ETHICAL ISSUES IN RESPONSE PERTAINING TO PEDIATRICS

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Disclosure Statement

- No financial relationships to disclose
- No off-label use of medications and or equipment will be discussed
During Disasters

- Ethically conflicting situations will need to be faced
- Best to develop an ethically sound plan beforehand
Ethical Issues in Disaster Medicine

- Duties of healthcare workers
- Vulnerable populations
- Community participation
- Common good vs. individual autonomy
- Informed consent and assent
- Treatment refusal
- Disaster triage / surge
- Resource (re)allocation
- Altered / crisis care standards
- Vaccinations
- Palliative support for those ‘beyond emergency care’

- Disease surveillance
- Isolation and quarantine
- Religious, cultural, and linguistic differences
- Risk communication
- Relations with media
- Relations with industry
- Obligations to healthcare workers
- Participation of healthcare workers in war crimes / torture
- Disaster research
- Ethics review in public health
The Problem

Emergency preparedness for vulnerable populations raises challenging ethical questions

These challenging questions are applicable across the broad range of disaster victims. All victims will become and be seen as vulnerable.
Objectives

- Participants will gain an understanding of:
  - The basic philosophical foundations of bioethics and their relevance to moral quandaries in pediatric MCEs.
  - Approaches to healthcare resource allocation in pediatric MCEs advocated in selected jurisdictions.
  - Contingency and crisis standards of care in MCEs advocated by the Institute of Medicine (IOM).
  - The expected competencies in disaster ethics now advocated by the World Health Organization (WHO).
Agenda

- Ethical basis for moral decisions
- Ethical questions in pediatric disasters
- Ethical approaches / ethical models
- Ethical thinking for moral decision making
- Ethical dilemmas in pediatric disasters
- Ethical responses to pediatric dilemmas
Ethical Basis for Moral Decisions
The Western Tradition
Ethics

- Ethics is the study of standards of conduct and moral judgment, or a system or code of morals
  - Ethics is how *we* as a society should act
  - Morals is how *I* as a person should act
Bioethics

  - ‘Bioethics is a study of moral conduct, of right and wrong. As such, it is inescapably normative.’

  - ‘We primarily use philosophical reflection on morality … .’
‘Philosophical Tennis’


- ‘His nickname is *Plato*, which means “broad”. He’s an immensely confident, if unsmiling, Athenian … . [He] lobs his serve … with a glowering power … .’

- ‘His serve is answered by his graceless opponent … . And yet his challenger – his name is *Aristotle*, son of a provincial doctor – manages to persist.’

- ‘To this day, it may be asked of anyone who cares about ideas: Are you a Platonist or an Aristotelean?’
Deontology vs. Teleology

- **Deontology (Platonist)**
  - ‘Kantianism’: grandest intentions
  - The means justify the ends (rule based)
  - ‘Impartial rule theory’ (Clouser and Gert)
  - *Philosophers?*

- **Teleology (Aristotelean)**
  - ‘Utilitarianism’: greatest happiness
  - The ends justify the means (outcome based)
  - ‘Principlism’ (Beauchamp and Childress)
  - *Clinicians?*
Prehistory vs. Sociobiology


- ‘… [D]uring the habilene period*, a conflict ensued between individual-level selection, with individuals competing with other[s] … in the same group … , and group-level selection, with competition among groups …. The latter promoted altruism and cooperation among all group members … [and] led to innate group-wide morality and a sense of conscience and honor.’

- ‘The competition between the two forces can be succinctly expressed as follows: within groups, selfish individuals beat altruistic individuals, but groups of altruists beat groups of selfish individuals. Or, risking oversimplification, individual selection promoted sin, while group selection promoted virtue.’

- ‘So it came to pass that humans are forever conflicted by their prehistory of multilevel selection.’

