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NATIONWIDE EVALUATION OF X-RAY TRENDS (NEXT)

TABULATION AND GRAPHICAL SUMMARY OF THE 2008-2009 CARDIAC CATHETERIZATION SURVEY

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NATIONWIDE EVALUATION OF X-RAY TRENDS (NEXT)

TABULATION AND GRAPHICAL SUMMARY OF THE 2008-2009 CARDIAC CATHETERIZATION SURVEY

Prepared by Mike C. Hilohi and David C. Spelic

Center for Devices and Radiological Health (CDRH)
U.S. Food and Drug Administration (USFDA)

in association with

Conference of Radiation Control Program Directors, Inc. (CRCPD)
Healing Arts Council, H-4 Committee on
Nationwide Evaluation of X-ray Trends (NEXT)

and

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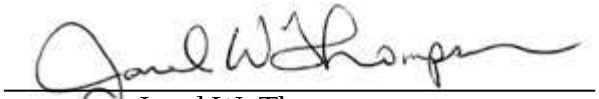
FOREWORD

The Conference of Radiation Control Program Directors, Inc., (CRCPD) is an organization made up of the radiation control programs in each of the 50 states, the District of Columbia, and Puerto Rico, and of individuals, regardless of employer affiliation, with an interest in radiation protection. The primary purpose and goal of CRCPD is to assist its members in their efforts to protect the public, radiation workers, and patients from unnecessary radiation exposure. CRCPD also provides a forum for centralized communication on radiation protection matters between the states and the federal government, and between the individual states.

One method of providing assistance to the states, as well as to other interested parties, is through technical and administrative publications. Most technical publications of CRCPD are written by various committees, task forces or special working groups. Most administrative publications are written by staff of the Office of Executive Director (OED).

CRCPD's mission is "to promote consistency in addressing and resolving radiation protection issues, to encourage high standards of quality in radiation protection programs, and to provide leadership in radiation safety and education."

This publication, *Nationwide Evaluation of X-ray Trends (NEXT) Tabulation and Graphical Summary of the 2008-2009 Cardiac Catheterization Survey,* is the release of data for informational use.



Jared W. Thompson
Chairperson, Conference of Radiation Control Program Directors, Inc.

PREFACE

The Conference of Radiation Control Program Directors (CRCPD) collaborates with the U.S. Food and Drug Administration (USFDA) in a unique federal-state partnership to characterize the radiation doses patients receive from diagnostic x-ray procedures, and to document the state of such practice. Each one to two years, the Nationwide Evaluation of X-ray Trends (NEXT) survey program selects a particular radiological examination for study and captures radiation exposure data from a nationally representative sample of clinical facilities in the United States. NEXT was initiated in 1972 at the request of state programs that were eager for a national picture of the state of practice. Since then, NEXT has documented trends associated with:

- chest, abdomen, lumbosacral spine, dental, and pediatric chest radiography;
- fluoroscopy; and
- computed tomography.

The CRCPD publishes statistical summaries of each survey. They can be accessed at http://www.crcpd.org/Pubs/NEXT.aspx. Further information on NEXT is available at http://www.fda.gov/radiation-emittingproducts/radiationsafety/nationwideevaluationofx-raytrendsnext/default.htm.

Warren Freier, R.T.

Warren Freier, Chairperson
Committee on Nationwide Evaluation
Trends X-rays

ACKNOWLEDGMENTS

We are very grateful to Doctor Stephen Balter of Columbia University Presbyterian Hospital for his valuable collaboration during the preparation of this survey. We are also grateful to Doctor Charles Chambers of the Society for Cardiovascular Angiography and Intervention (SCAI) for assisting with preparation of the Clinical Case Log component of this survey.

We thank Doctor Michael Ferguson and Roland Greenblatt of the National Naval Medical Center (now the Walter Reed National Military Medical Center) for allowing USFDA staff access to their fluoroscopic equipment during survey preparation.

We acknowledge the staff of these institutions for assisting with the training of NEXT surveyors:

- Walter Reed Medical Center, Bethesda, Maryland;
- Shady Grove Adventist Hospital, Gaithersburg, Maryland; and
- Suburban Hospital, Bethesda, Maryland.

We also thank Rick Cless, Siemens Medical Solutions, Inc., for providing classroom instruction during the NEXT training courses.

Finally, special thanks to Doctor David Spelic and Doctor Donald Miller for their help with the revision of this document and for sharing their valuable expertise in fluoroscopy.

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ABSTRACT

Spelic, David, U.S. Federal Food and Drug Administration; Conference of Radiation Control Program Directors (CRCPD) H-4 Committee on Nationwide Evaluation of X-ray Trends. *Nationwide Evaluation of X-ray Trends (NEXT) Tabulation and Graphical Summary of 2008-2009 Cardiac Catheterization Survey,* CRCPD Publication #E-16-2, June 2016, pp. 258

This document presents the 2008-2009 cardiac catheterization survey data. The tables and graphs are a summary of the data collected as part of the Nationwide Evaluation of X-ray Trends program.

ACRONYMS AND ABBREVIATIONS

AAPM	American Association of Physicists in Medicine
ACCR	American College of Chiropractic Radiology
ACR	American College of Radiology
AHA	American Hospital Association
AK	Air kerma
AP	Anterior/posterior
ASD	Atrial septal defects
CDRH	Center for Devices and Radiological Health
CRCPD	Conference of Radiation Control Program Directors
DAP	Dose-area product, also known as air kerma-area product
DCA	Diagnostic coronary arteriograms
FOV	Field-of-view
HVL	Half-value layer
KAP	Air kerma-area product, also known as dose-area product (DAP)
NCRP	National Council on Radiation Protection and Measurements
NEXT	Nationwide Evaluation of X-ray Trends
PFO	Patent foramen ovale
SCAI	Society for Cardiovascular Angiography and Interventions
SID	Source-to-image distance
USFDA	U.S. Food and Drug Administration

INTRODUCTION

In the early and mid-2000s, the practice of fluoroscopy for diagnostic and therapeutic procedures experienced rapid growth in both complexity and procedure volumes (Balter, Moses 2007). In response, CRCPD H-4 NEXT Committee and collaborating USFDA staff selected cardiac catheterization to be surveyed in 2008-2009. The NEXT survey program had conducted previous surveys of fluoroscopy (1991 and 1996)[1], but these activities were limited to the routine upper gastrointestinal (GI) examination. Moreover, the surveyed clinical equipment primarily comprised radiographic-fluoroscopic equipment that was seldom used for more complex fluoroscopic imaging procedures. At the time of planning the cardiac catheterization survey there were also limited published data regarding collective exam volumes and population doses from selected invasive fluoroscopic procedures.

Cardiac catheterization was selected for survey based on several factors. Cardiac catheterization is an established, commonly performed procedure, providing high likelihood that clinical facilities identified for survey participation performed this procedure. The general standardized workflow for this clinical procedure permitted survey data collection with minimal complexity. Also, the NEXT dosimetry phantom used during the earlier NEXT surveys of upper GI fluoroscopy was found to be suitable for dosimetry activities in this cardiac catheterization survey. In preparation for the survey, the American College of Radiology (ACR) provided financial assistance for surveyor training. The Society for Cardiovascular Angiography and Interventions (SCAI) assisted in the preparation of survey components and in encouraging participation by selected clinical sites.

SURVEY SITE SELECTION

A random sample of clinical facilities likely to perform cardiac catheterization was selected from databases provided by each participating state radiological health program that identified clinical sites with registered fluoroscopic equipment. Some state databases provided a broader listing of sites including, for example, sites having any type of radiographic equipment, including dental offices. These sites were removed from sample selection. Distribution of the sample size among the participating state programs was determined using the most recent population data available from the U.S. Census Bureau. Each

[1] Visit www.crcpd.org/pubs/NEXT.aspx for further information regarding these two NEXT surveys.

state was provided a sample size based on its relative population. A target sample of approximately 300 clinical sites was identified for survey, all of them hospitals. By the conclusion of the survey, 199 sites were surveyed in 30 states. Thirty state radiological health programs from the states listed in Table 1 participated in data gathering for this survey.

Table 1. State radiological health programs participating in gathering data.

Arizona	Michigan	Ohio
Arkansas	Minnesota	Pennsylvania
California	Missouri	South Carolina
Hawaii	Nebraska	South Dakota
Idaho	New Hampshire	Tennessee
Illinois	New Jersey	Texas
Iowa	New York	Virginia
Kansas	Nevada	Washington
Louisiana	North Carolina	West Virginia
Maryland	North Dakota	Wisconsin

SURVEY COMPONENTS

The survey consisted of three components, including a worksheet, a facility questionnaire and a clinical procedure data form.

WORKSHEET FOR DATA COLLECTION BY A TRAINED NEXT SURVEYOR

The scope of data collected in the surveyor data form includes:

- survey identification and surveyor identification;
- facility location and contact information;
- procedure volumes;
- features and characteristics of fluoroscopy imaging equipment;
- measurement of x-ray dose indices [e.g., air kerma rate and half-value layer (HVL) for inferring patient dose];
- assessment of image quality; and
- collection of technique factors (exposure data, kVp and mA).

