

Colorado Trauma Network (CTN) Training

A Review of the Colorado Trauma Registry

Prepared by Health and Safety Data Services

December 2013



Colorado Department
of Public Health
and Environment

Agenda

- Introductions (name, where from...)
- Overview of the Colorado Trauma Registry and Classifications of Trauma Patients
- Readmission of Trauma Patients
- Case studies
 - readmissions
 - head injuries
- Working towards alignment with the National Trauma Data Standards (NTDS)
 - Hospital Discharge Dispositions
 - Co-morbidity
 - Complications
 - Triage and Physical Abuse
- Grant Opportunities
- Open Forum

Why Collect Data?

Traumatic injury, both unintentional and intentional, is the **leading cause of death** in the first four decades of life.¹

Trauma typically results in the **loss of more productive work years** than both cancer and heart disease combined.²

Reported consistently, in-hospital **mortality rates are reduced** by 20 to 25% among severely injured patients treated in trauma centers organized into a regional or **statewide trauma system**.³

1. Centers for Disease Control and Prevention, National Center for Health Statistics Web site.

2. Committee on Injury Prevention and Control, Institute of Medicine. Reducing the Burden of Injury: Advancing Prevention and Treatment. National Academy Press, Washington DC: 1999.

3. MacKenzie EJ, Rivara FP, Jurkovich GJ, Nathens AB, Frey KP, Egleston BL, Salkever DS, Scharfstein DO. A national evaluation of the effect³ of trauma-center care on mortality. N Engl J Med. 2006;354(4):366-78.

Ice-Breaker

Name that Registry!

- Car licensing
- Track genealogical or legal interest
- Manage the purchase of wedding gifts
- Ancestry and ownership of purebred animals
- Sex offender (we won't go there!)
- Health registries...cancer, nurse, trauma

What is the Colorado Trauma Registry (CTR)?

- Computerized data base
- Data collection sources
 - TraumaBase[®]
 - TraumaOne[®]
- Extensive demographics
- Injury information
- From scene to trauma outcome
 - EMS/POV
 - Referral and admitting





Colorado Department of Public Health and Environment
Emergency Medical and Trauma Services



- Emergency Medical Services Program
- Trauma Program
- Colorado Trauma System Rapid Planning Event (RPE)
- Designated Trauma Centers
- Trauma Designation Process
- Trauma Triage Protocols (Algorithms)
- Trauma System Consultation
- Trauma Registry Manual**
- Trauma Nurse Coordinator Toolkit
- Funding Program
- Data Program
- Committees and Councils
- Rules and Regulations
- Forms and Applications
- Contact Us

Trauma Registry Manual

The Colorado Trauma Registry Manual is designed to assist Level I-III trauma centers in Colorado with collection of accurate trauma data. The Manual may also help Level IV and V Colorado trauma centers in making decisions regarding what data could be collected by their trauma programs.

Level I-III Colorado trauma centers are required to follow the inclusion criteria listed in Section A. Section B provides detailed information on each variable to be collected. The appendices address specific issues which may be problematic in data collection such as assignment of E-codes.

- [Registry Manual Section A - Inclusion Exclusion](#)
- [Registry Manual Section B - Required Variables](#)
- [Appendix IA - Facility List Sorted by ID](#)
- [Appendix IB - Facility List Sorted by Name](#)
- [Appendix IIA - Transport Agency List Sorted by ID](#)
- [Appendix IIB- Transport Agency List Sorted by Name](#)
- [Appendix III - Injury Location Type](#)
- [Appendix IV - ED Disposition](#)
- [Appendix V- ICD9 Codes](#)
- [Appendix VI - AIS Scores](#)
- [Appendix VIIA - E Codes](#)
- [Appendix VIIB - E Code Decision Trees](#)
- [Appendix VIIB - Blunt Penetrating Thermal](#)
- [Appendix VIIB - Assigning Trauma Type National Trauma Data Standards](#)
- [State Rules](#)
- [Trauma Registry Coding Training 2008](#)

Trauma Registries are the Foundation

- Inform clinicians & policy makers
- Methods to optimize care
- Surveillance of morbidity and mortality
- Evaluation of trauma care
- Reporting
- State trauma designation
- Triage and transfer guidelines



CTR Data Collection

A lot!!!

Including State and Regional data on :

- Pre-hospital dispositions and triage
- Alcohol and drug use
- Injury and patient zip codes
- Mechanisms of injury
- Volume designation, TBI, AIS, ISS
- Driver and passenger safety information
- Inpatient, nonsurgical and readmissions



Example Frequency Distribution Report

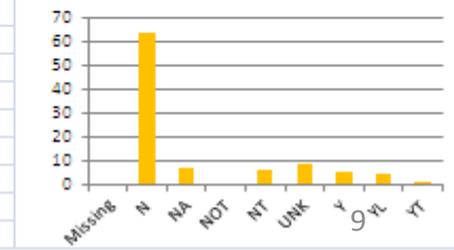
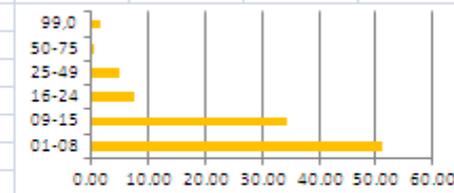
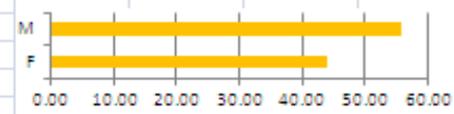
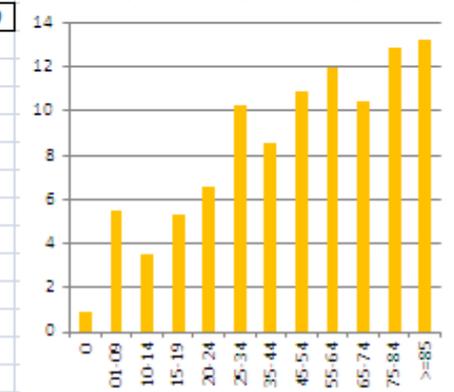
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Colorado Trauma Registry Frequency Distribution Report 2012