*Era of human ancestor *Homo habilis*, from roughly 2.8 to 1.5 million years ago
The Classical Tradition
Aeschylus (c524-c455 BCE)

*Prometheus* Bound†

- ‘Hearken to the miseries that beset mankind. They were witless erst‡ and I made them to have sense and be endowed with reason. …’
- ‘Though they had eyes to see they saw in vain; they had ears but heard not. But, like to shapes in dreams, throughout their length of days without purpose they wrought all things in confusion. … They had no sign either of winter or of flowery spring or of fruitful summer, whereon they could depend, but in everything they wrought without judgment, until such time as I taught them to discern the risings of the stars and their settings. Aye, and numbers, too, chiepest of sciences, I invented for them, and the combining of letters, creative mother of muses’ arts, wherewith to hold all things in memory. … ‘Twas I and no one else that contrived the mariner’s flaxen-winged car to roam the sea. … If ever man fell ill, there was no defence, but for lack of medicine they wasted away, until I showed them how to mix soothing remedies wherewith they now ward off all their disorders. …’
- ‘Hear the sum of the whole matter in the compass of one brief word – every art possessed by man comes from Prometheus.’

*Ancient Greek titan punished for sharing fire, and other wisdom of the gods, with humans
†Possibly written by his son, Euphorion
‡Wiktionary: adverb, archaic; long ago, formerly
The Classical Tradition
Hippocrates (c460-c370 BCE)

- **First Precept**
  - ‘First, do no harm’ (‘Primum non nocere’)
    - The first precept? Well, not exactly!
  - First do some good, then do no harm!
    - ‘As to diseases, make a habit of two things – to help, or at least to do no harm.’

- **First Aphorism**
  - Also rarely quoted in its entirety!
    - ‘Life is short, but art long; the crisis fleeting; experience perilous, and decision difficult. The physician must not only be prepared to do what is right himself, but also to make the patient, the attendants, and the externals cooperate.’
The Classical Tradition
(c469-c399, c427-c347, c384-c322 BCE)

- Socrates → Plato → Aristotle
  - Inquiries → dialogues → treatises*
- Plato: four cardinal virtues
  - Courage, temperance, justice, prudence
- Aristotle: *Nicomachean† Ethics*
  - Focus on what is virtuous, beautiful, good;
    ‘We are not studying in order to know what
    virtue is, but to become good, for otherwise
    there would be no profit in it.’ *(NE II.2)*

*From notes of lectures at Lyceum †Edited by or dedicated to his son Nicomachus
The Judaic Tradition (c1440-c1400 BCE)

- **Genesis 1:26 (KJV)**
  - ‘And God said, Let us make mankind in our image…’

- **Genesis 2:16 (KJV)**
  - ‘And the Lord God commanded the man…’

- **Genesis 4:9 (KJV)**
  - ‘And the Lord said unto Cain, Where is Abel thy brother? And he said, I know not: Am I my brother’s keeper?’

- **Genesis 6:9 (KJV)**
  - ‘… and Noah walked with God.’

- **Genesis 12:1 (KJV)**
  - ‘Now the Lord said unto Abram…’

- **Genesis 15:2 (KJV)**
  - ‘And Abram said, Lord God…’
The Judeo-Christian Tradition

- **Hillel the Elder** (c110 BCE-c10 CE)
  - ‘That which is hateful to you, do not do to your fellow. That is the whole Torah; the rest is the explanation; go and learn.’

- **Mark 12:30-31 (KJV)** (c66-c70 CE)
  - ‘30 And thou shalt love the Lord thy God with all thy heart, and with all thy soul, and with all thy mind, and with all thy strength: this is the first commandment.*
  - ‘31 And the second is like, namely this, Thou shalt love thy neighbour as thyself.† There is none other commandment greater than these.’

- **Mishnah Sanhedrin 4:9** (completed 217 CE)
  - ‘Whoever destroys a soul, it is considered as if he destroyed an entire world. And whoever saves a life, it is considered as if he saved an entire world.’

*Citing Deuteronomy 6:4-5 (KJV)  †Citing Leviticus 19:18 (KJV)
The Islamic Tradition
(revealed to Muhammad c609-c632 CE)

- **Qur’an 3:185**
  - ‘No soul can die except by God’s permission.’