FACILITY QUESTIONNAIRE COMPLETED BY FACILITY STAFF

The data collected in the facility questionnaire includes:

- survey identification and surveyor identification;
- data on clinical staff involved in cardiac invasive procedures;
- facility and fluoroscopic unit caseloads;
- features of fluoroscopy equipment;
- radiation safety procedures; and
- quality control (Q/C) and quality assurance (Q/A) of fluoroscopy equipment.

CLINICAL PROCEDURE DATA FORM FOR SITES TO RECORD DATA REGARDING CLINICAL CASES PERFORMED

The data collected in this form includes:

- survey identification and surveyor identification;
- procedure identification;
- total procedure fluoroscopy time;
- number of acquisitions during the procedure; and
- values for available dose display indicators.

More information on the survey protocol, the survey forms used for data collection, or on the NEXT program in general can be obtained from the following sources:

- Conference of Radiation Control Program Directors
  http://www.CRCPD.org/pubs/NEXT.aspx
- U.S. Food and Drug Administration
  Email: mike.hilohi@fda.hhs.gov
  http://www.fda.gov/RadiationEmittingProducts/RadiationSafety/NationwideEvaluationofX-RayTrendsNEXT/default.htm

SITE VISIT BY NEXT SURVEYOR

Surveyors from participating state radiation control programs conducted site visits to clinical sites. Prior to conducting surveys, each surveyor was provided comprehensive training on survey procedures including classroom review and hands-on practice at clinical facilities and USFDA training sites. During

facility survey visits clinical staff were interviewed for general program data elements such as staffing, equipment inventories, and general quality control and quality assurance practices. Surveyors gathered radiation measurements from the fluoroscopic system most frequently used to perform cardiac catheterization procedures. The NEXT fluoroscopy phantom was used to drive the x-ray output rate of the fluoroscopy system, and additional layers of copper were added to approximate increased attenuation paths and to drive the unit to maximum output rate.

An image quality tool containing two sets of test objects was used to assess low contrast detectability and high contrast detail performance. Surveyors also collected measurements for the calculation of x-ray beam half-value layer.

FACILITY QUESTIONNAIRE

A comprehensive questionnaire was administered to each participating clinical site, seeking additional data regarding aspects of clinical fluoroscopic practice including staff credentialing, diagnostic and interventional fluoroscopy caseloads, and radiation dose management practices.

CLINICAL PROCEDURE DATA

Each facility was asked to track the final dose display values for clinical cases performed on the surveyed fluoroscopy unit for approximately one week. Dose display values captured during this activity included cumulative values for fluoroscopy time, air kerma, dose-area product [(DAP) also known as air kerma-area product (KAP)], and total number of cine sequences. Exams and procedures were identified using six categories:

- cardiac catheterization diagnostic only (for example, coronary artery angiography);
- coronary intervention (for example, coronary artery angioplasty and stent insertion);
- combined diagnostic coronary angiogram and coronary artery intervention;
- other cardiac-intervention only procedures [for example, atrial septal defects (ASD), patent foramen ovale (PFO), and valvuloplasty];
- other non-cardiac only procedure; and
- combined cardiac and non-cardiac procedure.

For each captured exam the facility reported the exam date, the category for the procedure, and cumulative values for all available dose display indicators following completion of the case. If the fluoroscopic equipment provided displays separately for fluoroscopic and cineangiographic modes of operation, these values were reported separately as well. Of the 199 sites that participated in the survey, 166 sites returned a completed clinical case log.

DOSIMETRY AND IMAGE QUALITY EVALUATION

The NEXT fluoroscopy dosimetry phantom is representative of the typical adult abdomen (Suleiman, et.al. 1993), and for this survey was modified to characterize the dosimetry associated with the complex x-ray beam angulations often employed during cardiac catheterization procedures. Surveyors captured measurements of fluoroscopic and cineangiographic air kerma rate for a range of tissue path lengths modeled by the NEXT phantom in combination with varying thicknesses of added copper filtration. Lead was also added to the phantom set-up to drive the fluoroscopic system to its maximum air kerma rate. Surveyors also acquired measurements for the determination of x-ray beam half-value layer.

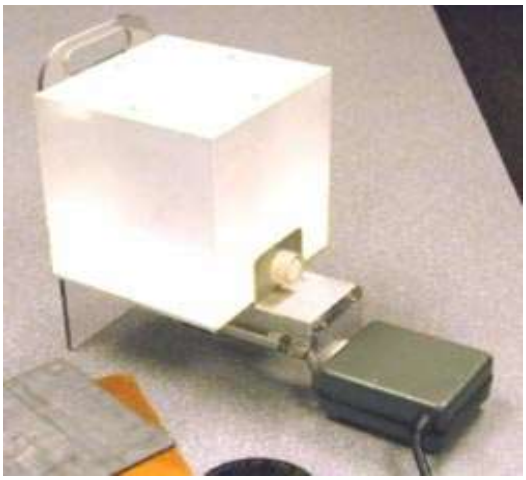


Figure 1. The CDRH fluoroscopic dosimetry phantom, providing x-ray attenuation equivalent to a typical adult patient having an abdomen anterior/posterior (A/P) dimension of 21.5 cm.

Image quality was evaluated using the same set of test objects used for the previous NEXT surveys of fluoroscopy in 1991 and 1996. High contrast detail

was evaluated using a set of copper mesh patterns. Low contrast detectability was evaluated with an aluminum disk containing a series of shallow precision-milled holes of constant diameter and varying depth. Both sets of test objects are embedded in a disk-shaped plastic body. The disk with test objects are imaged and evaluated with the phantom to simulate x-ray conditions that would occur with the presence of a real patient. Surveyors report the number of visible copper mesh patterns and low contrast circles visible on the viewing monitor routinely used by clinicians during the exam. There are a total of eight mesh pattern and eight low contrast circles. Both diagnostic fluoroscopic and cineangiographic modes of operation were assessed for image quality.

Figure 2. Test tool used to evaluate image quality for the 2008-2009 NEXT survey.

SUMMARY OF FINDINGS

The results of this survey characterize the state of practice in the United States at the time of data collection (years 2008 - 2009). All 199 surveyed medical facilities were hospitals equipped with at least one fluoroscopic x-ray system for performing cardiac diagnostic and interventional fluoroscopic procedures. Data collection was performed using Excel software and data analysis was done in SAS 9.1 software. Graphics were created with OriginLab's Origin Pro software.

SURVEY DATA FINDINGS

The survey data show these highlights.

- The monthly number of invasive cardiac procedures (diagnostic and interventional) varies broadly by hospital, with an average of 100 procedures per month.
- Less than a third of the surveyed hospitals have procedures in place to minimize cumulative fluoroscopy dose to patients.
- In most cases, the facility's cardiology department stated that it had the necessary resources to perform a dose estimation following a radiation-related incident.
- Only two percent of the surveyed hospitals reported a possible patient radiation injury occurring within three years preceding the survey.

STATISTICAL SUMMARY

Table 2. Clinical technique factors and air kerma rate for fluoroscopic and cine modes used during routine cardiac catheterization procedures.

	MODE	MEAN	25TH	MEDIAN	75TH
Air Kerma Rate (mGy/min)[a]	Fluoro	34	20	31	39
	Cine	217	129	205	269
x-ray tube kVp	Fluoro	75	70	75	79
	Cine	70	67	70	72
x-ray tube current (mA)	Fluoro	43	10	13	50
	Cine	337	60	381	526
HVL (mm Al) (fluoro mode)		5.3	4.7	5.0	6.1
Clinical pulse rate pulses/sec (% of sites)	Fluoro	15 (81%) , 30 (10%) , other (9%)			
	Cine	15 (83%) , 30 (14%) , other (3%)			

[a] AK rate measured 1 cm above table top, using the fluoroscopy phantom.

Values are for the fluoroscopy unit used most frequently for these procedures.

NARRATIVE SUMMARY OF SURVEY RESULTS

- Most of the surveyed fluoroscopy units were relatively new; more than 80% were installed after year 2000.
- Recently installed systems (2007 to 2009) do not show any improvement in image quality assessment when compared to older systems.
- The typical hospital in the United States is equipped with three fluoroscopy systems for cardiac and non-cardiac procedures, typically located in the radiology department. Approximately half of them are used for cardiac interventions.
- The majority of surveyed fluoroscopy units (73.3%) were configured with an anti-scatter grid.
- Preventive maintenance is typically performed on the surveyed fluoroscopy unit on a semi-annual (58% of surveyed sites) or annual basis (31%).
- Fluoroscopy equipment service is most often performed by a contractor (76% of surveyed sites) or by in-house service personnel (22%).
- Digital-based and image intensifier-based fluoroscopy systems were found to be used with similar operational parameters (kVp, mA, air kerma rate) for cardiac catheterization procedures.
- The surveyed fluoroscopy units exhibited similar image quality performance for spatial resolution (number of visible meshes) and image contrast (number of visible holes) when operated in fluoroscopic or cine mode.

Table 3. Image quality scores using test object shown in Figure 2 of this report.

	SURVEYED FLUORO SYSTEMS (N = 191)	
Fluoro mode:	Fluoro	Cine
# Visible Meshes	6	6
# Visible Holes	6	7

Number of visible copper meshes and hole patterns (median values).

SUMMARY OF GENERAL PRACTICE IN THE UNITED STATES: CARDIAC FLUOROSCOPY

One outcome from collected NEXT surveys data is the production of statistics that characterize the general practice for the surveyed exam or procedure. For this survey, sufficient data were collected to permit estimation of statistics of use in the United States for annual caseloads and estimation of the number of facilities performing these procedures.