Reporting for All Patients

	Category	Your Facility		Comparable Facilities		State Totals (Levels I, II & III)	
		N	Percent	N	Percent	N	Percent
Number of Admissions		xxxx	100.00	4,904	100.00	26,909	100.00
Age Categories (Years)	0	x	x	27	0.55	250	0.93
	01-09	x	x	142	2.90	1,490	5.54
	10-14	x	x	87	1.77	953	3.54
	15-19	x	x	310	6.32	1,422	5.28
	20-24	x	x	465	9.48	1,762	6.55
	25-34	x	x	801	16.33	2,765	10.28
	35-44	x	x	619	12.62	2,298	8.54
	45-54	x	x	691	14.09	2,933	10.90
	55-64	x	x	616	12.56	3,215	11.95
	65-74	x	x	417	8.50	2,800	10.41
	75-84	x	x	408	8.32	3,457	12.85
	>=85	x	x	321	6.55	3,564	13.24
Gender	F	x	x	1,681	34.28	11,865	44.09
	M	x	x	3,223	65.72	15,032	55.86
	UNK	x	x	0	0.00	12	0.04
ISS	01-08	x	x	2,189	44.64	13,741	51.06
	09-15	x	x	1,640	33.44	9,255	34.39
	16-24	x	x	520	10.60	2,052	7.63
	25-49	x	x	427	8.71	1,308	4.86
	50-75	x	x	42	0.86	138	0.51
	99,0	x	x	86	1.75	415	1.54
Alcohol Use Indicator	Missing	x	x	0	0.00	2	0.01
	N	x	x	2,942	59.99	17,223	64.00
	NA	x	x	108	2.20	1,979	7.35
	NOT	x	x	75	1.53	85	0.32
	NT	x	x	430	8.77	1,733	6.44
	UNK	x	x	60	1.22	2,512	9.34
	Y	x	x	522	10.64	1,536	5.71
	YL	x	x	582	11.87	1,369	5.09
	YT	x	x	185	3.77	470	1.75



Distribution Report Records

- Code options that are possibly unfamiliar
 - Different vendors, historical reasons
 - ‘B’, ‘NOT’, ‘UNK’, ‘N’
- Many fields are based on the ‘primary’ (first) value
 - Triage
 - Mechanism/Cause
 - Your values should be greater or equal

Primary External Cause Code

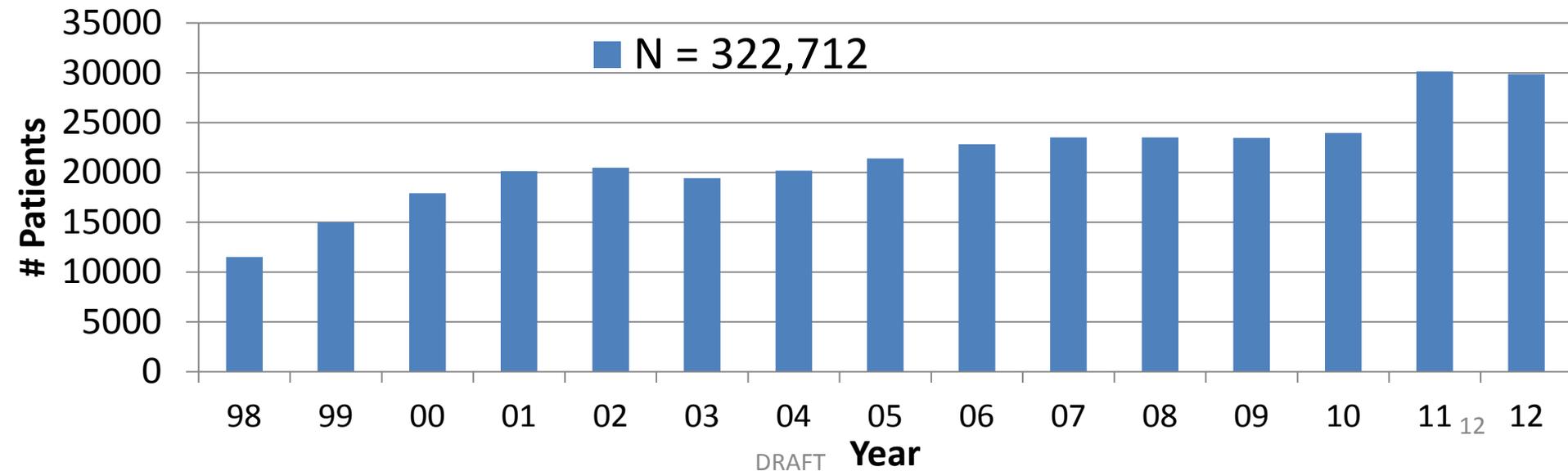
CDPHE: “...should describe the main reason a patient is admitted to the hospital”

NTDS: Selected in the following order...

1. child and adult abuse
2. terrorism events
3. cataclysmic events
4. transport accidents
5. most serious diagnosis

CTR Development

- Tracking injured patients since '98
 - *It's not that we want you to get hurt....we just want to be there when you do!*
- Currently, 49 participating facilities
 - 3 Level I; 1 Regional Pediatric Trauma Center
 - 9 Level II
 - 18 Level III
 - 17 Level IV
 - 1 Level V



Trauma Patient



Inclusion Criteria

A **principal diagnosis** code defined in the **ICD-9-CM**:

800-959.9, 991.0-991.3 (frostbite), **994.0** (Effects of lightning),
994.8 (Electrocution and nonfatal effects of electric current)

- **And** including **one or more** of the following:
 - Death resulting from the traumatic injury
 - DOA, ED, OR, deaths as an inpatient **and/or**
 - Hospital admission (≥ 12 hours) **and/or**
 - ED disposition of OBS and ISS ≥ 9 **and/or**
 - ED disposition = FLOOR, ICU, TELE, ADMIT, OR, or DIRECT **and/or**
 - Pt transfer via private vehicle/EMS/law enforcement (including AIR Ambulance) from one hospital to another (even if later discharged from the ED) **and/or**
 - Unplanned returns (missed dx, complications) – limited to 30 days

Not a Trauma Patient



Exclusion Criteria

- **Excluding:**

- ICD-9-CM 905-909.9 (late effects of injury)
- ICD-9-CM 930-939.9 (foreign bodies)
- Presentations of injuries >3 weeks after injuries
- See Link for more specific examples/details

Example Head Injury Dx's

~7,000 TBIs in the CTR in 2012



- 30yo, male, skier
hit tree
no helmet
unknown LOC

+14Dx's based on CT*
+Skull + Intracranial
+Five fxs to head
*870.0 (dx known = Surgery)

Dx	ICD-9	AIS	ICD-9 meaning
1	805.01	2	Cl. fx 1st cervical vert w/o spinal inj
2	870.0	1	Open wound of ocular adnexa
3	852.00	2	Subarach, subdural, extradural hem
4	802.6	2	Cl. Fx of face bones – orbital floor
5	801.00	3	Cl. Fx base sk w/o intracran, unk LOC
6	801.00	3	Cl. Fx base sk w/o intracran, unk LOC
7	802.4	1	Cl. fx of malar and maxillary bones
8	802.4	2	Cl. fx of malar and maxillary bones
9	801.00	2	Cl. Fx base sk w/o intracran, unk LOC
10	801.00	2	Cl. Fx base sk w/o intracran, unk LOC
11	802.23	1	Cl. fx of mandible, coronoid process
12	801.00	3	Cl. Fx base sk w/o intracran, unk LOC
13	802.0	1	Cl. fx of nasal bones
14	802.25	1	Cl. fx of mandible, angle of jaw
15	854.0	3	Intracranial injury w/o wound

