

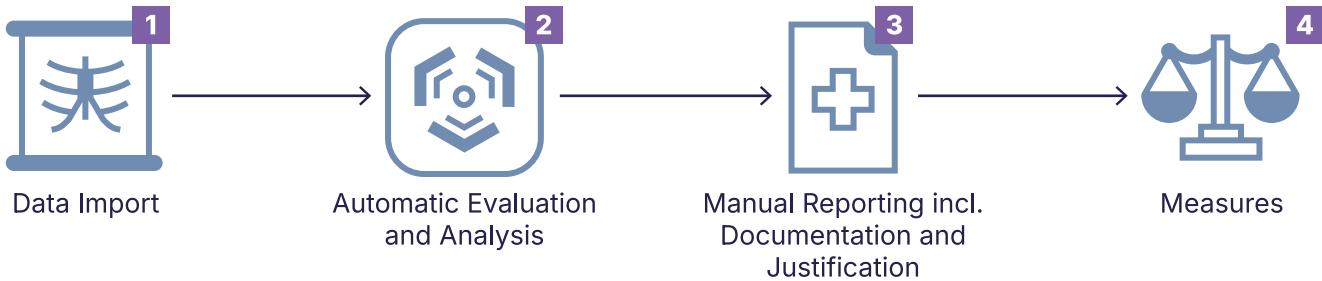
Efficient Radiation Dose Management

Taken to the next Level

Protecting the patient from superfluous exposure to radiation is the goal behind legal regulations and guidelines, such as the FDA's "Initiative to reduce unnecessary radiation exposure from medical imaging", EURATOM 2013/59 or other country-specific radiation protection laws. However, it can be challenging to identify a potential overdose as it always depends not only on the modality and the examined body part but also on the patient's age and weight.

How does it work?

Workflow of iQ-DOSE*



* iQ-DOSE is not intended for use in infant dose management, nuclear medicine or cone beam CT. Support for cone beam CT is in preparation.



