Despite the growing vulnerability, it has proven to be difficult to identify the most vulnerable persons.

Methods: Data used for the analysis comes from the RAI-HC database in Ontario (n = 275,854). Data links were made between the RhAI-HC data and the 2013 hydro outage data (n = 10,748). The results were compared to non-exposed client data (n = 12,072). Methods used included frequency tabulation, bivariate and multivariate logistic regression, as well as Kaplan-Meier survival plotting and Cox proportional hazards ratios.

Results: The study led to the development of the Vulnerable Persons at Risk (VPR) and VPR Plus algorithms. These algorithms were highly predictive of mortality, LTC admission, and hospitalization. To test the ability and identify those most vulnerable, home care clients during disasters, the algorithms were applied to home care clients exposed and not exposed to the 2013 hydro outage. This analysis showed that exposed high-risk clients, identified by the VPR and VPR Plus, were more likely to die and to be admitted to LTC than non-exposed high-risk clients.

Conclusion: The analysis has shown the usefulness of information collected, as routine clinical practice, using inter-RAI assessment instruments during emergencies and disasters. The analysis further showed that the VPR/VPR Plus are valid and reliable algorithms.

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triage - Hazard or Benefit at Overcrowded Emergency Departments (EDs):
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Study/Objective: To verify if modification of the Emergency Severity Index (ESI) allows safe triage, when an increased patient influx, overflows available resources.

Background: Extrapolating (after: Fullam C), the ED of the University Hospital in Cracow, nurse staffing needs is covered at 90% without administration. Staff reports that the influx is a threat to those who are in serious condition, paying particular attention to patients appearing despite, not requiring an emergency service.

Methods: For routine triage the ESI was modified by the council of emergency medicine specialists. Wait time for acuity levels was recommended. Modifications in acuity levels were: pain and inaccurate danger zone vitals – level 3, many resources needed but accurate danger zone vitals – level 4, chronic disease (no exacerbation) or old injury (excluding head and chest) – level 5. Analyzing patients flow between January 12, 2015-March 31, 2016, caring participant observation authors measured: patients' number, assigned acuity level (1-5), deaths, final decision on further hospitalization and real wait time.

Results: A total number of patients was 15,077. Detailed results are shown in table 1.

Conclusion: Level 3 patients are the most vulnerable. Their wait time may exceed recommendations, while it should decrease. Since 1, 2 and 3 acuity level patients represent only 21% from the studied population, it is possible to shorten the 1.5 hour wait time. It shall be implemented, even by delaying level 4 – those who are not at risk of death. It is necessary to increase staffing, also to implement system solutions.
Table 1. The ESI modification in practice.

| Acuity level | 1    | 2    | 3    | 4    | 5     |
|--------------|------|------|------|------|-------|
| **Triage color** | Red  | Orange | Yellow | Green | Blue |
| **Recommended wait time** | 0 min | 15 min | 1.5 hour | 4 hours | 12 hours |
| **Was the recommended time exceeded?** | No | No | Yes | Yes | Yes |
| **Did death occur?** | Yes | Yes | Yes | No | No |
| **Visits by acuity level** | 0.56% | 2.57% | 17.84% | 73.29% | 5.74% |
| **Hospitalization by acuity level** | 100% | 76.49% | 43.1% | 14.35% | 2.08% |

Table 1. The Relevant Factors of the Early Prognosis and the Need of Intensive Medical Resources of Patients with Multiple Injuries

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**Study/Objective:** To estimate the early prognosis and evaluate the need of intensive medical resources of patients with multiple injuries.

**Background:** A large amount of research and clinical practice indicates that the multiple injuries are urgent and the illness change of a patient’s condition is rapid, which leads to the a high mortality rate. We can take some early and effective methods of triage to make patients receive timely, effective treatment, thus to reduce the mortality rate. In that case, we need some early and effective indicators of triage.

**Methods:** We recruited 115 patients with multiple injuries admitted to emergency department of West China Hospital, Sichuan University between March 2016 and May 2016 and collected 19 clinical indicators from each patient. The indicators included gender, age, temperature, heart rate, respiratory rate, peripheral oxygen saturation, systolic pressure, diastolic pressure, power of hydrogen (PH), hemoglobin, base excess (BE), serum potassium, serum sodium, serum calcium, lactic acid, glucose, partial pressure of oxygen (PO2), carbon dioxide partial pressure (PCO2), and peritoneal effusion. We analyzed the correlation of these indicators with deaths within the first 24 hours, emergency surgery, admissions to intensive care unit (ICU), and length of ICU stay through the method of a rank sum test and logistic regression with SPSS 19.0.

**Results:** The results showed that the possibility of death (A) could be expressed as: A = 0.276*BE(mmol), -3.005*T(˚C)-0.073*PO2 (mmHg) 110.843 and the need of admissions to intensive care unit (B) as: B = 1.007* peritoneal effusion + 0.140* glucose (mmol/L) - 3.224.

**Conclusion:** BE, T, PO2 may be useful in early forecasting the prognosis of patients with multiple injuries; glucose and peritoneal effusion can evaluate if the patient needs the intensive medical resources.

The Use of the Mobile Information and Communication Technologies in Mass-Casualty Incident and Disaster Management - A Medical Triage System

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**Study/Objective:** Worldwide, Mobile Information and Communication Technologies (ICT) have been used in prehospital emergency care and emergency and disaster medicine. In Poland, the use of ICT in routine emergency practice does not raise any concerns, but special application used in mass-casualty incidents and disasters is still being discussed.

**Background:** The development of “intelligent” Command Support System (CSS) for Emergency and Disaster Medicine is the aim of this study. The problem of the correct allocation of