To determine the number of clinical sites performing cardiac interventional fluoroscopic procedures, the most recent data available from the American Hospital Association were used (AHA 2009). This dataset includes site-level indicators for the provision of adult interventional cardiac catheterization. Although this publication did not describe whether these procedures were provided on-site or at a satellite facility, it was assumed that this code indicated that these procedures were a part of clinical care provided by the site. The total number of hospitals in the AHA guidebook that had this particular identification was counted to determine a total figure for the number of hospitals in the United States that provided these procedures in 2009. Data from the NEXT survey regarding facility caseloads for cardiac fluoroscopic procedures were then used to determine a total procedure volume for cardiac fluoroscopic procedures in the United States in 2009, separately for adult and pediatric patients. The Table 4 summarizes the findings and comparison with similar figures from the National Council of Radiation Protection and Measurements (NCRP) and *IMV* (*IMV* 2006).

ILLUSTRATIONS

Appendices in this report present descriptive statistics, frequency distributions and charts illustrating key points. The appendices present findings from the three components of the survey:

- worksheet;
- facility questionnaire; and
- clinical procedure data form.

Where insufficient data were available, the appendices so note.

Table 4. Summary of statistics for cardiac catheterization in the United States.

Average facility annual caseload for cardiac catheterization procedures at surveyed clinical sites:	*1917 (adult)* *188 (pediatric)*
Count of hospitals in the United States conducting cardiac invasive fluoroscopic procedures (AHA Guide, 2009)	2476
Fraction of randomly selected survey sites that conduct pediatric cases	7.2%
Projected annual caseload volume in the United States for coronary angiography (millions)	4.75 (adults) 0.03 (pediatric)
Total adult and pediatric annual cardiac invasive fluoroscopic caseload in the United States (millions)	4.78
Comparable statistics for annual cardiac catheterization workload in the United States (millions) from:	
NCRP [a] (2009)	4.64
IMV [b] (2006)	3.75

[a] *NCRP Report No. 160. Ionizing Radiation Exposure of the Population of the United States.* March 3, 2009; Bethesda, Maryland: National Council on Radiation Protection and Measurements.

[b] *Benchmark Report: Cardiac Cath Labs 2006*. Des Plaines, Illinois: 2006 IMV Medical Information Division, Inc. NOTE: All cases (cardiac and non-cardiac) in cardiac catheterization labs = 4.21 million. Combined with their published value of 89% cases=cardiac (page 2 of 2006 report) gives 3.75 million cardiac cases in the catheterization lab.

REFERENCES

AHA, 2009. *AHA Guide 2009.* Chicago, Illinois: Health Forum, an American Hospital Association affiliate.

Balter, Stephen and Jeffrey Moses, 2007. *Managing Patient Dose in Interventional Cardiology.* CCI 70(2), 2007: 244-249.

NCRP, 2009. *NCRP Report No. 160. Ionizing Radiation Exposure of the Population of the United States*. March 3, 2009. Bethesda Maryland: National Council on Radiation Protection and Measurements.

Suleiman et al. 1993. *Assessing Patient Exposure in Fluoroscopy.* Radiation Protection Dosimetry 49(1/3), 1993:141-143.

IMV, 2006. *Benchmark Report: Cardiac Cath Labs 2006.* Des Plaines, Illinois: 2006 IMV Medical Information Division, Inc.

APPENDICES

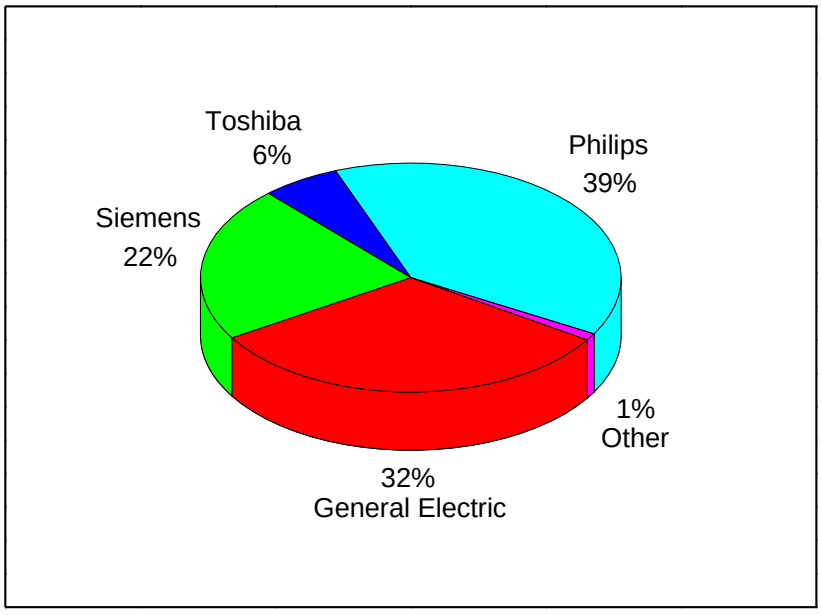
APPENDIX A - DATA FROM THE SURVEYOR WORKSHEET

MANUFACTURER OF SURVEYED FLUOROSCOPIC UNIT

Table A - 1. Frequency distribution for manufacturer of surveyed fluoroscopy units.

Manufacturer	Frequency	Percent	Cumulative percent
General Electric	60	32.1	32.1
Philips	73	39.0	71.1
Shimadzu	1	0.5	71.7
Siemens	41	21.9	93.6
Toshiba	12	6.4	100.0

Reference: Surveyor worksheet (12).
Number observations = 187. Missing data = 12 (data not entered by surveyors).



Reference: Surveyor worksheet (12).
Number observations = 187. Missing data = 12 (data not entered by surveyors).

Figure A - 1. Manufacturer of the surveyed fluoroscopy units by percent.

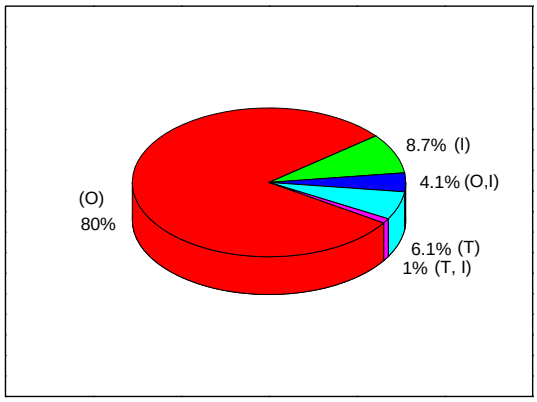
SERVICE PROVIDER FOR SURVEYED FLUOROSCOPIC UNIT

Table A - 2. Frequency distribution for type of service providers for the surveyed fluoroscopy units.

Service provider	Frequency	Percent	Cumulative percent
O	157	80.1	80.1
I	17	8.7	88.8
O and I	8	4.1	92.9
T	12	6.1	99.0
T and I	2	1.0	100.0

O = Original equipment manufacturer
I = In-house service provider
T = Third party service provider

Reference: Surveyor Worksheet (15).
Number observations = 196. Missing data = 3 (not entered by surveyors).



O = Original equipment manufacturer
I = In-house service provider
T = Third party service provider

Reference : Surveyor Worksheet (15).
Number observations = 196. Missing data = 3 (not entered by surveyors).

Figure A - 2. Types of service providers for the surveyed fluoroscopy units by percent of total reported.

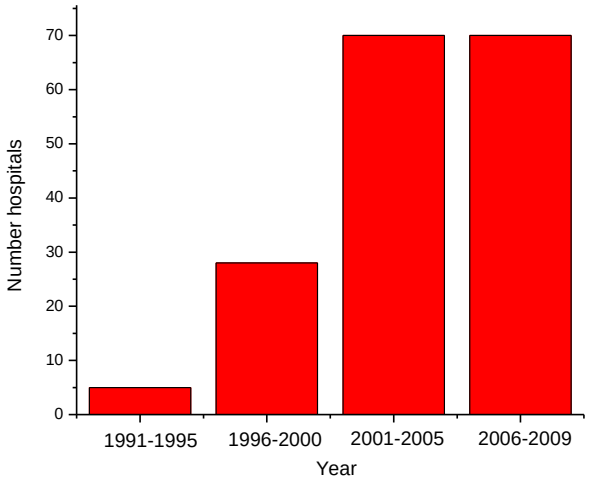
YEAR OF ASSEMBLY FOR THE SURVEYED FLUOROSCOPY UNIT

Table A - 3. Frequency distribution for intervals of assembly years of the surveyed fluoroscopy units.

Assembly year interval	Frequency	Percent	Cumulative percent
1991-1995	5	2.9	2.9
1996-2000	28	16.2	19.1
2001-2005	70	40.5	59.6
2006-2009	70	40.4	100.0

Reference: Surveyor worksheet (16 b).
Number observations = 173. Missing data = 26 (not entered by surveyors).

Note: The surveyor collected data on the timeframe when the fluoroscopic system was installed at the facility. If an exact year could not be provided, a best estimate was requested.



Reference: Surveyor worksheet (16 b).
Number observations = 173. Missing data = 26 (not entered by surveyors).