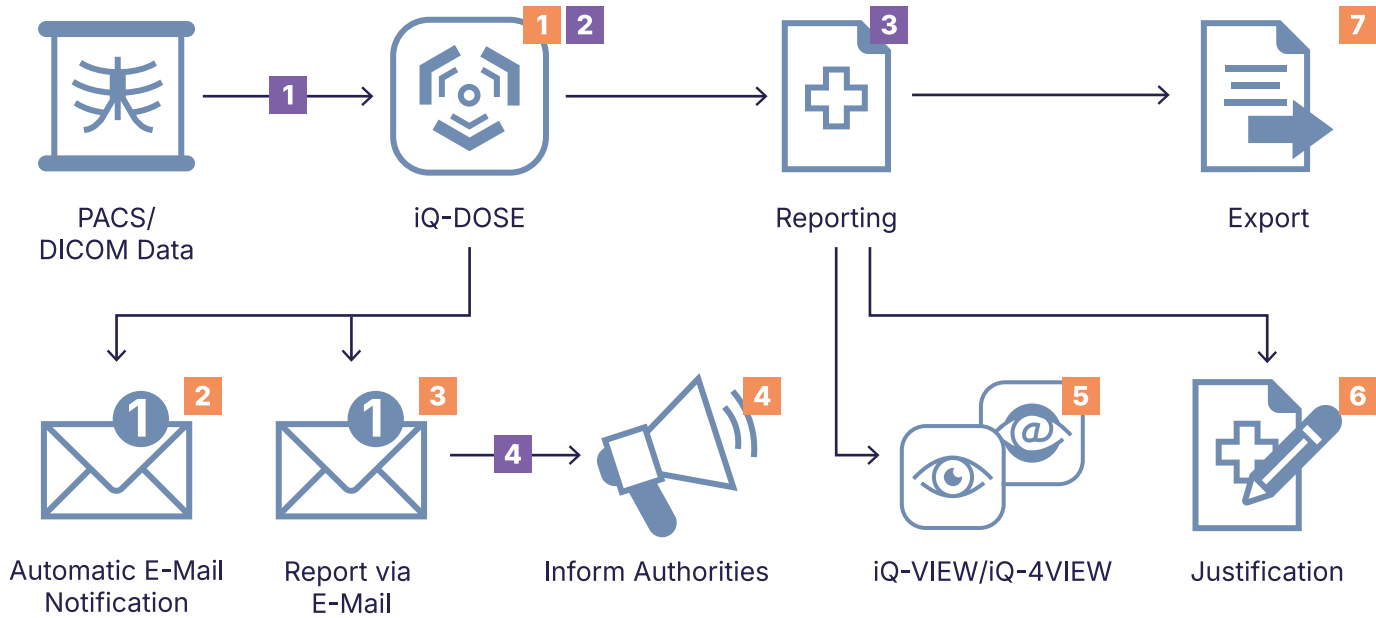
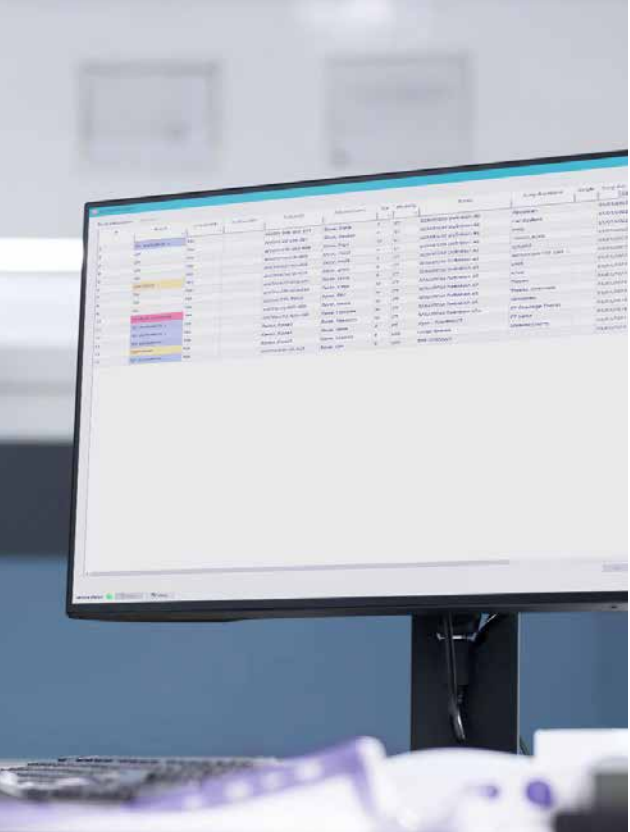
AUTOMATIC DOSE REPORTS FOR OVERDOSE DETECTION

Radiation dose structured reports (RDSR) of CT and fluoroscopic procedures as well as X-ray and mammography images will be automatically forwarded from any PACS to iQ-DOSE. The received radiation exposure data is then analyzed by iQ-DOSE and compared with stored reference values. The system notifies the user (e.g. radiation protection officer) via e-mail in case an overdose is detected. Any intended or unintended overdose can be easily documented for legal and quality assurance reasons. Data can be exported to Excel for further analysis or PDF for external authorities.

In a Nutshell

iQ-DOSE helps you to automatically monitor and document the radiation dose of CT, X-ray, mammography and fluoroscopy imaging procedures and keeps you informed in case a radiation dose exceeds the predefined limits.

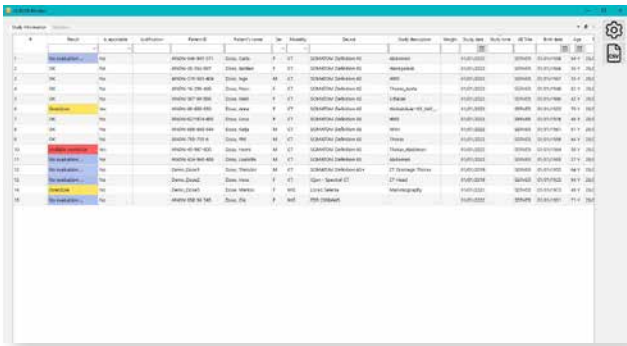
Dose data is displayed in a visual format to help identify overdoses at a glance.



