

## BIO-FI: LEVERAGING THE POWER OF BIOLOGICAL BIG DATA FOR ADVANCED ANALYTICS AND MODELING OF CHEMICAL AND BIOLOGICAL THREATS

### Fxcoda: A Human Health Effects Module For Dtra Platforms

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The Human Effects Chem/Bio Operational Degradation Analysis (FXCODA) module has been in development by DTRA for over 20 years. FXCODA was initially developed to provide human health effects estimates for the Hazard Prediction & Assessment Capability (HPAC) platform. FXCODA continues to be an integral component of HPAC, expanding from a simple probit model for effects to a module that includes breathing dynamics and deposition models, progression of illness/injury models, toxicokinetic models of injury, and other advanced models for casualty estimation, operational performance, and medical planning. Recently, FXCODA has begun to transition to other DTRA platforms and provide casualty estimates for route planning, virtual environments, and other realistic planning applications. As part of the planned growth of FXCODA, the developers at ARA are creating a containerized version of the code that can be easily integrated into platforms that require the current and future models that are transitioning to FXCODA. Future models include expanded toxicokinetic models, within-host models of biological illnesses, medical countermeasure models, and expanded uncertainty classification for risk analysis applications. This poster will provide information on the current and future state of FXCODA and invite collaborators to investigate integrating the module into platforms that require human health effects calculations.

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