- **Qur’an 5:35**
  - ‘If anyone killed a person … it would be as if he killed all of mankind. And if anyone saved a life it would be as if he saved the lives of all mankind.’

- **Qur’an 33:26**
  - ‘It is not fitting for a believer, man or woman, when a matter has been decided by God and his Prophet, to have any option about the decision. If anyone disobeys God and His Apostle, he is indeed on a clearly wrong path.’

- **Qur’an 36:79**
  - ‘He will give them life who created them for the first time … ’
Medieval to Middle Ages

- **Averroes* of Andalusia (1126-1198 CE)**
  - Defender of Aristotelian philosophy against Ash’arism†
  - ‘Founding father of secular thought in Western Europe’

- **Thomas of Aquinas (1225-1274 CE)**
  - Synthesis of classical ethics, Christian theology
  - ‘First principles of action’ based on ‘natural law’
  - ‘Virtue denotes a certain perfection of a power’
  - ‘All acts of virtue are prescribed by the natural law’

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*Abu I-Walid Muhammad Ibn Ahmad Ibn Rusd  †An Islamic philosophical school based on revelation
Renaissance to Reformation

- Spread of literacy
  - Johannes Gutenberg (1398-1468)
    - Printing press (1439)

- Challenge of doctrine
  - Martin Luther (1483-1546)
    - Ninety-Five Theses (1517)

- Theory → observation, experiment
  - Francis Bacon (1561-1626)
    - The Scientific Method

- Revelation → realism, reason
  - René Descartes (1596-1650)
    - ‘Cogito ergo sum’
Entitlement to Enlightenment

- ‘Kantianism’
  - Immanuel Kant (1724-1804)
    - *Groundwork of the Metaphysic of Morals* (1765)
      - Categorical imperative: ‘Act only according to that maxim whereby you can at the same time will that it should become a universal law without contradiction.’

- ‘Utilitarianism’
  - Jeremy Bentham (1748-1832)
    - *Introduction to the Principles of Morals and Legislation* (1789)
      - Utility principle: ‘Nature has placed mankind under the governance of two sovereign masters, pain and pleasure. … By the principle of utility is meant that principle which approves or disapproves of every action … according to [its] tendency … to augment or diminish the happiness of the party whose interest is in question: or, what is the same thing in other words … to promote or to oppose … happiness.’
  - John Stuart Mill (1806-1873)
    - *Utilitarianism* (1861)
      - ‘It is quite compatible with the principle of utility to recognize … that some kinds of pleasure are more desirable and more valuable than others.’
Eighteenth and Nineteenth Centuries

- John Gregory (1724-1773)
  - *Lectures on the Duties and Qualifications of a Physician* (given 1766 through 1773)
    - Moral duty ‘to acknowledge and rectify mistakes’*
    - ‘No established authority … to refer … doubtful cases’*
    - ‘Lay medicine open to the public’*
  - An approach not widely supported in its day

- Thomas Percival (1740-1804)
  - *Medical Ethics* (published 1803)
    - ‘Reinterpretation of Hippocratic guild ethos’*
    - Largely advocated professional self-regulation
    - More ‘medical etiquette’ than ‘medical ethics’
  - AMA *Code of Medical Ethics*, adopted 1847

Twentieth Century

- **Principle of informed consent legally established**
  - Schloendorff vs. Society of New York Hospital
    - 211 N.Y. 125, 105 N.E. 92 (1914)

- **Wartime atrocities by Nazis and Unit 731**
  - Nuremberg Code
    - https://history.nih.gov/research/downloads/Nuremberg

- **World Medical Association**
  - Declaration[s] of [Geneva and] Helsinki

- **Willowbrook, Tuskegee ‘experiments’**
  - Belmont Report
Belmont Report
http://www.hhs.gov/ohrp/humansubjects/guidance/belmont.html

- Respect for persons
  - ‘Individuals should be treated as autonomous agents’
  - ‘Persons with diminished autonomy are entitled to protection’
  - ‘To respect autonomy is to give weight to autonomous persons’ considered opinions and choices while refraining from obstructing their actions unless they are clearly detrimental to others’