- 1 iQ-DOSE checks data of radiation dose structured reports (RDSR) and DICOM images and compares reported dose values with predefined limits.
- 2 Automatic e-mail notification if overdose is detected.
- 3 Periodic report e-mails provide an overview of all applied doses and overdoses during a certain time frame.
- 4 If too many overdose events occur, the user might be required to inform local authorities.
- 5 Direct access to DICOM data in iQ-VIEW/iQ-4VIEW to evaluate

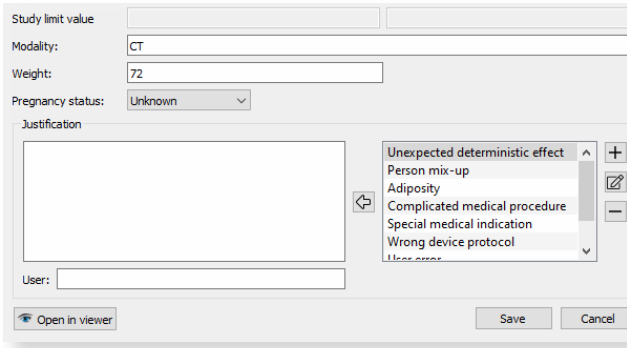
- 6 possible reasons for an overdose. Justification for every detected overdose can be added by the user (e.g. patient weight).
- 7 Export analysis data as PDF for local storage or external authorities, such as notified bodies

iQ-DOSE Monitor
Overview



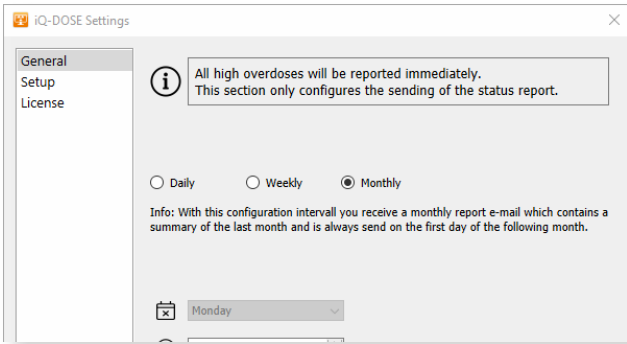
DOSE MONITOR

iQ-DOSE identifies body parts and procedures in a smart way and compares dose values with the preset dose limits. The dose monitor then lists the evaluation results of all performed studies indicating the different overdose levels in a color-coded way. All columns can be shown, hidden or sorted to the user's liking.



OVERDOSE JUSTIFICATION

The reason for any overdose event can be rapidly documented.



PERIODIC STATUS REPORTS

Automatic dose status reports help you to keep track of your overdose events. You decide if you want to receive them daily, weekly or once a month and who will get these e-mails.

Highlights
of iQ-DOSE



- Automatic monitoring, documentation and analysis of patient radiation dose information
- Vendor-neutral solution compatible with any PACS
- Support of most CT, XA, RF, CR, DX and MG devices
- Customizable dose alarm threshold per procedure, modality, body part and age to meet local reporting duties
- Display of reportable events
- Clear visualization of evaluation results through colors
- Graphical representation of dose data for faster and easier analysis **NEW**
- Convenient filtering of study information and statistics before export (e.g. by device, procedure type, time frame)
- Display of the average dose for the last studies of the same type
- Automatic overdose notification e-mails
- Overdose justification option by selecting created text macros or using free text
- Daily, weekly or monthly report e-mails
- Export of monitoring results via .csv for further processing, e.g. in Excel
- Faster export of statistical dose data analysis as a PDF file, e.g. to send to notified body **NEW**
- Licensing: Single computer license for 2, 5, 10 or 100 imaging devices (Windows 10 or Windows Server), concurrent licensing option
- Limitations of use: Not suitable for dose monitoring of procedures of babies under one year of age

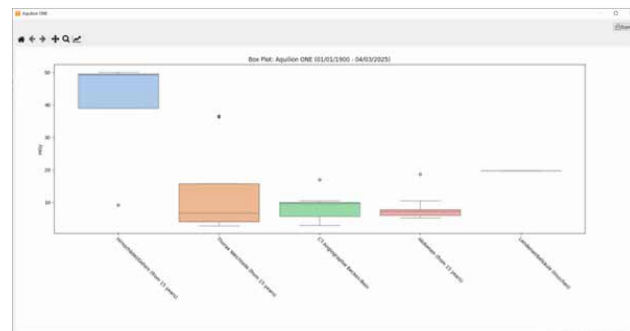
Statistical Analysis
at a Glance

By clicking on iQ-DOSE Monitor's Statistics tab, you can get an analysis of the dose values, see different metrics like the percentage of overdose procedures, limit and average values for dose data or the number of outliers. Averages that exceed the threshold are highlighted in the Statistics table.