Repeated entries
will skew sub-TBI
statistics

23yo female fell down onto concrete stairs and landed on the back of her head

Skull + intracranial based on CT
Six hemorrhagic
Same I-9, diff. descr

ICD_9	AIS	Description
801.26	2	Occipital bone fx
851.46	3	Rt inferior lobe hemorrhagic
851.46	3	Lt inferior lobe hemorrhagic
851.46	3	Rt anterior temporal hemmorhagic
851.46	3	Lt anterior temporal hemmorhagic
851.46	3	Lt lateral temporal hemmorhagic
851.46	3	Lt occipital hemmorhagic
852.26	5	Long floor, right middle cranial fossa
852.26	2	Small along tentorium

801.26 : Closed fracture of base w/
subarachnoid, subdural, and extradural
hemorrhage, with loc unspecified duration

851.46: Cerebellar or brain stem contusion
w/o mention of open intracranial wound,
with loc of unspecified duration

852.26: Subdural hemorrhage w/o open
intracranial wound, with loc unspecified
duration

Readmitted Trauma Patients

Readmitted Trauma Patient

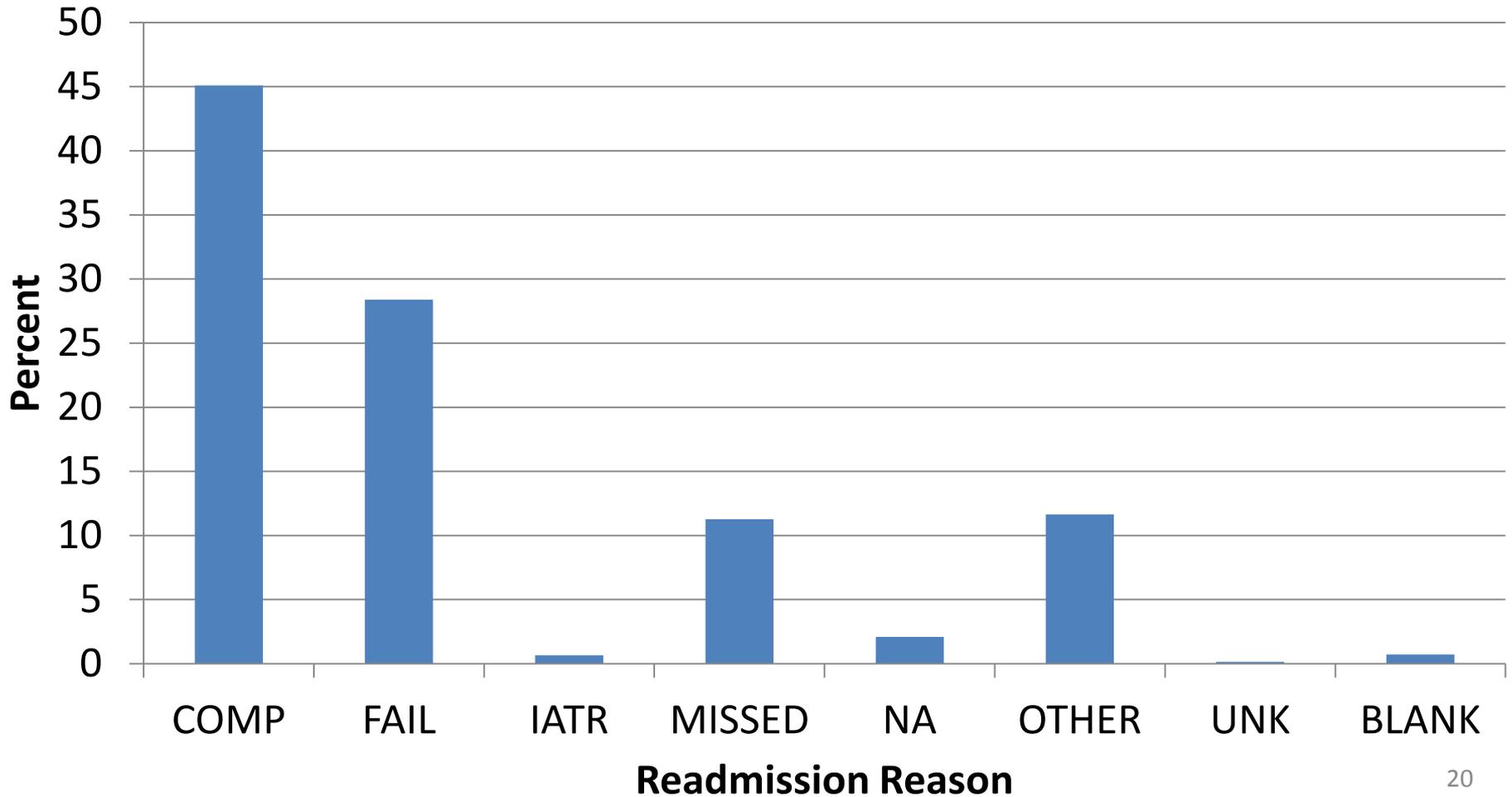
- **Definition:** unplanned/unexpected re-admission for a patient who has **already been seen for this injury event** who is returning for
 - Complications
 - Missed Dx
 - Failure of Conservative Management
 - Iatrogenic Injuries
 - Other Issues
- Code
 - Readmit = Y
 - Decimal and # following TraumaNo. (xxxx.1; xxxx.2)¹⁹