- Beneficence
  - ‘(1) Do not harm’
  - ‘(2) Maximize possible benefits and minimize possible harms’

- Justice
  - ‘Fairness in distribution’
  - ‘What is deserved’
Modern ‘Principles’ of Bioethics

Modern Western bioethics is based on three (lately four) fundamental principles:
- Respect for persons (Autonomy)
- Beneficence (and Nonmaleficence)
- Justice

The relative priority of these principles may change with different circumstances
- Pediatrics (and other vulnerable populations)
- Disasters (and other austere environments)
- Resources (staff, stuff, space, systems)
Ethical Questions in Pediatric Disasters
Are Children a *Uniquely* Vulnerable Population?
Ethical Questions

- In the midst of a disaster, how should limited resources be allocated?
- To what extent should the needs of vulnerable populations be prioritized?
- Should patients be selected for treatment based on their anticipated prognosis?
- Should patients’ social worth be considered in resource allocation decisions?
‘Women and Children First?’

- **Arguments for prioritizing children**
  - Children may have a better chance of survival
  - Societal role of children – symbols of hope, the future
  - Ethical principles – ‘fair innings’, life years saved

- **Arguments against prioritizing children**
  - Possibility of fewer survivors
  - Discrimination / favoritism
  - Only the youngest would receive treatment

- **Age as a cutoff**
  - Narrow developmental differences between age groups
  - Should teenagers be treated as adults or children?

- **American Academy of Pediatrics/Children’s Health Fund Poll**
  - 76% of Americans agree children should be given priority vs. adults
  - 75% believe children should be treated first for the same condition
Fewer Resources for Children

- The Four S’s
  - Staff (trained, pediatric capable personnel)
  - Stuff (age appropriate equipment, drugs)
  - Space (intensive, routine, family support)
  - Systems (regionalization ≠ centralization)

- EMSC Pediatric Readiness Project 2013*
  - 69% of hospitals have necessary resources
    - 62% in low volume centers
    - 84% in high volume centers
  - Improved from 55% in 2003

*http://www.pediatricreadiness.org/State_Results/National_Results.aspx
Richard J. McCormick, 1974*

“First, … ‘Children cannot be regarded simply as little people’… . Second, … there is a limit to the usefulness of prior experimentation with animals and adults.”

“At this point, however, a severe problem arises. The legal and moral legitimacy of experimentation is founded above all on the informed consent of the subject.”

“But in [most] instances, the young subject is either legally or factually incapable of informed consent.”

“Furthermore, it is argued, the parents are neither legally nor morally capable of supplying this consent … .”

Proposes that proxy consent must therefore be authorized

“To attempt to consent for a child to be made an experimental subject is to treat a child as not a child. It is to treat him as if he were an adult person who has consented to become a joint adventurer in the common cause of medical research. If the grounds for this are alleged to be the presumptive or implied consent of the child, that must simply be characterized as a violent and a false presumption.”

“Nevertheless, in view of the necessity sometimes claimed for nontherapeutic research with uncomprehending subjects, several years ago I did explore ... an alternative position. If today we mean to give such weight to the research imperative, ... then we should not seek to give a principled justification of what we are doing with children. It is better to leave the research imperative in incorrigible conflict with the principle that protects the individual human person from being used for research purposes without either his expressed or correctly construed consent.”

Pediatric Countermeasures Research


- Review of ethics of research on AVA† in children
  - Operation ‘Dark Zephyr’: 2M children would be affected
  - AVA safely administered to 1M military recruits for >40 yr
  - No history of use in children, no understanding of effects
  - Commission’s conclusion: 'Before pre-event pediatric trials can be considered, further steps must be taken, including additional research in adults, to help ensure that the research risks to children – who do not stand to benefit directly from participation in the study – can be reduced to a level posing no more than minimal risk to their health or well-being.'

