continued

Presenting complaints	ICD-10 codes	Descriptors
ORTHOPEDIC		
Back pain	M54.9	Dorsalgia, unspecified
Traumatic back/spine injury	S39.9	Unspecified injury of abdomen, lower back and pelvis
Amputation	T14.7	Crushing injury and traumatic amputation of unspecified body region
Upper extremity pain	M79.60	Pain in limb, upper limb
Lower extremity pain	M79.61	Pain in limb, lower limb
Upper extremity injury	T11.9	Unspecified injury of upper limb, level unspecified
Lower extremity injury	T13.9	Unspecified injury of lower limb, level unspecified
Joint(s) swelling	M25.49	Effusion of joint, site unspecified
PEDIATRIC		
Feeding difficulties in newborn	F98.2	Feeding disorder of infancy and childhood
Neonatal jaundice	P59.9	Neonatal jaundice, unspecified
Inconsolable crying	R68.1	Nonspecific symptoms of infancy (excessive infant crying)
Wheezing – no other complaints	R06.2	Wheezing
Limp	R26.88	Other and unspecified abnormalities of gait and mobility
Apneic spells	R06.8	Other and unspecified abnormalities of breathing
Pediatric behavioural issues	F91.9	Conduct disorder
RESPIRATORY		
Shortness of breath	R06.0	Dyspnea
Respiratory arrest	R09.2	Respiratory arrest
Cough	R05	Cough
Hyperventilation	R06.4	Hyperventilation
Hemoptysis	R04.2	Hemoptysis
Respiratory foreign body	T17.9	Foreign body in respiratory tract, part unspecified
Allergic reaction	T78.4	Allergy, unspecified
SKIN		
Bite	T14.0	Superficial injury of unspecified body region
Sting	T63.9	Toxic effect of contact with unspecified venomous animal
Abrasion	T00.9	Multiple superficial injuries, unspecified
Laceration / Puncture	T14.1	Open wound of unspecified body region
Burn	T30.0	Burn of unspecified body region, unspecified degree
Blood and body fluid exposure	Z20.9	Contact with and exposure to unspecified communicable disease
Pruritis	L29.9	Pruritis
Rash	R21	Rash and other nonspecific skin eruption
Localized swelling/redness	L03.9	Cellulitis, unspecified
Wound check	Z09.8	Follow-up examination after treatment for other conditions
Other skin conditions	L98.9	Disorder of skin and subcutaneous tissue, unspecified
Lumps, bumps, calluses, etc...	L98.8	Other specified disorders of skin and subcutaneous tissue
Redness/tenderness, breast	N61	Inflammatory disorders of breast
Rule out infestation	B88.9	Infestation, unspecified
Cyanosis	R23.0	Cyanosis
Bruising – History of bleeding disorder	R23.3	Spontaneous ecchymosis
Foreign body, skin	M79.59	Residual foreign body in soft tissue, unspecified site
SUBSTANCE MISUSE		
Substance misuse / Intoxication	F19	Mental and behavioural disorders due to use of drugs or psychoactive substances
Overdose ingestion	T50.9	Poisoning by other and unspecified drugs, medicaments and biological substance
Substance withdrawal	F19.3	Mental and behavioural disorders due to use of drugs or psychoactive substances: withdrawal state
TRAUMA		
Major trauma – penetrating	T01.9	Multiple open wounds, unspecified
Major trauma – blunt	T14.8	Other injuries of unspecified body region
Isolated chest trauma – penetrating	S21	Open wound of thorax (trauma)
Isolated chest trauma – blunt	S20.8	Superficial injury of other and unspecified parts of thorax
Isolated abdominal trauma – penetrating	S31.8	Open wound of other and unspecified parts of abdomen
Isolated abdominal trauma – blunt	S39	Other and unspecified injuries of abdomen, low back and pelvis

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Table 1. Canadian Emergency Department Information System (CEDIS) Presenting Complaint List (Version 1.0) — concluded