Readmissions

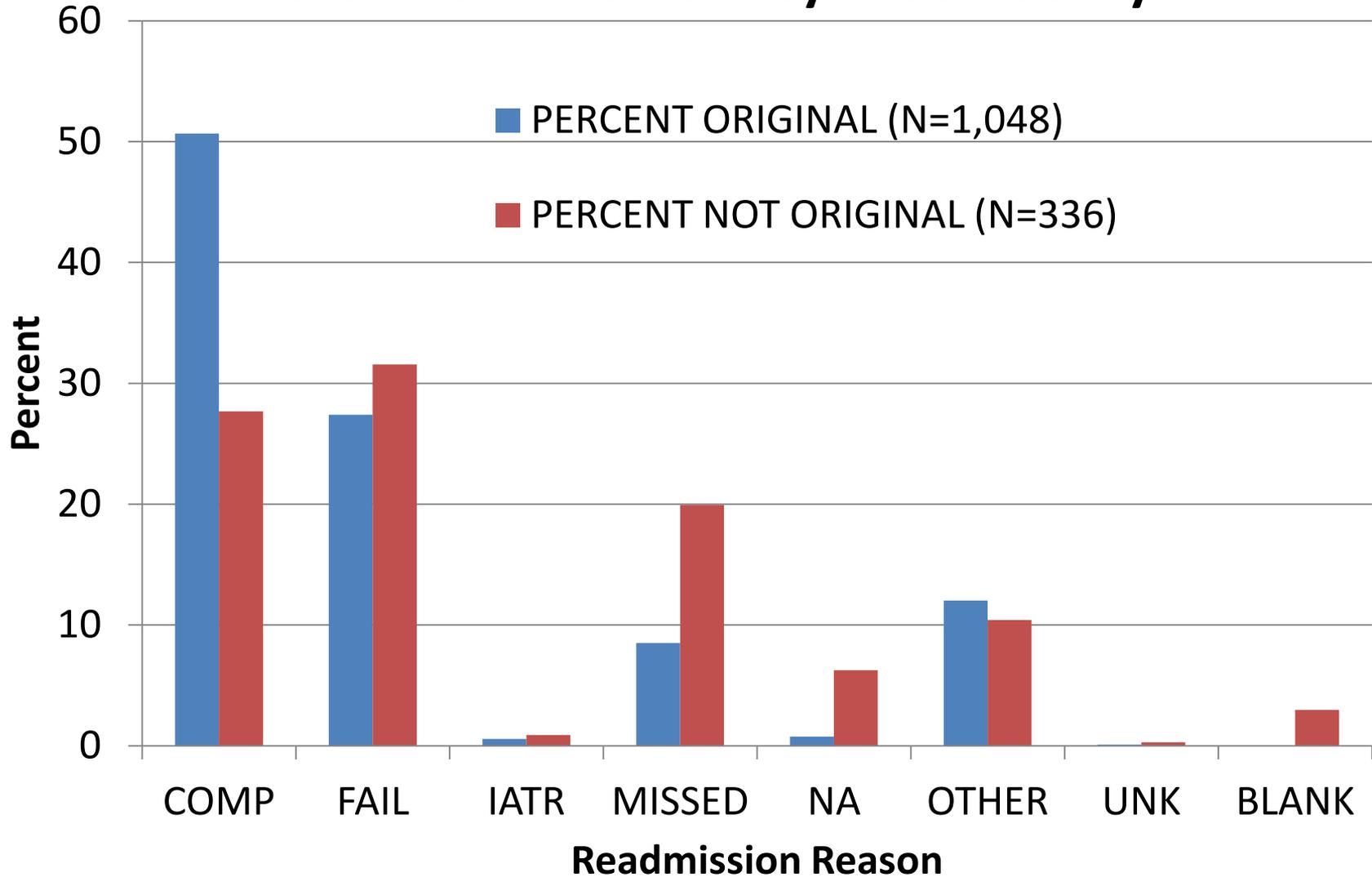
starting tracking in 2011

January 2011-June 2013

Reasons for readmissions (N=1,384)



Readmission Reasons by Initial Facility



- 76% of readmits returned to the original hospital

Patients' Reasons for Readmissions

- **Complications**

- Splint **too tight**
- Rattlesnake bite – **still bleeding** at bite site
- Skateboarder – face injury identified—**missed wrist**
- In rehab and fell...this resulted in a **hip fx**
- Pain worsening in the knee...resulted in **DVT**
- Fx of clavicle ---**surgical site infection**

Patient Reasons for Readmissions

- **Failed Conservative Management**
 - Pt can't sleep because of **pain**
 - Readmit because of **headache**
 - Persistent pain, **cant use walker** because of arm splint
 - Fall...leg splint..discharged....returned b/c **can't take care of self**
 - Hip fx...returned b/c of **failed hardware**
 - Rt femur restore...**failed fix** repair
 - Ecode: MVA...cause thought to be low blood sugar
.....return **sternum pain**

Patient Reasons for Readmissions

- **Missed dx**

- Fall of bike...treated for rib and hand fxs. Returns with nausea and vomiting with headache...dx as **Closed fracture of base of skull**
- Increasing amt of falls **subdural hemorrhage**
- **Pain**
- Bucked from horse...wrist fx...several days later ...shallow breathing, and light-headed...dx **concussion**
- MVA...giving PT...3wks later unable to bear wt. admitted, found **closed fracture of lumbar vertebra**

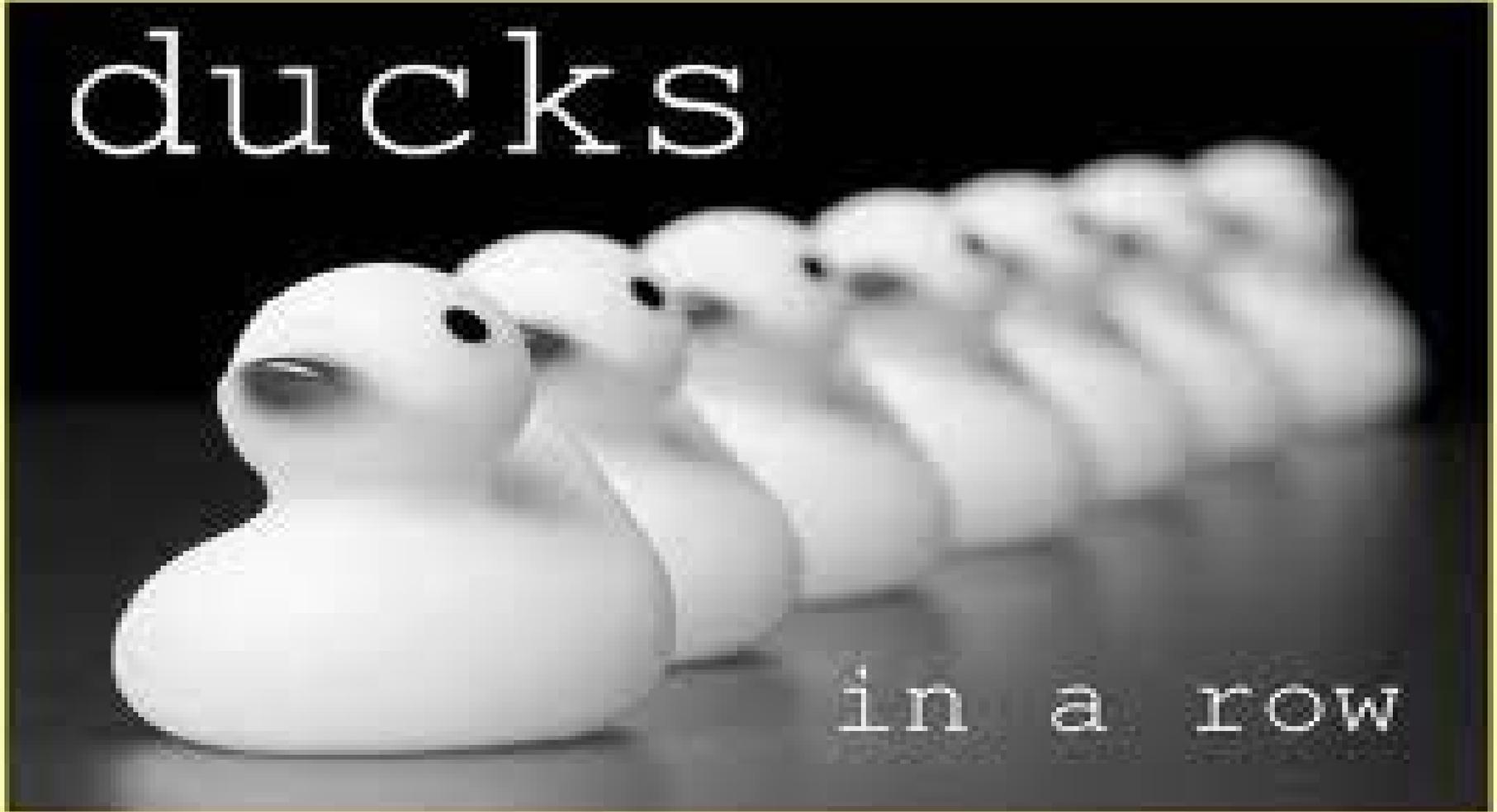
Patient Reasons for Readmissions

Other events occasioning the admission

- **Following discharge:**
 - **Pedestrian hit by vehicle**
 - **Fell down stairs**
 - **Shot**
 - **Nausea and vomiting**
 - **Pain during a subsequent IV-shot in arm**
 - **Worsening pain/injury...now agrees to Px**

