



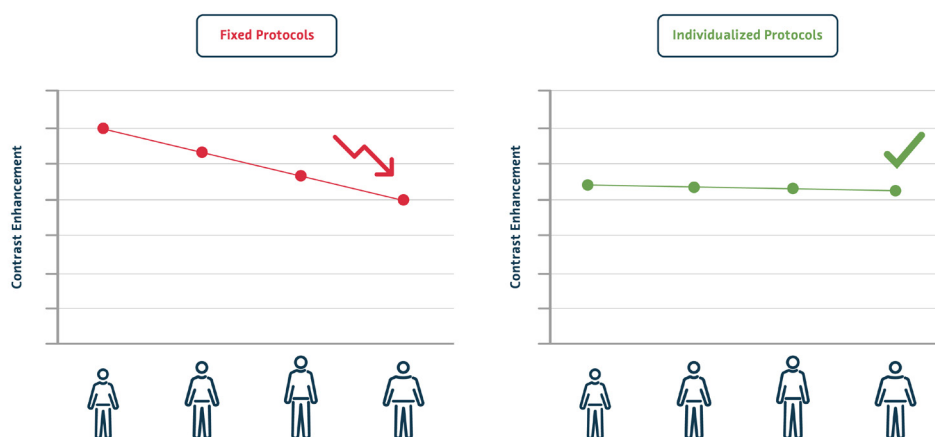
**Smart Protocols.  
Because Every Body  
Is Different.**

Clear Direction.  From Diagnosis to Care.

# Smart Protocols. Because Every Body Is Different.

## Bringing Injection Protocol Personalization to Clinical Routine

Every day, a diverse patient population presents unique imaging challenges. It is well accepted that contrast enhancement decreases with increasing patient size and that individualized protocols can lead to more consistent images.<sup>1,2,3,4</sup>



However, individualizing protocols for every patient's exam has been considered impractical. Numerous factors related to the patient and to the procedure lead to complex manual calculations or look-up tables, which can take up valuable time and potentially lead to mistakes. And as scanner technology has advanced, the ability to use lower tube voltages to reduce radiation dose to patients has made protocoling even more complicated. To maintain similar levels of contrast enhancement across different tube voltages, the iodine delivery rate and iodine load should be adjusted, as well.<sup>5,6</sup> All of this can be overwhelming to a radiology department already stretched thin.

## Patient-centric Workflow for Individualized Care

Bayer's MEDRAD® Centargo CT injection system is now available with Workflow Solutions //Smart Protocols software, streamlining the personalization process into a few clear steps.



### //Smart Protocols



#### Gives You Control

- Implement your site's preferred dosing options and limits, based on your own injection protocols, for as many indications as you need
- Review what has been adjusted and what limits are in effect as the protocol is automatically recalculated



#### Enables Routine Personalization

- Automatically calculate flow rates and volumes based on patient size (weight or lean body weight) and contrast media concentration
- Apply tube voltage adjustment to account for scanner settings



#### Provides Added Confidence

- Display site-specific eGFR guidance before the protocol is even selected
- Verify that calculated flow rates and pressure limit settings comply with your policies for IV access



1. Apply exam-time check of eGFR according to site guidance



2. Calculate injection protocol based on patient, contrast media concentration and tube voltage



3. Verify that the protocol settings comply with IV access policies



#### Injector and Contrast Media Considerations for Personalized Protocols

With a modern, streamlined user interface, modality worklist integration<sup>7</sup> and built-in barcode reader, Centargo easily incorporates //Smart Protocols into the workflow. Combined with Ultravist®'s 2D barcode for automatic data entry, getting the information required to personalize protocols could not be simpler.



eGFR = estimated glomerular filtration rate



#### Literature:

1. Muhl C et al. Evaluation of individually body weight adapted contrast media injection in coronary CT-angiography. Eur J Radiol. 2016;85(4):830-6. doi: <https://doi.org/10.1016/j.ejrad.2015.12.031>
2. Martens B et al. Individually Body Weight-Adapted Contrast Media Application in Computed Tomography Imaging of the Liver at 90 kVp. Invest Radiol. 2019;54(3):177-182. doi: <https://doi.org/10.1097/rli.0000000000000525>.
3. Hendriks BMF et al. Individually tailored contrast enhancement in CT pulmonary angiography. Br J Radiol. 2016;89(1061):20150850. doi: <https://doi.org/10.1259/bjr.20150850>
4. Seifarth H et al. Introduction of an individually optimized protocol for the injection of contrast medium for coronary CT angiography. Eur Radiol. 2009;19(10):2373-82. doi: <https://doi.org/10.1007/s00330-009-1421-7>
5. Hendriks BMF et al. Optimizing Pulmonary Embolism Computed Tomography in the Age of Individualized Medicine: A Prospective Clinical Study. Invest Radiol. 2018;53(5):306-312. doi: <https://doi.org/10.1097/rli.0000000000000443>
6. Martens B et al. "A solution for homogeneous liver enhancement in computed tomography: results from the COMpLEx trial." Invest Radiol. 2020;55(10):666-672. doi: <https://doi.org/10.1097/RLI.0000000000000693>
7. In conjunction with available Automated Documentation

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