Note: The surveyor collected data on the timeframe when the fluoroscopic system was installed at the facility. If an exact year could not be provided, a best estimate was requested.

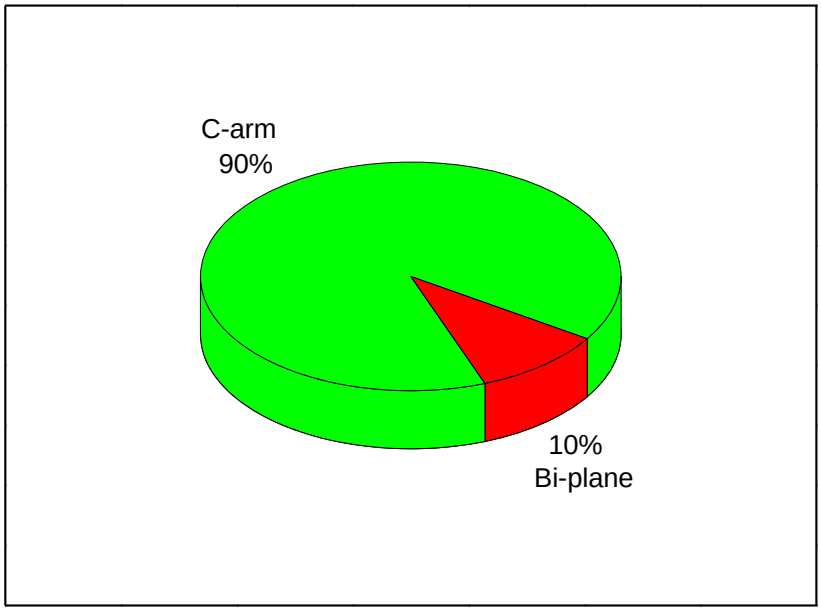
Figure A - 3. Intervals of assembly years of the surveyed fluoroscopy units per number of hospitals.

FLUOROSCOPIC EQUIPMENT TYPE

Table A – 4. Frequency distribution for fluoroscopy unit equipment type.

Equipment type	Frequency	Percent	Cumulative percent
Bi-plane system	20	10.1	10.1
C-arm configuration	178	89.9	100.0

Reference: Surveyor Worksheet (17).
Number observations = 198. Missing data = 1 (not entered by surveyors).



Reference: Surveyor Worksheet (17).
Number observations = 198. Missing data = 1 (not entered by surveyors).

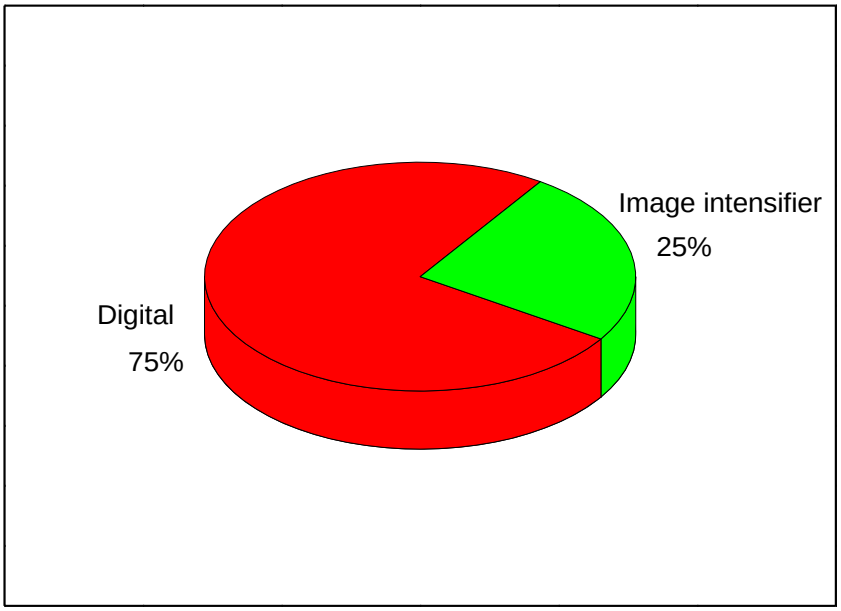
Figure A – 4. Percent of fluoroscopy unit types.

IMAGE RECEPTOR TYPE FOR THE SURVEYED FLUOROSCOPIC UNIT

Table A – 5. Frequency distribution for the fluoroscopy unit image receptor type.

Image receptor type	Frequency	Percent	Cumulative percent
Digital	146	75.3	75.3
Image intensifier	48	24.7	100.0

Reference: Surveyor Worksheet (18).
Number observations =194. Missing data = 5 (not entered by surveyors).



Reference: Surveyor Worksheet (18).
Number observations = 194. Missing data = 5 (not entered by surveyors).

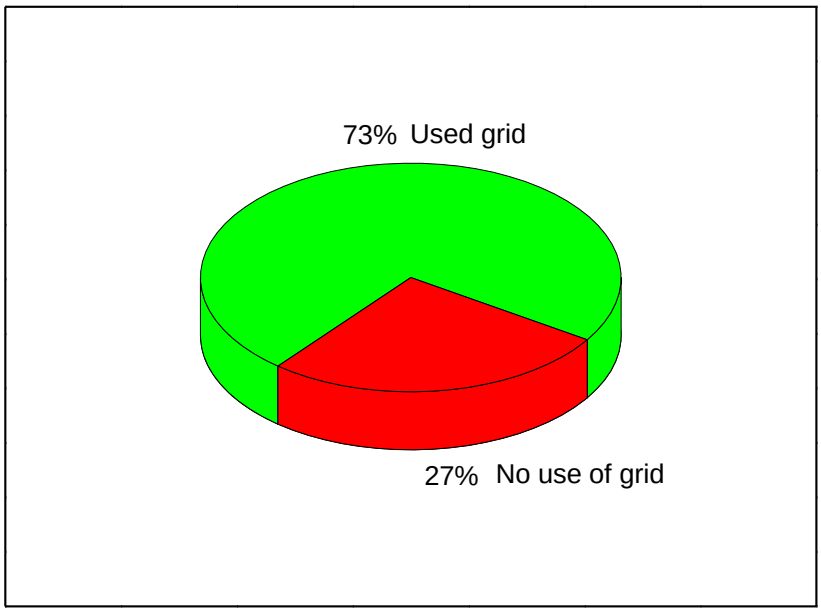
Figure A – 5. Distribution of the fluoroscopy unit image receptor type by percent.

GRID USE FOR THE SURVEYED FLUOROSCOPIC UNIT (ADULT PROCEDURES)

Table A – 6. Frequency distribution for use of grid for adult fluoroscopic procedures.

Grid used	Frequency	Percent	Cumulative percent
No	51	26.7	26.7
Yes	140	73.3	100.0

Reference: Surveyor Worksheet (19 a).
Number observations = 191. Missing data = 8 (not entered by surveyors).



Reference: Surveyor Worksheet (19 a).
Number observations = 191. Missing data = 8 (not entered by surveyors).

Figure A – 6. Percent using grid for adult fluoroscopic procedures.

GRID USE (PEDIATRICS)

Not enough data available.

TYPE OF CINEANGIOGRAPHIC EQUIPMENT

Two possible types of cineradiographic image acquisition equipment may be used during cardiac invasive procedures. They are:

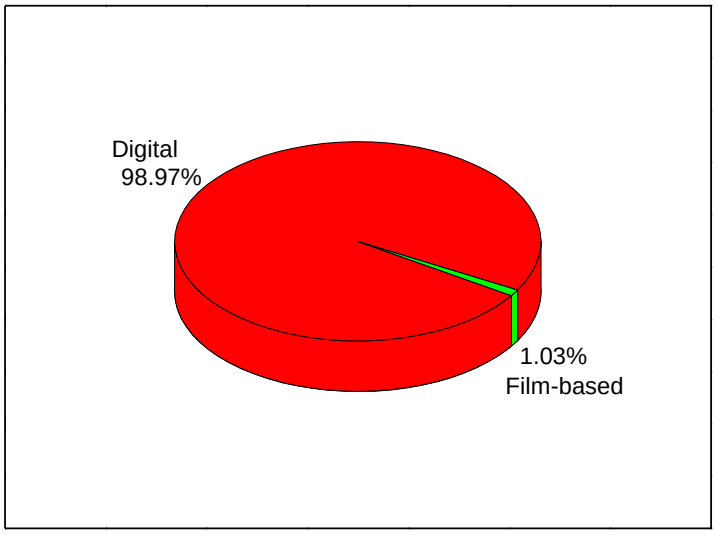
- conventional film-based equipment (F); and
- digital-based equipment (D).

If the fluoroscopy system had multiple acquisition equipment types (cine film as well as digital), then the most frequently used mode is reported.

Table A – 7. Frequency distribution for type of cine acquisition system.

Cine equipment type	Frequency	Percent	Cumulative percent
Digital	193	99.0	99.0
Film based	2	1.0	100.0

Reference: Surveyor Worksheet (20).
Number observations = 195. Missing data = 4 (not entered by surveyors).



Reference: Surveyor Worksheet (20).
Number observations = 195. Missing data = 4 (not entered by surveyors).