Presenting complaints	ICD-10 codes	Descriptors
GENERAL & MINOR		
Exposure to communicable disease	Z20.9	Contact with and exposure to unspecified communicable disease
Fever	A50.9	Fever, unspecified
Hyperglycemia	R73.9	Hyperglycemia, unspecified
Hypoglycemia	E16.2	Hypoglycemia, unspecified
Direct referral for consultation	Z71.9	Counselling, unspecified
Dressing change	Z46.8	Other specified surgical follow-up care
Removal staples/sutures	Z48.0	Attention to surgical dressings and sutures
Cast check	Z47.8	Other specified orthopedic follow-up care
Imaging tests	Z01.6	Radiological examination, not elsewhere classified
Medical device problem	T85.9	Unspecified complication of internal prosthetic device, implant and graft
Prescription / Medication request	Z76.0	Issue of repeat prescription
Ring removal	Z48.9	Surgical follow-up care, unspecified
Abnormal lab values	R79	Abnormal findings of blood chemistry
Pallor / Anemia	R23.1	Pallor
Post-operative complications	T88.9	Complication of surgical and medical care, unspecified
Minor complaints, unspecified	MC1	* Minor complaints, unspecified

* Asterisks represent codes specifically created for the CEDIS list where no suitable ICD-10 code exists.

date, the most relevant system for emergency medicine, a coded chief complaint list of 54 items with 3 supplementary free-text fields. These add granularity when necessary and provide information regarding complaints not on the core list of 54 items. Using this system, Aronsky and colleagues were able to reduce the proportion of free-text presenting complaints from 23% to 1%. Although this complaint list allows for grouping of most patients, the rather broad complaint codes offer limited clinical information — hence the addition of descriptive free-text fields.

Form follows function

Clinicians, administrators and data collectors have different needs, and what a system will be used for determines how it should be structured. When developing a presenting complaint system, it is important to decide whether complaint codes will be used primarily to assist clinicians, to populate a database, to provide mechanism of injury data or to yield diagnostic information.

Clumping and splitting

Increasing the number of unique presenting complaints increases both the specificity and complexity of the system; decreasing the number of complaints enhances reliability and simplicity. If there are too many codes, data analysis becomes increasingly difficult, but if there are too few codes, then not enough information is collected. “Clumping” refers to the notion that some complaints will always be grouped together for analysis and that they should, therefore, be captured as one entity. For example, some patients complain of “headache” but others complain of “mi-

graine.” Because triage nurses cannot diagnose migraine, because there is substantial diagnostic crossover between groups, and because the ED treatment is similar, these descriptors should ideally be clumped under the single presenting complaint of “headache.”

Consider a patient who falls, sustaining a wrist injury. A “splitter” would code this as “wrist injury” because it gives care providers specific anatomic information. However, if the triage nurse is unsure whether the injury is to the wrist, forearm or hand, and if the injury is misclassified at this stage, the patient will be lost from the appropriate electronic case-mix group. Consequently, to optimize data collection, it might be more appropriate to code the event as “extremity injury.” This “clumping” approach makes triage errors unlikely and ensures the patient will not be lost in the database, but provides less clinical information. The appropriate degree of clumping and splitting depends on user needs and the ability to split reliably. To illustrate, dermatologists might design a system with distinct categories for contact dermatitis, seborrheic dermatitis, nummular dermatitis, atopic dermatitis and neurodermatitis; emergency physicians, based on need, simplicity and diagnostic capability, might clump these as “dermatitis.” Presenting complaint codes must meet the needs of both clinicians and data managers; therefore, compromises are often required.