*Chair, Presidential Commission for the Study of Bioethical Issues
†Anthrax vaccine adsorbed
Pediatric Countermeasures Research


  - Review of ethics of research on other MCM‡ in children
    - Commission’s conclusion: ‘Pre-event pediatric research on medical countermeasures is ethical, in general, only if it presents no more than minimal risk to study participants. Minimal risk is comparable to that which healthy children living in a safe environment routinely face in everyday life or during a routine medical examination.’
    - Commission’s rationale: ‘... the research involves the potential treatment or prevention of a highly disabling or lethal condition that no one has yet contracted; it aims to determine how best to treat a condition resulting from an event whose likelihood of occurring is unknown; and though knowledge gained could be useful for future treatment, we hope never to have an occasion to use it.’

*Chair, Presidential Commission for the Study of Bioethical Issues
‡Medical countermeasures
Pediatric Countermeasures Research


  - Review of ethics of research on other MCM‡ in children
    - Further rationale: “To be ethical, research involving children must generally pose no greater than minimal risk to participants unless the research presents the prospect of direct benefit.
    - One exception: “A minor increase over minimal risk—which is still very limited and poses no substantial risk to health or well-being—is permissible only when research is likely to yield generalizable knowledge about [the] participants’ specific condition. … [O]nly when unusual circumstances prohibit completion of such testing in consenting adults can pre-event research in children involving ‘a minor increase over minimal risk’ proceed to … review [, and only if such] a ‘narrow’ expansion of minimal risk … still ‘poses no significant threat to the child’s health or well-being.”

*Chair, Presidential Commission for the Study of Bioethical Issues  
‡Medical countermeasures
Pediatric Countermeasures Research

- Review of ethics of research on other MCM‡ in children
  - Commission’s prerequisites: “Minimal-risk pre-event testing … may be made possible through age-deescalation studies … [provided that] prior testing such as modeling, testing in animals, and testing in adults … first identif[ies], delineate[s], and characterize[s] research risks … [and then only under the following circumstances: the] proposed research presents a ‘reasonable opportunity’ to address a ‘serious problem’ … [, is] of ‘vital importance’ to addressing the problem … [and that a] rigorous set of conditions [are] satisfied to justify a determination that the research adhered to ‘sound ethical principles.’ ”

*Chair, Presidential Commission for the Study of Bioethical Issues
‡Medical countermeasures
Pediatric Countermeasures Research


  - Review of ethics of research on other MCM‡ in children
    - Commission’s conditions: “… fall into five categories: an ethical threshold of acceptable risk and adequate protection from harm, ethical study and trial design, post-trial requirements to assure ethical treatment of children and their families, community engagement, and transparency and accountability. Finally, the Commission reiterated the importance of informed parental permission and meaningful and developmentally appropriate assent by children.”

*Chair, Presidential Commission for the Study of Bioethical Issues
‡Medical countermeasures
Pediatric Countermeasures Research


- Review of ethics of research on other MCM‡ in children
  - Belated alternative: “… post-event research … planned in advance when a relatively untested medical countermeasure is administered to children in an emergency, … [provided that] adequate processes [are] in place for informed parental permission and meaningful assent by children; the research design [is] scientifically sound; enrolled children … have … the best available care; there [are] adequate plans for compensating anyone injured by research; and provisions [are] made to engage communities throughout the course of research.”

*Chair, Presidential Commission for the Study of Bioethical Issues
‡Medical countermeasures
Ethical Approaches / Ethical Models
Good Bioethics Begins With Good Medical Facts
Ethical Approaches / Models

http://www.scu.edu/ethics/publications/iie/v7n1/thinking.html

- Traditional approaches
  - ‘Teleological’ approach (ends-based)
    - ‘Utilitarianism’ (Bentham, Mill)
  - ‘Deontological’ approach (means-based)
    - ‘Principlism’ (Kant → Beauchamp & Childress)

- Contemporary approaches and duties
  - Rights based
  - Fairness or Justice based
  - Common Good based
  - Virtue based
  - To care
  - To share
  - To conserve
  - To preserve

Pediatric Disaster Ethics
Ethical Approaches / Models

- Utilitarian approach
  - Designed to determine what actions provide the greatest ‘happiness’
  - Ethical actions providing the greatest balance of good over evil
  - ‘The greatest good for the greatest number’
Ethical Approaches / Models