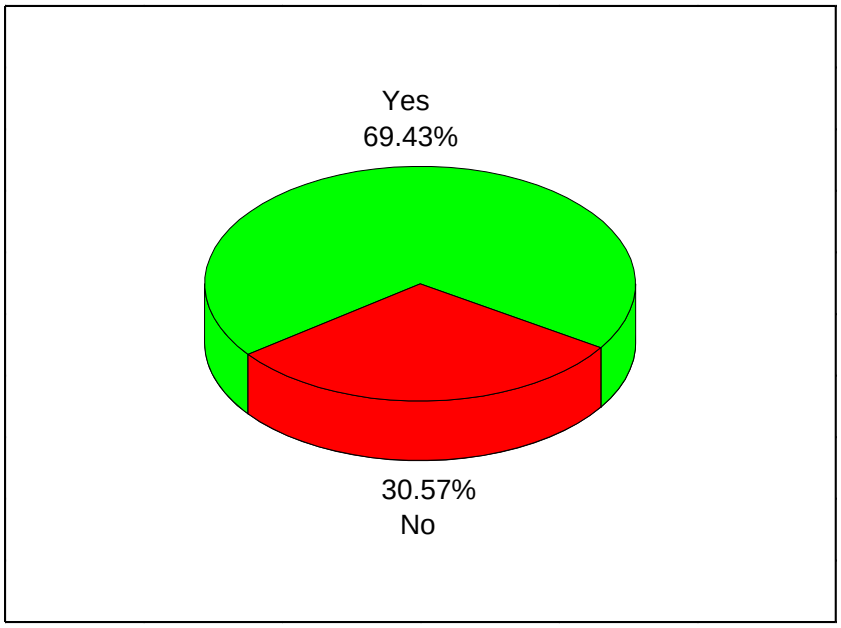
Figure A – 7. Types of cine acquisition systems by percent.

AVAILABILITY OF DISPLAY FOR KERMA-AREA PRODUCT (KAP) AT FLUOROSCOPIST'S WORKING LOCATION

Table A – 8. Frequency distribution for KAP displayed at fluoroscopist's working location.

KAP display at working location	Frequency	Percent	Cumulative percent
Yes	134	69.4	69.4
No	59	30.6	100.0

Reference: Surveyor worksheet (21 a).
Number observations = 193. Missing data = 6 (not entered by surveyors).



Reference: Surveyor worksheet (21 a).
Number observations = 193. Missing data = 6 (not entered by surveyors).

Figure A – 8. Percent displaying KAP at fluoroscopist's working location.

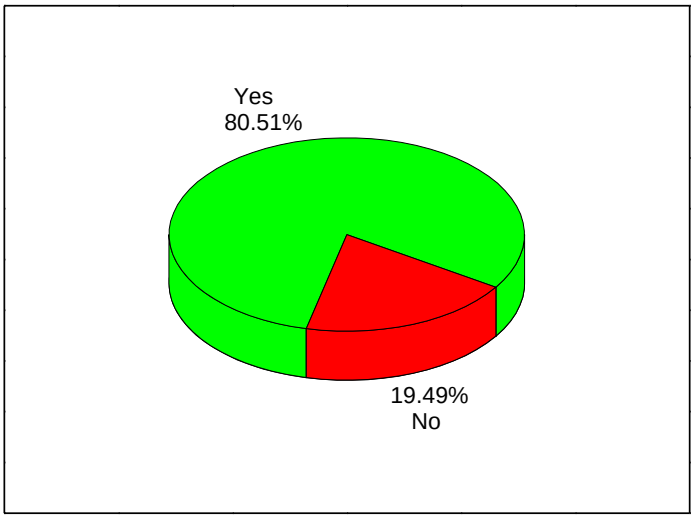
AVAILABILITY OF KERMA-AREA PRODUCT (KAP) DISPLAY AT FLUOROSCOPIC UNIT CONTROL CONSOLE

Table A – 9. Frequency distribution for KAP displayed at fluoroscopic system control console.

KAP display at unit control console	Frequency	Percent	Cumulative percent
Yes	157	80.5	80.5
No	38	19.5	100.0

Reference : Surveyor Worksheet (21 d).
Number observations = 195. Missing data = 4 (not entered by surveyors).

Note: The control console is typically at a location that is not easily accessible/viewable from the fluoroscopist's working location.



Reference : Surveyor Worksheet (21 d).
Number observations = 195. Missing data = 4 (not entered by surveyors).

Note: The control console is typically at a location that is not easily accessible/viewable from the fluoroscopist's working location.

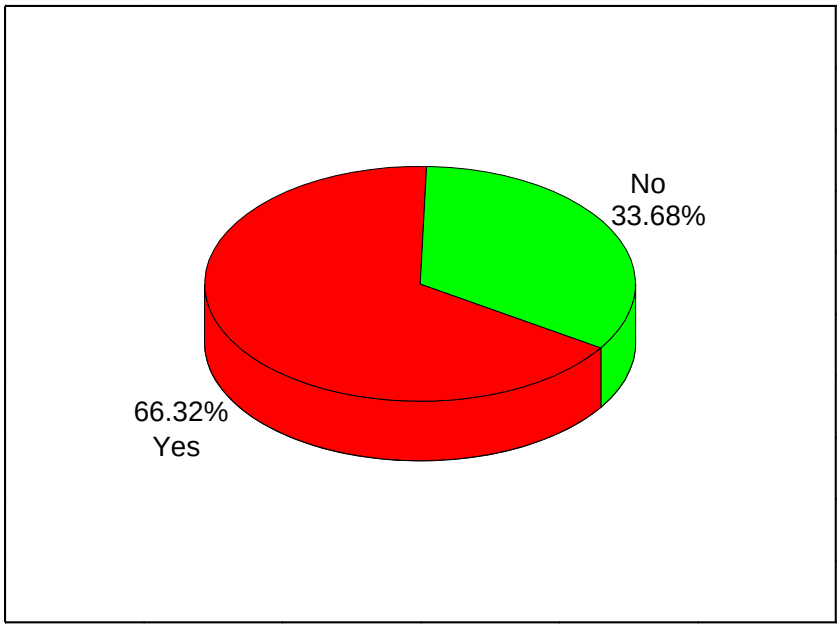
Figure A – 9. Percent displaying KAP at fluoroscopic system control console.

AVAILABILITY OF DISPLAY FOR CUMULATIVE AIR KERMA AT FLUOROSCOPIST'S WORKING LOCATION

Table A – 10. Frequency distribution for air kerma displayed at fluoroscopist's working location.

Air kerma displayed at working location	Frequency	Percent	Cumulative percent
Yes	126	66.3	66.3
No	64	33.7	100.0

Reference: Surveyor Worksheet (21 b).
Number observations = 190. Missing data = 9 (not entered by surveyors).



Reference: Surveyor Worksheet (21 b).
Number observations = 190. Missing data = 9 (not entered by surveyors).

Figure A – 10. Percent displaying air kerma at fluoroscopist's working location.

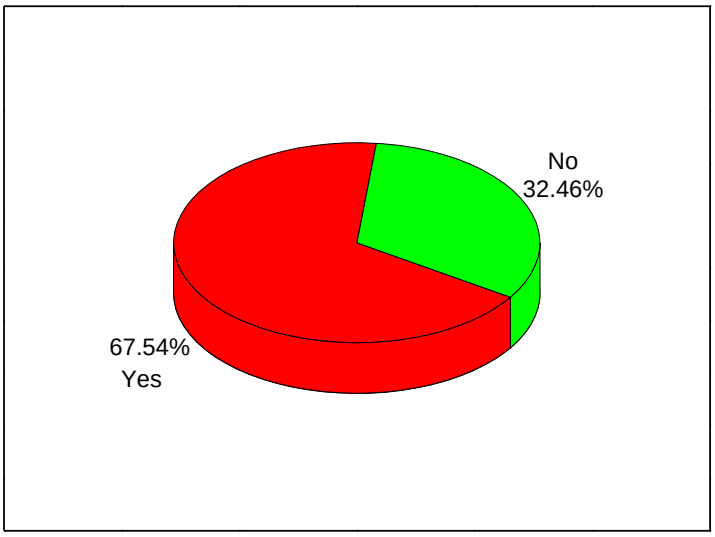
AVAILABILITY OF CUMULATIVE AIR KERMA DISPLAY AT FLUOROSCOPY UNIT CONTROL CONSOLE

Table A – 11. Frequency distribution for air kerma displayed at fluoroscopic system control console.

Air kerma display at unit console	Frequency	Percent	Cumulative percent
Yes	129	67.5	67.5
No	62	32.5	100.0

Reference: Surveyor Worksheet (21 e).
Number observations = 191. Missing data = 8 (not entered by surveyors).

NOTE: The control console is typically at a location that is not easily accessible/viewable from the fluoroscopist's working location.



Reference: Surveyor Worksheet (21 e).
Number observations = 191. Missing data = 8 (not entered by surveyors).

NOTE: The control console is typically at a location that is not easily accessible/viewable from the fluoroscopist's working location.