Aligning w/ NTDS

Discharge Comorbidity Complications Triage Physical Abuse



DRAFT

...While including Colorado-specific options²⁶!

Hospital Discharge Dispositions

Discharge Disposition

- **Situation:** When patients whose acute hospital stay is done, but no nursing home, LTAC or SNF will take them, they're stuck at hospital – sometimes for periods up to and even exceeding a year. I don't believe having a “trauma” patient in the hospital for a year benefits our trauma data, but we still need to have a disposition for them.
- **Coding methods that have been used:**
 - Transferred from acute care, and putting in own hospital code – a way of showing they were “transferred” out of being a trauma patient, even though they never physically left facility
 - “transferred” to LTAC (i.e., an “internal” LTAC)
- **Bottom line:**
 - Too labor intensive to track a patient for, in some cases, months & years
 - Need a consistent disposition tracking method to ‘close out’ these patients

Discharge Disposition

National Elements

CDPHE Elements

1. Short-term general hosp. for inpatient care
2. Intermediate Care Facility
3. Home under health sev.
4. Left against advise
5. Expired
6. Home w/ no home services*
7. Skilled nursing facility
8. Hospice care
9. **RET.** Rehab & Long-term
10. Court/law
11. Inpt. rehab or design. unit
12. Long-term care hosp
13. Psy. Hosp/ psy unit of hosp.
14. Another institution not defined elsewhere

ACUTE= acute hospital (N1)
AMA = left against advice (N4)
D = died after admission (NOT in the ED) (N5)
DSS = Dep. Soc. Serv. (N14)
HH = home under care of home health agency (N3)
HOME* = home with no home health services (N6)
HOSPICE = hospice care (N8)
ICF = intermediate care facility (N2)
JAIL = jail, prison, or other detention facility (N10)
LTAC = long-term acute care (Modified)(N12)
NHOME= nursing home or long-term care fac. (N12)
PSYCH = To inpatient psychiatric care...may be another facility or a division of the same facility. (N13)
REHAB = rehabilitation (N11)
SNF = skilled nursing (N7)
OTHER = Other (N14)

*NTDS field value = 6, "home" refers to the patient's current place of residence (e.g., prison, child protective services, etc.)

Suggestion:

LTAC = DC/Tx from trauma to a long-term acute care (LTAC) facility or a unit of initial hospital for inpatient care including disposition or placement. Not on a trauma or rehabilitation service. **(Modified, 2014)** (N12)

COMORBIDITY

Two diseases or conditions at one time

“In the United States, about 80% of Medicare spending is devoted to patients with 4 or more chronic conditions, with costs increasing exponentially as the number of chronic conditions increases.”⁴

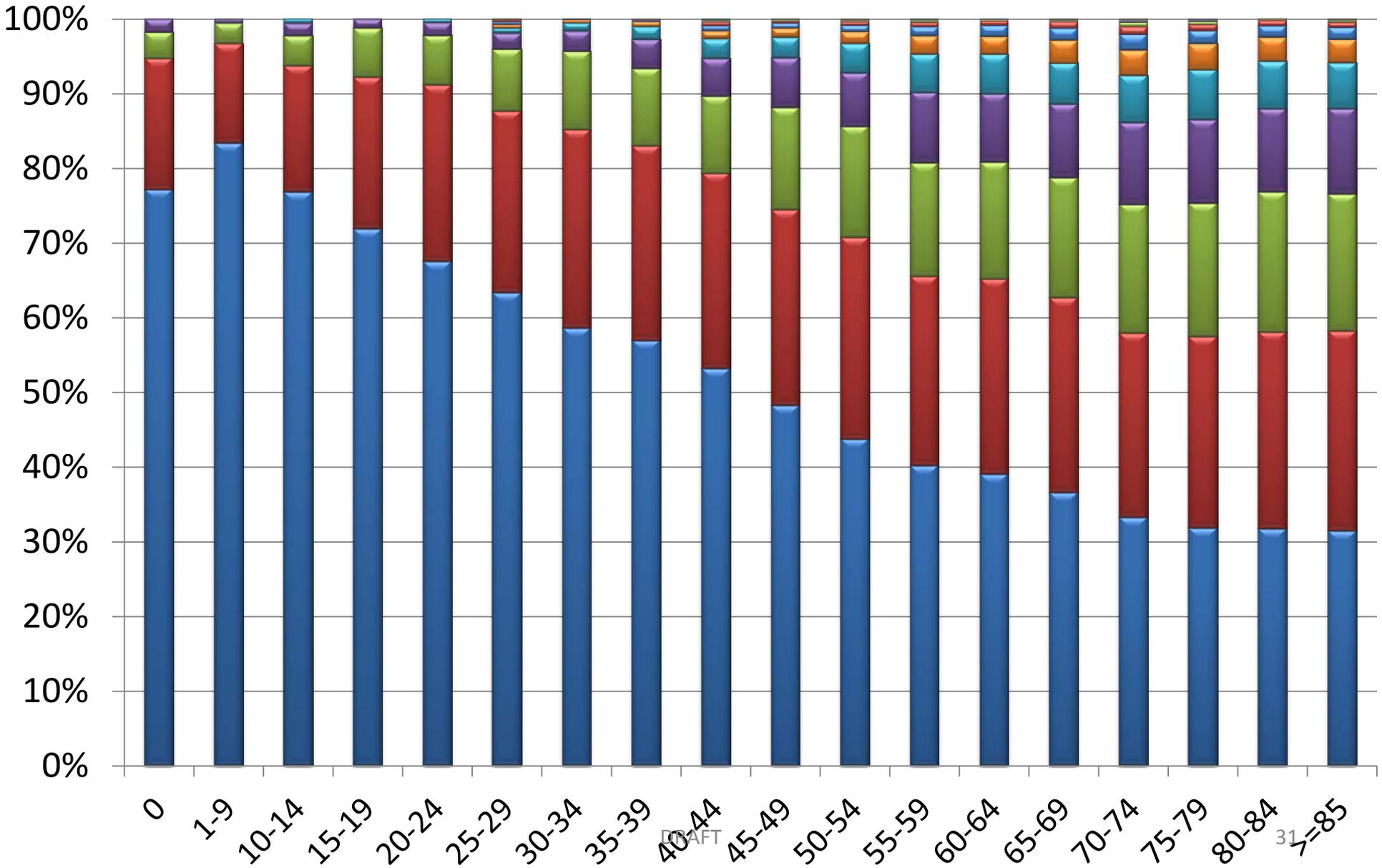
“Health care increasingly needs to address the management of individuals with multiple coexisting diseases, who are now the norm rather the exception.”⁵

4. Wolff JL, Starfield B, Anderson G. Prevalence, expenditures, and complications of multiple chronic conditions in the elderly. Arch Intern Med. 2002;162(20):2269–2276.