- Principlist approach
  - A blending of four key ‘principles’ as a guide to moral action (Beauchamp and Childress)
  - Criticized as too ‘abstract’ to replace moral theory and rules (Clouser and Gert)
  - Challenging to apply in pediatrics
    - Rational and emotional immaturity
    - Can parents determine ‘best interest’?
    - No greater than minimal risk absent benefit
    - No benefit without access to care
Ethical Approaches / Models

- Rights approach
  - Focused on individual’s right to choose
    - Different rights: truth, privacy, not to be injured
  - People have dignity based on their ability to choose freely
  - Violation of human dignity to use people in ways they do not freely choose
  - ‘Does the action respect the moral rights of everyone?’
Ethical Approaches / Models

- Fairness or Justice approach
  - ‘Equals should be treated equally and unequals unequally’ (Aristotle)
  - Favoritism and discrimination are considered to be unfair, unjust, and wrong
  - ‘Does the action treat everyone the same way?’
    - ‘Fair’, ‘equal’, ‘equitable’ – not always the same!
Ethical Approaches / Models

- **Common Good approach**
  - A society is a group of individuals whose own good is linked to the good of the community as a whole.
  - There are ‘certain general conditions that are ... equally to everyone’s advantage’ (John Rawls).
  - Considers social policies, systems, institutions that are beneficial to all members of the community.
    - Accessible healthcare, effective public safety.
  - Furtherance of common good and goals.
    - ‘Tragedy of the Commons’ (Garrett Hardin).
  - ‘Does the action serve the best interests of the entire community?’
Ethical Approaches / Models

- **Virtue approach**
  - Based upon ideals toward which we should strive
  - Attitudes or character traits permitting individuals to be and act to our highest potential
  - *‘Does the action bring about the wisest balance between competing interests?’*
    - Best possible result vs. best result possible
Ethical Thinking for Moral Decision Making
More Than Just Getting The Facts
Ethical Considerations

- Disaster ethics must be addressed prior to the medical disaster
  - Reduces ethical challenges in disaster responses
  - Should be evidence based to the extent possible
  - Ideally requires legal sanction to preclude legal liability
Ethical Considerations

- Disaster situations:
  - Are related to public health ethics as well as medical ethics
  - Will require greater effort to achieve a balance than in routine care
    - Collective vs. individual rights
Ethical Difficulties with Moral Decisions

- Conflicted, and likely will not satisfy everyone
- ‘One size-fits-all’ answers are rarely found
- Multiple loyalties of decision makers
- No one ethical model is ideal
Balance Will Be Required!

Ethical Models

Utilitarian

IDEAL Outcome

Justice

Moral Rights
Ethical Dilemmas in Disaster Medicine
Finding The Ideal Balance
Medical Triage: Critical Question

- When and how to apply disaster triage?
  - Only when patients’ needs exceed available resources, and reallocation is insufficient to preclude their rationing

- Current disaster triage:
  - Based chiefly on the concept of utilitarianism
  - Aims to maximize benefit to the society, often at the expense of individual needs
  - May not be acceptable to all in modern society
  - *Community consultation is essential*
Medical Triage


- ‘Triage must be carried out systematically, taking into account … medical needs, medical intervention capabilities, and available resources.’
- Triage may pose an ethical problem owing to the limited treatment resources immediately available in relation to the large number of … persons in varying states of health.’
- ‘Patients whose condition exceeds … available … resources … may be classified as “beyond emergency care”.’
- ‘The physician must show such patients compassion and respect for their dignity.’
- ‘The physician should … set an order of priorities for treatment that will save the greatest number of lives and restrict morbidity to a minimum.’
- ‘In selecting the patients who may be saved, the physician should consider only their medical status, and should exclude any other consideration based on non-medical criteria.’
Who Consents (And Assents)?