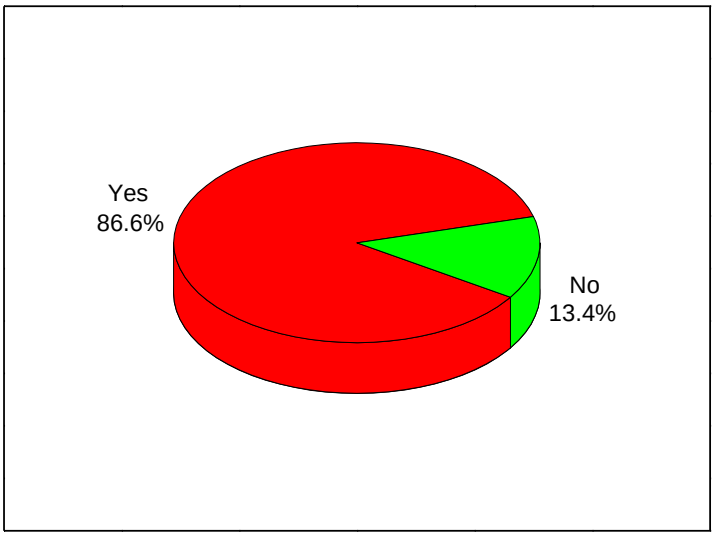
Figure A – 11. Percent displaying air kerma at fluoroscopic system control console.

DISPLAY OF CUMULATIVE FLUOROSCOPY TIME AT FLUOROSCOPIST'S WORKING LOCATION

Table A - 12. Frequency distribution for irradiation time displayed at fluoroscopist's working location.

Cumulative fluoroscopy time displayed at working location	Frequency	Percent	Cumulative percent
Yes	168	86.6	86.6
No	26	13.4	100.0

Reference: Surveyor Worksheet (21 c).
Number observations = 194. Missing data = 5 (not entered by surveyors).



Reference: Surveyor Worksheet (21 c).
Number observations = 194. Missing data = 5 (not entered by surveyors).

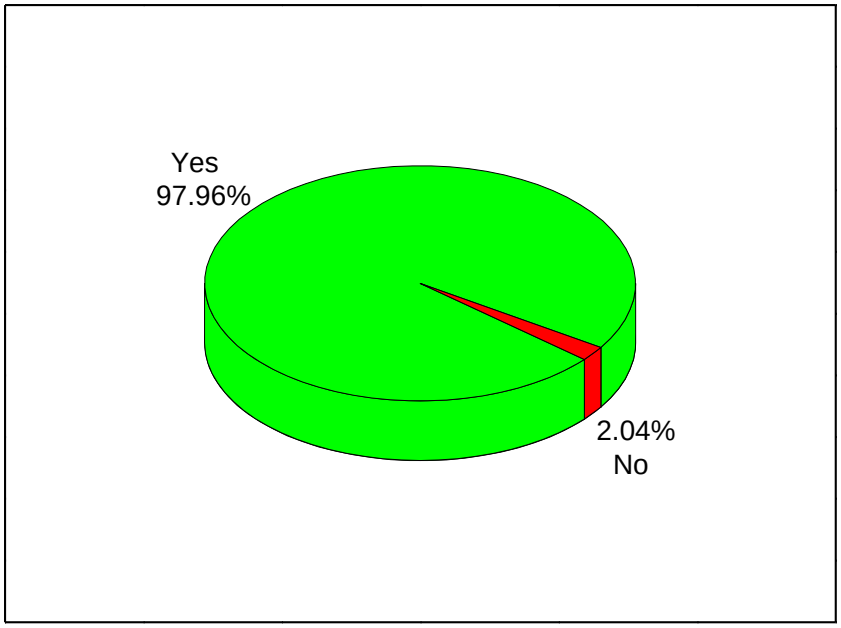
Figure A- 12. Percent displaying irradiation time at fluoroscopist's working location.

AVAILABILITY OF DISPLAY FOR CUMULATIVE FLUOROSCOPY TIME AT FLUOROSCOPY UNIT CONTROL CONSOLE

Table A – 13. Frequency distribution for cumulative fluoroscopy time displayed at unit control console.

Cumulative fluoroscopy time displayed at unit console	Frequency	Percent	Cumulative percent
Yes	192	98.0	98.0
No	4	2.0	100.0

Reference: Surveyor Worksheet (21 f).
Number observations = 196. Missing data = 3 (not entered by surveyors).



Reference: Surveyor Worksheet (21 f).
Number observations = 196. Missing data = 3 (not entered by surveyors).

Figure A – 13. Percent displaying cumulative fluoroscopy time at unit control console.

YEAR OF MOST RECENT DOSE DISPLAY EQUIPMENT CALIBRATION

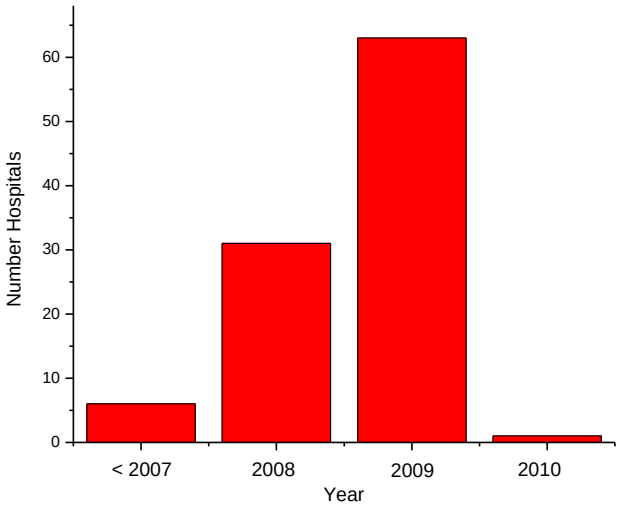
Table A – 14. Frequency distribution for year of most recent dose display equipment calibration performed on the fluoroscopy equipment.

Calibrated values: dose-area product (DAP)/air kerma-area product (KAP)/air kerma (AK).

Most recent calibration year	Frequency	Percent	Cumulative percent
Before 2007	6	6	6
2008	31	31	37
2009	63	62	99
2010	1	1	100

Reference: Surveyor Worksheet (22 a) and (22 b).
Number observations = 101. Missing data = 98 (not entered by surveyors).

Note: Most recent calibration date of dose display equipment. DAP/KAP calibration references (22 a) and air kerma references (22 b) were entered together because dates are the same.



Reference: Surveyor Worksheet (22 a) and (22 b).
Number observations = 101. Missing data = 98 (not entered by surveyors).

Note: Most recent calibration date of dose display equipment. DAP/KAP calibration references (22 a) and air kerma references (22 b) were entered together because dates are the same.

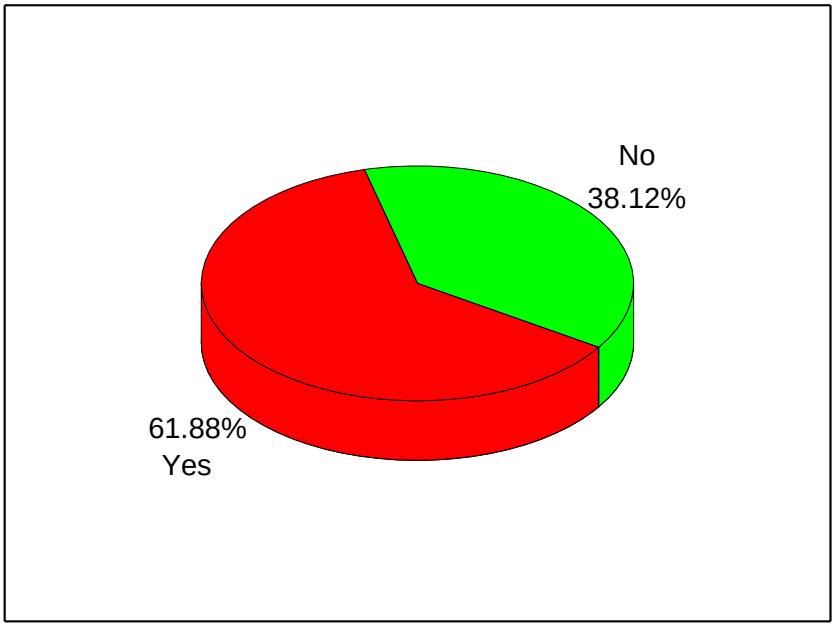
Figure A – 14. Year of most recent dose display equipment calibration performed on the fluoroscopy equipment per number of hospitals.

AVAILABILITY OF PATIENT RADIATION DOSE IN PROCEDURE LOGBOOK

Table A - 15. Frequency distribution for patient dose indicators collected in procedure logbook.

Patient radiation dose available in logbook	Frequency	Percent	Cumulative percent
Yes	112	61.9	61.9
No	69	38.1	100

Reference: Surveyor Worksheet (23 a).
Number observations = 181. Missing data = 18 (not entered by surveyors).



Reference: Surveyor Worksheet (23 a).
Number observations = 181. Missing data = 18 (not entered by surveyors).