5. Starfield B. Threads and yarns: weaving the tapestry of comorbidity. Ann Fam Med. 2006;4(2):101–103.

Multiple Comorbidities by Age Group. Yr 2012. 41,674 records; 16,338 patients

% pts 0 1 1 2 5 4 4 3 4 4 6 7 7 7 7 8 10 20



Current

COMORBIDITY CODES

NTDS	Description	CDPHE	Description
Null value (NA)	For patients with no known co-morbid conditions	NA	Not applicable (use for patients with no known co-morbid conditions)
		NONE	No NTDS or CDPHE Comorbidity
		UNK	Unknown or not documented (CO)

Suggested Alternatives

- CDPHE description of NA becomes the same as NTDS
- DROP UNK and NONE

COMORBIDITY CODES

NTDS	Description	CDPHE	Description
Null value (NA)	For patients with no known co-morbid conditions	NA	For patients with no known co-morbid conditions

Current

COMORBIDITY CODES

NTDS	Description	CDPHE	Description
2	Alcoholism	ETOH	Alcohol Abuse or Alcoholism
3	Ascites within 30 days	ASCITES	Ascites within 30 days
4	Bleeding disorder	COAG	Bleeding Disorder or Coagulation Disorder or on Anticoagulants
5	Currently receiving chemotherapy for cancer	CHEMO	Chemotherapy for cancer within 30 days

Summarized NTDS definition of terms

Alcoholism: Evidence of chronic use, such as withdrawal episodes. Exclude isolated elevated blood alcohol level in absence of history of abuse.

Bleeding disorder: Any condition that places the patient at risk for excessive bleeding due to a deficiency of blood clotting elements... Do not include patients on chronic aspirin therapy.

Currently receiving chemotherapy for cancer: ...treatment for cancer prior to admission....(no specification of days) ...

Suggested Alternative

- CDPHE description same as NTDS

COMORBIDITY CODES

NTDS	Description	CDPHE	Description
2	Alcoholism	ETOH	Alcoholism
3	Ascites within 30 days	ASCITES	Ascites within 30 days
4	Bleeding disorder	COAG	Bleeding Disorder
5	Currently receiving chemotherapy for cancer	CHEMO	Chemotherapy receiving chemotherapy for cancer

COMORBIDITY CODES

NTDS	Description	CDPHE	Description
6	Congenital anomalies	ANOM	Congenital anomalies
7	Congestive heart failure	CHF	Congestive Heart Failure
8	Current smoker	SMOKER	Current smoker
9	Chronic renal failure	DIAL	Currently requiring or on dialysis
10	CVA/residual neurological deficit	CVA	CVA or residual neurological deficit
11	Diabetes mellitus	DM	Diabetes mellitus controlled by oral meds
		IDDM	Insulin dependent diabetes mellitus
12	Disseminated cancer	CA	Disseminated cancer
13	Advanced directive limiting care	DNR	Do Not Resuscitate (DNR) status

Summarized NTDS definition of terms

Chronic renal failure: Acute or chronic...prior to injury...requiring periodic peritoneal dialysis, hemodialysis, hemofiltration, or hemodiafiltration.

Diabetes mellitus: prior to inj. req. exogenous parenteral insulin or oral hypoglycemic agent

CDPHE Suggested Alternatives

- DIAL description equals NTDS 9
- Redefine DM to match NTDS11
- Drop IDDM (see DM)

COMORBIDITY CODES

NTDS	Description	CDPHE	Description
9	Chronic renal failure	DIAL	NTDS9
11	Diabetes mellitus	DM	NTDS11

DRAFT

COMORBIDITY CODES

NTDS	Description	CDPHE	Description
14	Esophageal varices	VAR	Esophageal varices
15	Functionally dependent health status	DEP	Functionally dependent health status
16	History of angina within 30 days	ANGINA	History of angina within past 1 month
17	History of myocardial infarction	MI	History of myocardial infarction within past 6 months
18	History of PVD	RAP	History of revascularization for amputation for PVD

COMORBIDITY CODES

NTDS	Description	CDPHE	Description
19	Hypertension requiring medication	HTN	Hypertension requiring medication
20	RETIRED 2012 Impaired sensorium	SENS	See next slide
21	Prematurity	PREM	Prematurity
22	Obesity	OBESE	Obesity based on BMI 40
23	Respiratory disease	<div style="font-size: 3em; vertical-align: middle;">{</div> COPD	Chronic Obstructive Pulmonary Disease
23	Respiratory disease		RESP
24	Steroid use	STEROID	Steroid use
25	Cirrhosis	CIRRH	Cirrhosis

Summarized NTDS definition of terms

Obesity: A Body Mass Index of 30 or greater.

Suggested Alternative

- CDPHE description of OBESE redefined to BMI of 30 or greater
- Drop COPD because RESP already includes it

DRAFT

COMORBIDITY CODES

NTDS	Description	CDPHE	Description
22	Obesity	OBESE	A Body Mass Index of 30 or greater

COMORBIDITY CODES

NTDS	Description	CDPHE	Description
26	Dementia	Xxxx	Xxxx
27	Major psychiatric illness	Xxxx	Xxxx

Summarized CDPHE related definition of terms

SENS: Includes parts of Dementia and Major psychiatric Illness (e.g., dementia, Alzheimer's, chronic mental illness, mental retardation, attention disorders)

Summarized NTDS definition of terms

Dementia: With particular attention to senile or vascular dementia (e.g., Alzheimer's)

Major psychiatric illness: Documentation of the presence of pre-injury major depressive disorder, bipolar disorder, schizophrenia, anxiety/panic disorder, borderline or antisocial personality disorder, and/or adjustment disorder/post-traumatic stress disorder.