Injury mechanism

Many EDs capture mechanism of injury at the triage desk, and this is for good reason: spontaneous abdominal pain has a different connotation than abdominal pain occurring after a kick from a horse. Unfortunately, adding “trau-

matic” and “non-traumatic” modifiers for all presenting complaints multiplies the size and complexity of the complaint coding system. Further, some events such as falls, motor vehicle accidents and gunshots tend to involve many body systems and are difficult to succinctly define. The availability of an E (injury) code field in ICD-9 or Sections V to Y in ICD-10 provides more information for clinicians and allows tracking of injury mechanisms without unduly increasing the complexity of the presenting complaint system. Other “additional fields” (e.g. specifying body part or the side affected) may be valuable and add flexibility to the information capture process. These fields may be based on free text or pick-lists.

Diagnosis vs. presenting complaint

It is common to confuse presenting complaint with diagnosis. For example, the CTAS includes a sentinel presenting complaint for “rule-out appendicitis.” Clearly, many patients in this category do not have appendicitis and carving them out of the “abdominal pain” case-mix group will hamper subsequent data analysis. Diagnosis is important, but it should be captured separately from presenting complaint.

Structured vs. free text

Free-text presenting complaint systems preclude reliable patient classification, identification and analysis. For example, finding patients with myocardial infarction in a free-text system requires searching for complaints such as *chest pain, rule out MI, query MI, ?heart attack, ?cardiac pain* and countless others. Assigning all patients with these symptom descriptors a (standard) presenting complaint of *chest pain* establishes a syndrome-based cohort, or case-mix group, that includes most patients with acute myocardial infarction. In addition, standardized presenting complaints enable the establishment of searchable databases for research and administrative purposes.

Taking this approach means that triage nurses will have to “translate” an infinite range of actual patient descriptors into a limited number of standard complaints. Inevitably, some information will be lost in the process (e.g., “I have gout” becomes “extremity pain”). This is necessary to allow meaningful information capture and subsequent data analysis, but it may initially cause discomfort among nurses who are specifically trained to be scribes rather than translators of patient information. In the new proposed system, it is still possible to record the patient’s own words in the ED chart, but this should be done in a separate triage field or in the body of the nurses’ or physicians’ notes — not in the standard presenting complaint field.

Defining ED case-mix groupings

Case-mix grouping allows meaningful comparison of morbidity, mortality, complication rates and utilization (e.g., admission rate, length of stay) between physicians, hospitals and regions. Case-mix groups are typically based on diagnosis, and an Australian model proposes that emergency medicine “urgency-related groups” should be based on diagnosis, triage level and disposition.¹³ But diagnosis may not be the optimal determinant for all ED case-mix groups. Emergency patients generally present with symptoms — not diagnoses. Most ED processes occur *before* diagnosis and in many cases a definitive diagnosis is never made (e.g., abdominal pain NYD). When a definitive diagnosis is made, it is not always confirmed during the ED visit. This means case-mix groups based on diagnosis will exclude a substantial proportion of ED patients and ED work.

Emergency case-mix groups based on standardized presenting complaint and CTAS acuity level would yield well defined groups that better characterize the patients, processes, staffing and infrastructure needs of EDs. Several key case-mix groups, representing medical, surgical, psychiatric and trauma related groups could be identified for ED benchmarking purposes. These might include Level I major blunt trauma, Level II chest pain, Level III abdominal pain and Level IV upper extremity injury.

Other emergency case-mix groups may be based on diagnosis instead. This would be used when more specific patient groups are being considered. An example of a diagnosis-based case-mix group might include Level III pneumonias that are discharged.

Pediatric complaints

In the proposed CEDIS system, most pediatric codes are obtained from the adult portion of the presenting complaint list, but several additional pediatric-specific codes have been added. This approach enables adult, pediatric and mixed departments to use a single system. To analyze the pediatric or adult case mix in any given ED, one merely has to sort presenting complaint by patient age.