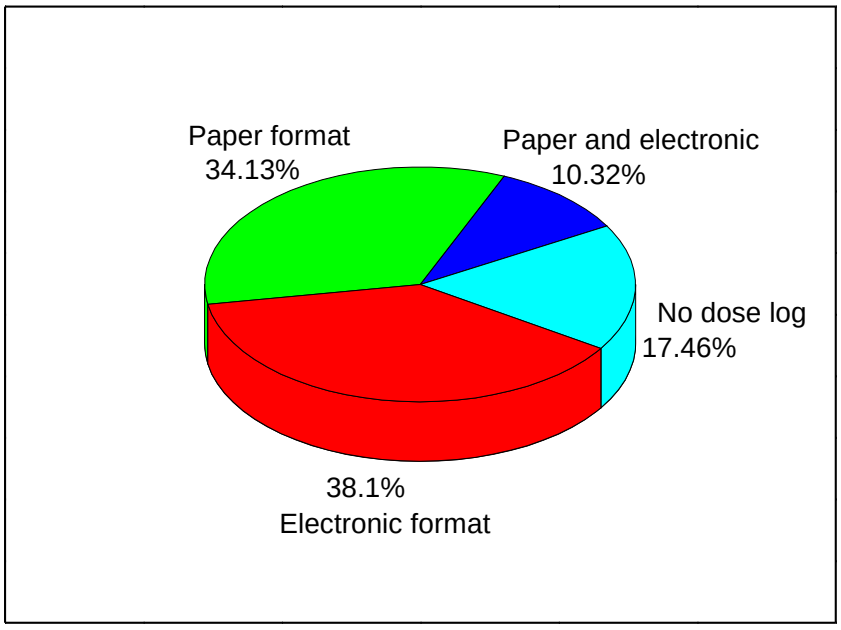
Figure A - 15. Percent with patient dose indicators available in procedure logbook.

FORMAT OF PATIENT RADIATION DOSE LOGBOOK

Table A – 16. Frequency distribution for procedure logbook by type of format.

Format	Frequency	Percent	Cumulative percent
Electronic (E)	48	38.1	38.1
Paper (P)	43	34.1	72.2
Both P&E (B)	13	10.3	82.5
None (N)	22	17.5	100.0

Reference: Surveyor Worksheet (23 b).
Number observations = 126. Missing data = 73 (not entered by surveyors).



Reference: Surveyor Worksheet (23 b).
Number observations = 126. Missing data = 73 (not entered by surveyors).

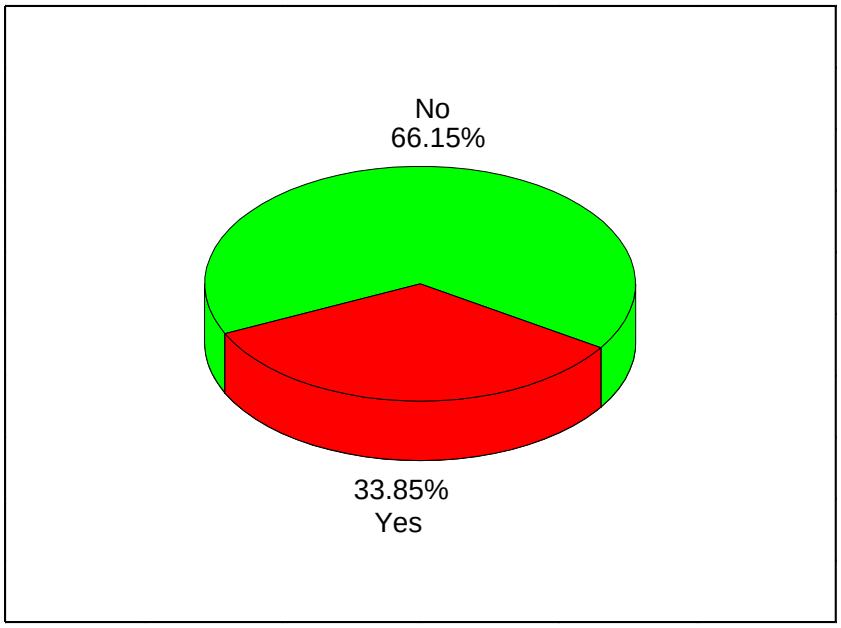
Figure A – 16. Percent of procedure logbook types of format.

CUMULATIVE KERMA-AREA PRODUCT (KAP) RECORDED IN PATIENT RADIATION DOSE LOGBOOK

Table A – 17. Frequency distribution for cumulative KAP recorded in the patient radiation dose/procedure logbook.

KAP recorded in patient radiation dose logbook	Frequency	Percent	Cumulative percent
Yes	44	33.8	33.8
No	86	66.2	100.0

Reference: Surveyor Worksheet (23 c).
Number observations = 130. Missing data = 69 (not entered by surveyors).



Reference: Surveyor Worksheet (23 c).
Number observations = 130. Missing data = 69 (not entered by surveyors).

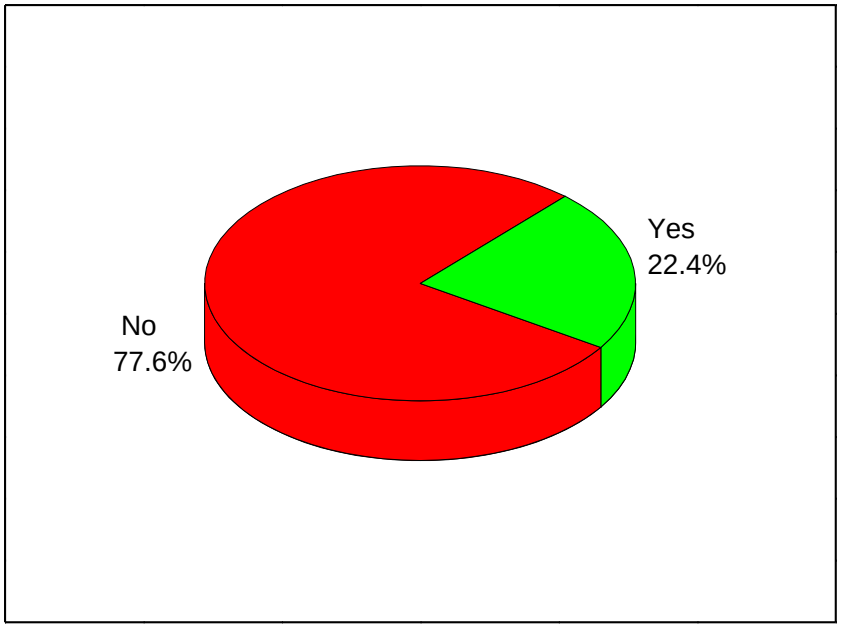
Figure A – 17. Percent recording cumulative KAP in the patient radiation dose/procedure logbook.

CUMULATIVE AIR KERMA RECORDED IN PATIENT RADIATION DOSE LOGBOOK

Table A – 18. Frequency distribution for cumulative air kerma recorded in the patient radiation dose/procedure logbook.

Air kerma recorded in patient radiation dose/procedure logbook	Frequency	Percent	Cumulative percent
Yes	28	22.4	22.4
No	97	77.6	100.0

Reference: Surveyor Worksheet (23 d).
Number observations = 125. Missing data = 74 (not entered by surveyors).



Reference: Surveyor Worksheet (23 d).
Number observations = 125. Missing data = 74 (not entered by surveyors).

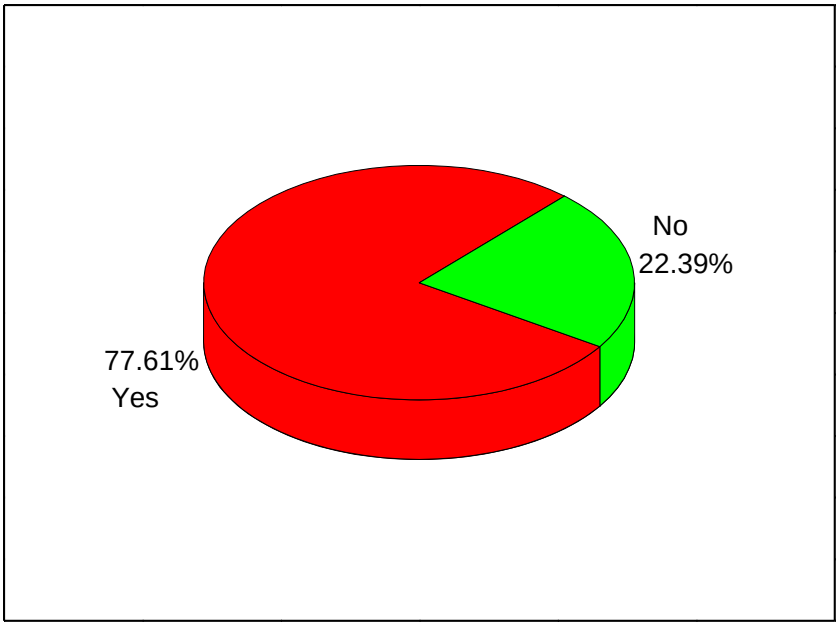
Figure A – 18. Percent recording cumulative air kerma in the patient radiation dose/procedure logbook.

CUMULATIVE FLUOROSCOPY TIME RECORDED IN PATIENT RADIATION DOSE LOGBOOK

Table A – 19. Frequency distribution for cumulative irradiation time recorded in the patient radiation dose/procedure logbook.

Cumulative irradiation time recorded in patient radiation dose/procedure logbook	Frequency	Percent	Cumulative percent
Yes	104	77.6	77.6
No	30	22.4	100.0

Reference: Surveyor Worksheet (23 e).
Number observations = 134. Missing data = 65 (not entered by surveyors).



Reference: Surveyor Worksheet (23 e).
Number observations = 134. Missing data = 65 (not entered by surveyors).