Suggested Alternative

- CDPHE: DROP SENS and ADD two new variables:
 - NTDS 26 (dementia) = **DEM** and
 - NTDS 27 (major psychiatric illness) = **PSYILL**

COMORBIDITY CODES

NTDS	Description	CDPHE	Description
28	Drug abuse or dependency	ABUSE	Current abuse of prescription or illicit drugs
29	Pre-hospital cardiac arrest with resuscitative efforts by healthcare provider	CARDIAC	Any history of cardiac disease (e.g., hx of MI more than 6 months ago, cardiac arrhythmias, a-fib, hx of CABG or stent placement, pacemaker)

Summarized NTDS definition of terms

Drug abuse or dependency: With particular attention to opioid, sedative, amphetamine, cocaine, diazepam, alprazolam, or lorazepam dependence (excludes ADD/ADHD or chronic pain with medication use as prescribed.)

Pre-hospital cardiac arrest with CPR: A sudden, abrupt loss of cardiac function which occurs outside of the hospital, prior to admission at the center in which the registry is maintained, that **results in loss of consciousness** requiring the initiation of any component of basic and/or advanced cardiac **life support** by a health care provider.

Suggested Alternatives

- ABUSE = NTDS28
- CARDIAC = NTDS29
- Topic: **Recreational Marijuana**

DRAFT

COMORBIDITY CODES

NTDS value = 1 (Other)

NTDS	CDPHE	Description
1	AMP	History of amputation from trauma or resection/repair of abdominal aortic aneurysms, including Endovascular Repair of Abdominal Aortic Aneurysm (EVAR)
	IMMUNE	Immunocompromised excluding steroid use
	LIVER	Liver Disease without Ascites
	NEURO	Neurologic disorder (Parkinson's, seizures, multiple sclerosis, etc)
	OTHER	A co-morbidity not represented in the other options
	PAIN	Chronic pain
	PREG	Pregnancy
	RENAL	Renal Disease not requiring dialysis or hemofiltration
	SCI	Pre-existing spinal cord injury
	SURG	History of any type of surgery in the past 3 weeks

COMPLICATIONS

COMPLICATION CODES

NT	Description	CDPHE	Description
2	RET. 2011 Abdominal compartment syndrome	ACS	Abdominal compartment syndrome
3	RET. 2011 Abdominal fascia left open	ABD	Abdominal fascia left open
4	Acute kidney injury	ARF	Acute renal failure
5	Acute lung injury (ALI)/ Adult (acute) respiratory distress syndrome (ARDS)	ARDS	Acute respiratory distress syndrome

Summarized NTDS definition of terms

Acute kidney injury: Pt ...worsening renal dysfunction after injury requiring renal replacement therapy. If pt refuses treatment (e.g., dialysis), still considered if both oliguria and creatinine are present. • GFR criteria/ • Urine output criteria

ALI/ARDS: ...in conjunction with catastrophic medical conditions (e.g., pneumonia, shock, sepsis, systemic infection, and trauma). ...Sudden, and often severe lung failure... PaO₂/FiO₂ ratio of <300 mmHg, bilateral fluffy infiltrates seen on a frontal chest radiograph, and absence of clearly demonstrable volume overload (as signified by pulmonary wedge pressure , 18mmHg, if measured, or other similar surrogates such as echocardiography which do not demonstrate analogous findings.)

Suggestions: Go forward with NTDS descriptions?

ARF = Acute Kidney Injury (NTDS4)

ARDS= Acute lung injury (ALI)/Adult (acute) respiratory distress syndrome (NTDS5)

COMPLICATION CODES

NT	Description	CDPHE	Description
6	RETIRED 2011 Base deficit	none	NA
7	RETIRED 2011 Bleeding	BLD	Bleeding
8	Cardiac arrest w/ resuscitative efforts by healthcare provider	CPR	Cardiac arrest with CPR
9	RETIRED 2011 Coagulopathy	COAG	Coagulopathy
10	RETIRED 2011 Coma	COMA	Coma
11	Decubitus ulcer	DECUB	Decubitus ulcer
12	Deep surgical site infection	SURGINF	Deep surgical site infection
13	Drug or alcohol withdrawal syndrome	WITH	Drug or alcohol withdrawal syndrome
14	Deep Vein Thrombosis (DVT) / thrombophlebitis	DVT	Deep Vein Thrombosis (DVT) or thrombophlebitis
15	Extremity compartment syndrome	ECS	Extremity compartment syndrome
16	Graft/prosthesis/flap failure	FAIL	Graft or prosthesis or flap failure
17	RETIRED 2011 Intracranial pressure	ICP	Intracranial pressure
18	Myocardial infarction	MI	Myocardial infarction

COMPLICATION CODES

NT	Description	CDPHE	Description
19	Organ/space surgical site infection	ORGAN	Organ or space surgical site infection
20	Pneumonia	PNEU	Pneumonia
21	Pulmonary embolism	PE	Pulmonary embolism
22	Stroke / CVA	CVA	Stroke or CVA
23	Superficial surgical site infection	SUP	Superficial surgical site infection
24	RETIRED 2011 Systemic sepsis	SEPSIS	Systemic sepsis
25	Unplanned intubation	INTUB	Unplanned intubation
26	RETIRED 2011 Wound disruption	DISRUPT	Wound disruption
27	Urinary tract infection	UTI	Urinary tract infection
28	Catheter-related blood stream infection	CATH	Catheter-related blood stream infection
29	Osteomyelitis	OSTEO	Osteomyelitis
30	Unplanned return to the OR	OR	Unplanned return to the OR
31	Unplanned return to the ICU	ICU	Unplanned return to the ICU
32	Severe sepsis	SEVSEP	Severe sepsis

DRAFT
Suggestion is to drop SEPSIS

COMPLICATION CODES

NT	Description	CDPHE	Description
Null	For patients with no (NA) complications	NA	Not applicable (use for patients with no complications)
		UNK	Unknown or not documented
1	Other	ACS	Abdominal compartment syndrome
1	Other	ABD	Abdominal fascia left open
1	Other	BLD	Bleeding
1	Other	COAG	Coagulopathy
1	Other	COMA	Coma
1	Other	DISRUPT	Wound disruption
1	Other	ICP	Intracranial pressure
1	Other	OTHER	Other complication not list

Triage and Physical Abuse

Triage

- Criteria used by pre-hospital care providers to decide which facility the patient should be taken to
- Protocols are not always the same throughout the state...
 - Frontier, rural, urban
 - Age/size
 - Definition of terms
 - pregnancy v. pregnancy >20 weeks

Triage

- Generally, the algorithms consider five criteria
 - Ventilate
 - Physiologic
 - Anatomic
 - Mechanism
 - Other Considerations
 - Physical abuse, age extremes, comorbidity



Anatomical Triage

- *Paralysis* (NTDS11) is loss of muscle function for one or more muscles
- SPINE (CDPHE)= Spinal cord injury with neurologic deficit
 - does not capture all paralysis events (e.g., brain, peripheral nervous system, and neuromuscular diseases)
- CDPHE Suggests:
 - SPINE is replaced by PARALYSIS (NTDS11)

Anatomical Triage

- CHEST (CDPHE)= Flail chest. This code is NOT for all chest injuries
 - If selected, dx = 807.4.
 - Only captures flail chest
- NTDS5 = Chest wall instability or deformity (e.g., flail chest)
- CDPHE Suggestion:
 - CHEST is redefined to match NTDS5