Limitations and future work

The CEDIS presenting complaint system has great potential, but much work lies ahead. Before this system can be used to define ED case-mix groups, it is important to confirm adequate interobserver classification reliability, and these reliability data are only now being gathered. To enhance reliability, it will be valuable to link as many CEDIS presenting complaints as possible to specific CTAS triage levels, or at least to identify default triage levels that can be

overridden based on other modifying patient characteristics. The standardization of these linkages, even for only sentinel presenting complaints would allow across-site comparison of patterns of practice in emergency medicine. Based on feedback from future users, the CEDIS presenting complaint list will require modification and updating. It is important that it become a “living” process.

Finally, the CEDIS presenting complaint list cannot be considered a finished product. It must be a dynamic document that evolves, based on future evaluations of reliability, validity and utility. It must grow if new presenting complaints become important and shrink when “old” codes fall out of use. Monitoring the use of individual codes will allow appropriate updating.

Conclusions

The CEDIS Presenting Complaint List (Version 1.0) represents a compromise between data collection needs and clinical needs of the treating physician. It can be implemented in most EDs without the need for major system upgrades or data download/storage revisions, providing that basic electronic data collection mechanisms are in place. In centres where CEDIS complaints are suboptimal, free-text fields can be added, if necessary, to supplement these presenting complaints.

Key words: presenting complaints, triage, case-mix groups, Canadian Emergency Department Triage and Acuity Scale

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References

1. Weiss HB, Dill SM, Forjuoh SN, Garrison HG, Cohen JH. Injury surveillance: a statewide survey of emergency department data collection practices. *Ann Emerg Med* 1996;28:635-40.
2. Innes G, Murray M, Grafstein E, for the Canadian Emergency Department Information System (CEDIS) Working Group. A consensus-based process to define standard national data elements for a Canadian emergency department information system. *CJEM* 2001;3(4):277-84.
3. Cordell W, Overhage JM, Waekerle, JF. Strategies for improving information management in emergency medicine to meet clinical, research, and administrative needs. *Ann Emerg Med* 1998;31:172-8.
4. Beveridge R, Clarke B, Janes L, Savage N, Thompson J, Dodd G, et al. Canadian Emergency Department Triage and Acuity Scale: implementation guidelines. *CJEM* 1999;1(3 suppl).
5. Beveridge R. CAEP issues. The Canadian Triage and Acuity Scale: a new and critical element in health care reform. Canadian Association of Emergency Physicians. *J Emerg Med* 1998; 16(3):507-11.
6. Emergency Triage. Manchester Triage Group. Mackway-Jones K, editor. London: BMJ Publishing Group. 1996.
7. Pollock DA, Adams DL, Bernardo LM, Bradley V, Brandt MD, Davis TE, et al. Data elements for emergency department systems, release 1.0 (DEEDS): a summary report. DEEDS Writing Committee. *Ann Emerg Med* 1998;31(2):264-73.
8. International Statistical Classification of Diseases and Related Health Problems, 10th rev. Geneva: World Health Organization; 1992 (vol 1: tabular list, vol 2: instruction manual, vol 3: alphabetical index).
9. Teich JM. Information systems support for emergency medicine. *Ann Emerg Med* 1998;31:304-8.
10. Canadian Institute for Health Information. National Ambulatory Care Reporting System (NACRS) Implementation. Available: http://secure.cihi.ca/cihiweb/en/downloads/services_nacrs_e_elements.pdf (accessed 2002 Nov 1).
11. Victorian Emergency Minimum Dataset (VEMD) User Manual, Version 6.0, 2001/2002. Victoria (Australia): Acute Health Division, Department of Human Services; July 2001. Available: hdds.health.vic.gov.au/vemd/index.htm (accessed 2002 Nov 26).
12. Aronsky D, Kendall D, Merkley K, James BC, Haug PJ. A comprehensive set of coded chief complaints for the emergency department. *Acad Emerg Med* 2001;8(10):980-9.
13. Cleary MI, Ashby RH, Jelinek GA, Lagaida R. The future of casemix in emergency medicine and ambulatory care. *Med J Aust* 1994;161 (suppl):S30-3.

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