Study Information												
Statistics												
Device:	Aquilion ONE	Procedure Type:		Timeframe:	All Time	Start:	01.01.190	End:	04.02.202			Export
Procedure Type	OK	OK %	Warning	Warning %	Total	Total %	Limit Value mGy	Average (Total) mGy	Minimum mGy	Lower Whisker mGy	Lower Quartile mGy	
Thorax (from 15 years)	2	5	2	5	4	11	8.00	13.05	2.90	2.90	3.73	
Hirnschädel (from 15 years)	2	5	0	0	2	5	55.00	49.19	48.90	48.90	49.05	
Brustwirbelsäule(Knochen)	12	32	4	11	16	42	15.00	14.64	0.50	0.50	6.60	
<Unknown>	0	0	16	42	16	42	-	9.67	3.00	3.00	5.55	

Graphical Representation of Dose Data

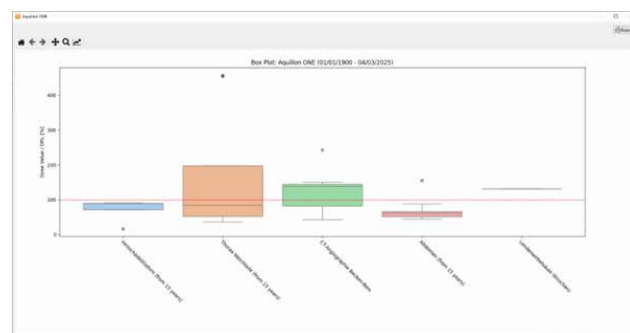
iQ-DOSE can display dose data graphically which helps identify exceeded dose values immediately. There are three visualization options available.



OPTION 1

Box plot for dose distribution highlighting medians, quartiles and outliers

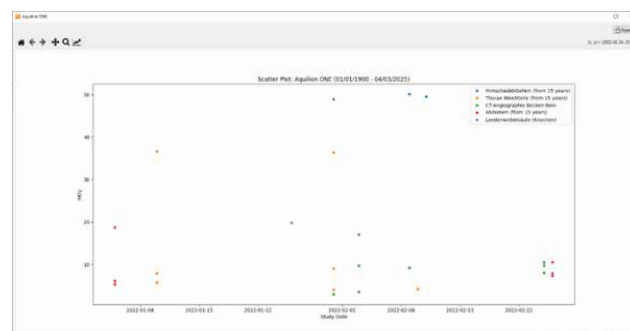
With a glance at this box plot, the physicist can easily understand the current dose/overdose situation and quickly evaluate outliers by device and procedure.



OPTION 2

Box plot showing the ratio of dose value to DRL (diagnostic reference level) in %

This graphical representation gives an overview of which average dose values match, exceed or fall below the diagnostic reference level (DRL).



OPTION 3

Scatter plot showing dose trends in relation to study dates

The scatter plot displays dose values in relation to the study date to see whether there are acquisition protocols that suddenly produce a higher radiation exposure after a certain period of time.

Our Company at a Glance

IMAGE Information Systems is an international company group with offices in Germany, USA and India, which offers complete, user friendly and cost-effective medical imaging solutions.

Ten thousands of users all over the world benefit from our state-of-the-art products for PACS, RIS, cloud solutions, 3D processing, and teleradiology. We have pioneered several innovations in the market:

- Our iQ-ROUTER supports very high image data compression for virtually all DICOM formats to enable high-speed teleradiology via any low bandwidth network connection.
- DICOMReader has the highest available read-in rate of patient CD-ROMs, ensuring compatibility with almost all available imaging modalities and vendors.

iQ IMAGE provides the second largest digital imaging user forum on earth, enabling users to share knowledge and best practice. To learn more about us and our products, please visit our www.iq-image.com website.

Since 2023, iQ IMAGE has been part of the PARATUS Group – a leading decentralized group of companies in the field of healthcare software and IT services. For more information about the group, please visit the www.paratus-group.com website.

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Imaging Center



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Multisite & VNA



Radiotherapy