Anatomical Triage

- EXTREM (CDPHE) = Crushed, degloved or mangled extremity
- NTDS7 = Crushed, degloved, mangled, or pulseless extremity
- CDPHE suggests:
 - Add 'pulseless' to match NTDS7

EMS Trauma Triage Criteria

Trauma Center Criteria (NTDS 2014, pg55)

#	NTDS DESCRIPTION
1	Glasgow Coma Score < 14
2	Systolic blood pressure < 90 mmHg
3	Respiratory rate < 10 or > 29 breaths per minute (<20 in infants ages <1 year) or need for ventilatory support
4	All penetrating injuries to head, neck, torso, and extremities proximal to elbow or knee
5	Chest wall instability or deformity (e.g., flail chest)
6	Two or more proximal long-bone fractures
7	Crushed, degloved, mangled, or pulseless extremity
8	Amputation proximal to wrist or ankle
9	Pelvic fracture
10	Open or depressed skull fracture
11	Paralysis

DRAFT

CDPHE codes

- Amput (N8)
- Blast
- Blunt??
- Burns
- Chest (Mod,N5)
- Crash
- Death
- Extric
- Fall
- Elec
- Extrem (Mod, N7)
- FX
- FX2 (N6)
- GCS10
- GCS10N
- MULT
- PED
- PELVFX (N9, some)
- PEN (N4)
- PEN2 (N4)
- Skull (N10)
- Spine->PAR(N11)

Suggest New Codes

- GCS14 (N1)
- SBP90 (N2)
- RESP (N3)

FX and PELVFX history?

Mechanism Triage

Vehicle, Pedestrian, Other Risk Injury

(NTDS 2014, pg56)

#	NTDS DESCRIPTION
1	Fall adults: > 20 ft.
2	Fall children: > 10 ft. or 2-3x ht
3	Crash intrusion, including roof: > 12 in. occupant site > 18 in. any site
4	Crash ejection (partial or complete) from vehicle
5	Crash death in same passenger compartment
6	Crash vehicle telemetry data (AACN) consistent with high risk injury
7	Auto v. pedestrian/bicyclist thrown, run over, or > 20 MPH impact
8	Motorcycle crash > 20 MPH

CDPHE codes

- Fall
- Blast
- Burns
- Crash
- Death
- Extric
- Elec
- FX
- PED

CDPHE v. NTDS

- FALL...separate adults from children
- CRASH...not very specific 'high energy transfer' and includes 'skier hitting a tree'
- No 'ejection' value
- No telemetry data
- Variations in definitions
 - Throw distance, run-over, motorcycle v. all vehicles

Grant Application Plan



- **Known Issue:** Upcoming ICD-10 implementation
- **Grant process:**
 - CDPHE partnering w/ registrars to develop application
 - Applying for System Improvement option
 - Application scored against all other requests
- **Timeline:**
 - Online application, guidance available Dec. 16, 2013
 - Profile completion ASAP
 - Application due Feb. 13, 2014
 - Award notice June 30, 2014

Training Options-1

- **Vendors being considered:**
 - KJ Trauma Consulting
 - 1st Class Solutions
 - Pomphrey Consulting

- **Format/Process being considered:**
 - In person, on-line webinar
 - Software programs
 - Combination

Training Options-2

- **Specifications:**
 - Which designation levels?
 - How many will be trained per facility?
- **What is your facility/corp. doing?**
- **Should we code both for a while?**

Other Topics-1

- How are you coding accidents causes
 - If table saw...
 - If powered hand tool...



[E919](#) Accidents caused by machinery

[E920](#) Accidents caused by cutting and piercing instruments or objects

Other Topics-2

TraumaBase Questions for State

Field_Name

Comments/Question

ICD9_REF

Code from referring facility.

Because not many facilities provide this info, is the state really using this information in any way?

CONSULT_RESULT

This field is used to identify consult with a trauma surgeon only at another facility.

The state indicated some time ago that this field would be removed; if so, do we need to collect it?

CONSULT_COMMENTS

What information does the state want in this field?

REFERRING_CONSULT_DATE

REFERRING_CONSULT_TIME

This information is often hard to find, only used for lower level facilities.

What is the state after with these fields?

Other Topics-3

TraumaBase Questions for State

Field_Name	Comments/Question
AIS_CODE_REF	What are plans for use of this field?
TRANSPORT_SEQ	Is this field to be valued according to January 2013 state registry clarification?
Financial Fields (PAYMENT_SOURCE)	Some facilities will report as N/A. Data can change over time. Is the trauma registry an accurate source for such info?

	N	%
Payment Type		
BCBS	1,533	5.70
INS	8,006	29.75
MCAID	2,334	8.67
MCARE	6,966	25.89
NA	4	0.01
NF	330	1.23
NOBILL	24	0.09
OTHER	613	2.28
OTHGOV	971	3.61
PRIV	141	0.52
SELF	2,612	9.71
Unknowr	2,706	10.06
WC	669	2.49

Other Topics - 4

TraumaBase Questions for State

Field_Name	Comments/Question
EMS_TRACKING_NO	Track patient anywhere using a # from a band. Collect?
DATABASE_ID	For transfers...trauma registry number at previous facility. Takes a lot of correspondence. Utilized?

Other Topics - 5

TraumaBase Questions for State

Field_Name

Comments/Question

HOSPITAL_ARRIVAL_
TIME

EMS reports/ambulance times can vary up to an hour or more. Currently auto fills to the ambulance arrival time so if it is off, it will extend our ED length of stay.

In other cases, the ambulance arrival time is LATER than our ED arrival time, so it will cause an edit.

We would like to propose that we use the ED arrival time instead of the arrival time from the ambulance report. Is this the state's intention that we use strictly the EMS information?

Other Topics - 6

- Documentation of drug presence
 - ED staff administer opioids vs possible recreational/abuse use pta

Contact us!

- Health Facilities and EMS Division
Colorado Department of Public Health &
Environment

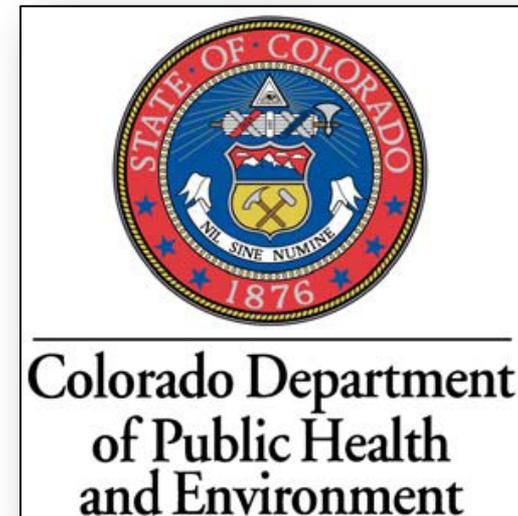
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 - Field values...being used/needed?
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