WMA Declaration of Lisbon on the Rights of the Patient (1981-1995)

- Informed Consent
  - ‘If the patient is … unable to express his/her will, informed consent must be obtained, whenever possible, from a legally entitled representative.’
  - ‘If a legally entitled representative is not available, but a medical intervention is urgently needed, consent of the patient may be presumed … .’
  - ‘If a patient is a minor … , the consent of a legally entitled representative is required in some jurisdictions. Nevertheless the patient must be involved in the decision-making to the fullest extent allowed by his/her capacity.’

- Treatment Refusal
  - *The patient’s right to refuse treatment during a disaster may conflict with the physician’s duty to protect public health (e.g., communicable diseases).*
  - ‘If the patient’s legally entitled representative … forbids treatment which is, in the opinion of the physician, in the patient’s best interest, … [i]n case of emergency, the physician will act in the patient’s best interest.’
  - ‘… [T]reatment against the patient’s will can be carried out only in exceptional cases, … if conforming to the principles of medical ethics.’
Ethical Responses to Disaster Dilemmas
Different Communities, Distinctive Solutions
Prehospital Triage – SALT

Step 1 – Sort: Global Sorting

- Walk
  - Assess 3rd
- Wave / Purposeful Movement
  - Assess 2nd
- Still / Obvious Life Threat
  - Assess 1st

Step 2 – Assess: Individual Assessment

LSI:
- Control major hemorrhage
- Open airway (if child consider 2 rescue breaths)
- Chest decompression
- Auto injector antidotes

Breathing
- Yes
  - Obeys commands or makes purposeful movements?
    - Has Peripheral Pulse?
    - Not in respiratory distress?
    - Major hemorrhage is controlled?
      - All Yes
        - Minor Injuries only?
          - Yes
            - Minimal
          - No
            - Likely to survive given current resources
              - Yes
                - Immediate
              - No
                - Expectant
      - Any No
        - Delayed
- No
  - Dead
  - Expectant

All
- Yes
- No
Bioevent Triage
Burkle FM: EMCNA 2002;20:409-436

- Counterintuitive goals of triage in bioevents
  - Primarily to prevent secondary infections
  - Secondarily to control primary infections

- ‘Minimum Qualifications for Survival’ (MQS)*

- ‘SEIRV’ Bioevent Triage Methodology
  - Susceptible but not exposed: info from media
  - Exposed but not infected: info from ‘PHAP†’
  - Infected: PCP‡ → home; 911 → hospital
  - Removed by death or recovery: info to relatives
  - Vaccinated or protected by medication: reassure

*Defined by regional Health Emergency Operations Center (HEOC) based on availability of resources immediately or readily deployable
†Public Health Answering Point
‡Primary Care Provider
So What About Vaccinations?

Jacobson vs. Massachusetts, 197 U.S. 11 (1905)

- Henning Jacobson, a Swedish immigrant and minister in Cambridge, Massachusetts, refused during a smallpox outbreak to comply with a city order that all adults be vaccinated, claiming a vaccine made him, and his son, sick as children, and further refused to pay the $5 fine.

- All state appellate courts rejected his appeals, as did the U.S. Supreme Court, holding that ‘the police power of a state must be held to embrace, at least, such reasonable regulations established directly by legislative enactment as will protect the public health and the public safety.’

- Justice John Marshall Harlan delivered the opinion of the Court, holding also that a state may infringe upon personal liberties when ‘… the safety of the general public may demand … ’, since ‘there are manifold restraints to which each person is necessarily subject for the common good.’

- Yet, the Court also held that while individuals could be compelled to pay a fine, they could not be forcefully vaccinated, thus establishing the legal precedent, regarding restrictions, that their ‘… general terms should be so limited … as not to lead to injustice, oppression or absurd consequence.’
Pandemic Triage – Utah 2010


- **Exclusion criteria**
  - DNR, coma, RTS <2, burn <50% survival, N/TCA, conditions with 18-24 month estimated fatality rate >80%

- **Inclusion criteria**
  - ARF with need for MV, shock with need for vasopressor/inotrope

- **Time trials**
  - Reassess and recalculate PIM2 every 48-72 hr → consider discharge if estimated fatality rate >80%
Pandemic Triage – Michigan 2014

- **Exclusion criteria**
  - PELOD ≥33, severe trauma, severe burn*, cardiac arrest, metastatic cancer, advanced/irreversible immunocompromise, severe or irreversible neurologic condition, end stage organ failure

- **Inclusion criteria**
  - PELOD <21 with single organ failure, PELOD 21-33

- **Time trials**
  - PELOD >33, or 21-33 and no change, at 48 and 120 hr

* >40% TBSA, severe inhalation
Evidence-based MCE PICU triage scheme

- Excludes high and low risk patients from PICU
- Divides patients into two groups: those who need MV vs. those who do not
- Identifies patients with highest fatality risk
- Good discrimination for mortality risk, but poor correlation for LOS, MVDs
Medical resource gaps are larger for children than they are for adults

All hospitals must be prepared to resuscitate and stabilize children

No validated predictors of pediatric survival in mass casualty events

Reallocation of care before rationing of care
PICU interventions
- Mechanical ventilation
- Volume resuscitation
- Multiple IV medications
- Complex wound care
- Artificial airway care
- Parenteral / enteral nutrition

Non-PICU interventions
- Oxygen administration
- Fluid administration
- Scheduled medications
Executive Summary

Deliberations and recommendations of the Pediatric Emergency Mass Critical Care Task Force: Executive summary

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CDC-sponsored Pediatric Emergency Mass Critical Care (PEMCC) Task Force: Key Recommendations

- Region wide planning
- ‘At least double PICU bed capacity, at least triple PICU capability’
- ‘Prepare to deliver PEMCC for 10 days without … assistance’
Altered / Crisis Standards of Care

- **Goal**
  - To saving the most lives during a pediatric MCE
    - This may require reallocation of resources across the spectrum of care

- **Institute of Medicine (IOM)**
  - Three levels of care in disasters
    - Conventional (routine)
    - Contingency (rereallocation)
    - Crisis (rationing)

- **Transition to altered / crisis standards of care**
  - The ‘choice’ may be ‘forced’ by the emerging situation
    - Failure to adapt standards of care may result in greater morbidity and mortality
Incremental changes to standard of care

Usual patient care provided

Low impact administration changes

Administrative Changes to usual care

- Triage set up in lobby area
- Meals served by nonclinical staff
- Nurse educators pulled to clinical duties
- Disaster documentation forms used

Significant reduction in documentation

Significant changes in nurse/patient ratios

Use of non-healthcare workers to provide basic patient cares (bathing, assistance, feeding)

Cancel most/all outpatient appointments and procedures

Vital signs checked less regularly

Deny care to those presenting to ED with minor symptoms

Stable ventilator patients managed on step-down beds

Minimal lab and x-ray testing

Re-allocate ventilators due to shortage

Significantly raise threshold for admission (chest pain with normal ECG goes home, etc.)

Use of non-healthcare workers to provide basic patient cares (bathing, assistance, feeding)

Allocate limited antivirals to select patients

Need increasingly exceeds resources

Clinical Changes to usual care

Austere patient care provided

High-impact clinical changes
Reallocation of Scarce Resources

- Must be
  - Fair
  - Clinically sound
  - Open and transparent
  - Accepted by the public as such

- Intimately tied to previously developed Altered / Crisis Standards of Care
WHO Disaster Ethics Manual

- Seven core competencies
  - Understand boundaries between public health research and practice
  - Define processes for ethics review in public health
  - Identify tensions between common good and individual autonomy in
    - Public health surveillance
    - Research / clinical trials
  - Explain how publication ethics relates to public health
  - Define ethical criteria for triage, resource allocation, standard of care
  - Discuss professional duties of health care workers
Questions?
Summary

- Ethical and moral decision making during disasters is often fraught with difficulty
  - Good bioethics begins with good medical facts – which may be in short supply early on

- Reallocation of scarce healthcare resources should always precede their rationing

- Triage and surge guidelines should be determined before disaster strikes

- Ethical and moral issues require deliberation and appropriate community engagement
  - Keeping a careful eye on the medical facts – and the religious, cultural, and linguistic milieu