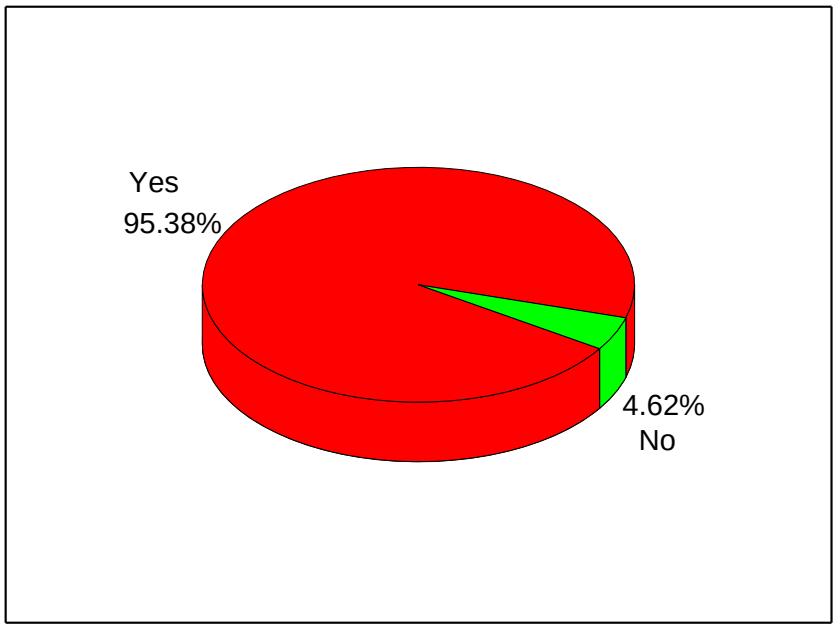
Figure A – 19. Percent recording cumulative irradiation time in the patient radiation dose/procedure logbook.

FREQUENCY OF DOSE INDICATOR(S) RECORDED IN INDIVIDUAL PATIENT FILE OR REPORT

Table A- 20. Frequency distribution for patient dose indicators collected in individual patient file or report.

Dose indicator(s) recorded in patient file or report	Frequency	Percent	Cumulative percent
Yes	186	95.4	95.4
No	9	4.6	100.00

Reference: Surveyor Worksheet (23 f).
Number observations = 195. Missing observations = 4 (not entered by surveyors).



Reference: Surveyor Worksheet (23 f).
Number observations = 195. Missing observations = 4 (not entered by surveyors).

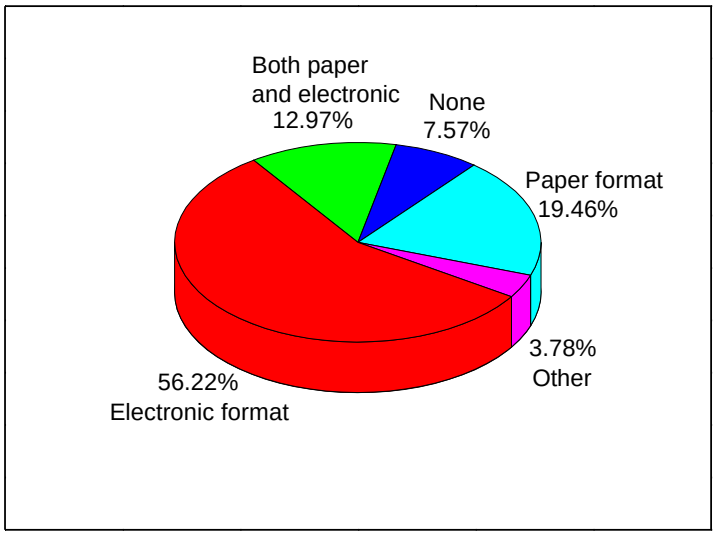
Figure A- 20. Percent collecting patient dose indicators in individual patient file or report.

FORMAT OF DOSE COLLECTION IN INDIVIDUAL PATIENT FILES OR REPORTS

Table A – 21. Frequency distribution for type of format of dose collection in individual patient file or report.

Type of format of dose collection	Frequency	Percent	Cumulative frequency	Cumulative percent
Electronic (E)	104	56.2	104	56.2
Paper (P)	36	19.5	140	75.7
Both P&E (B)	24	13.0	164	88.7
None (N)	14	7.6	178	96.3
Other	7	3.8	185	100.1

Reference: Surveyor Worksheet (23 g).
Number observations = 185. Missing data = 14 (not entered by surveyors).



Reference: Surveyor Worksheet (23 g).
Number observations = 185. Missing data = 14 (not entered by surveyors).

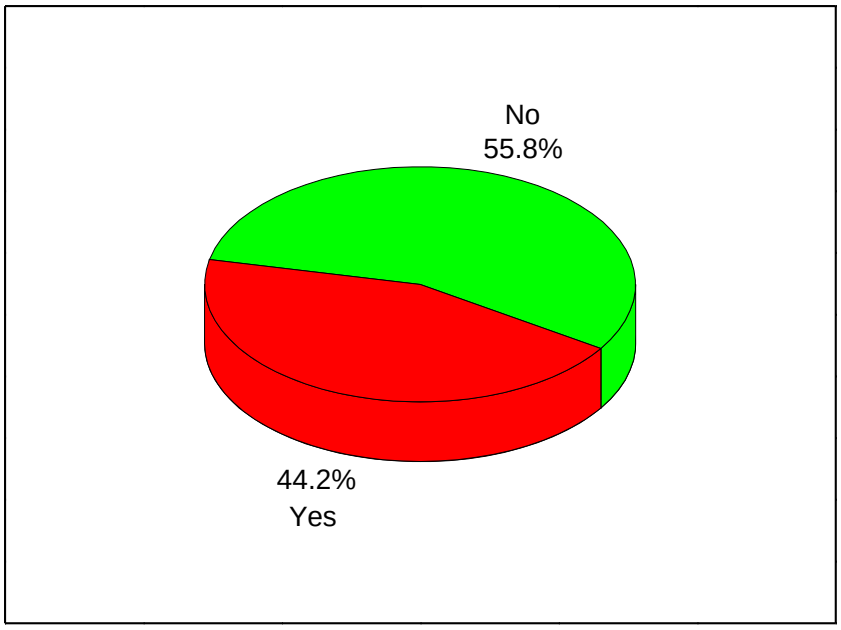
Figure A – 21. Percent of format of dose collection in individual patient file or report.

RECORDING OF CUMULATIVE AIR KERMA AREA-PRODUCT (KAP) INTO PATIENT FILE/REPORT

Table A - 22. Frequency distribution for cumulative KAP values recorded in patient file or report.

KAP recorded into patient file/report	Frequency	Percent	Cumulative percent
Yes	80	44.2	44.2
No	101	55.8	100.0

Reference: Surveyor Worksheet (23 h).
Number observations = 181. Missing data = 18 (not entered by surveyors).



Reference: Surveyor Worksheet (23 h).
Number observations = 181. Missing data = 18 (not entered by surveyors).

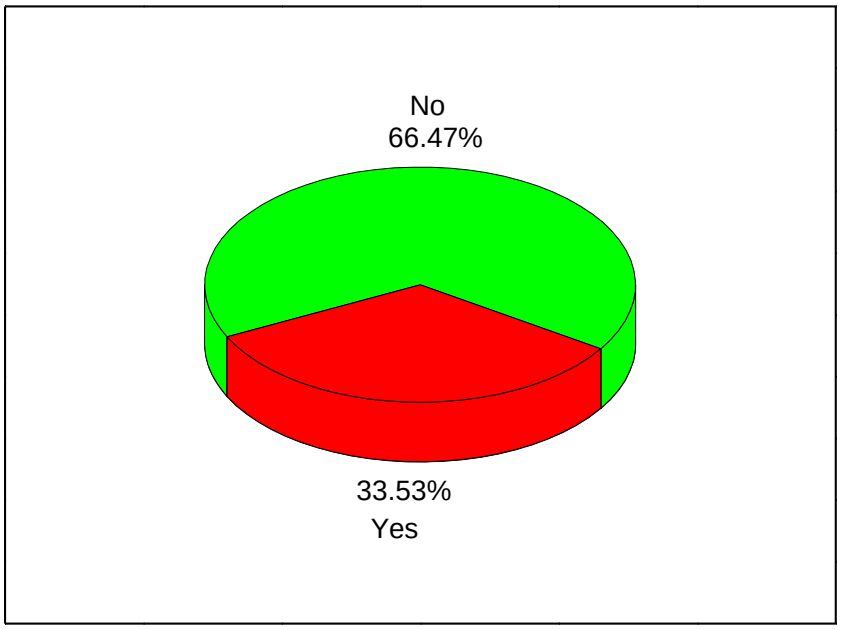
Figure A - 22. Percent recording cumulative KAP values in patient file or report.

RECORDING OF CUMULATIVE AIR KERMA INTO PATIENT FILE OR REPORT

Table A – 23. Frequency distribution for cumulative air kerma recorded in patient file or report.

Air kerma recorded into patient file or report	Frequency	Percent	Cumulative percent
Yes	58	33.5	33.5
No	115	66.5	100.0

Reference: Surveyor Worksheet (23 i).
Number observations = 173. Missing data = 26 (not entered by surveyors).



Reference: Surveyor Worksheet (23 i).
Number observations = 173. Missing data = 26 (not entered by surveyors).

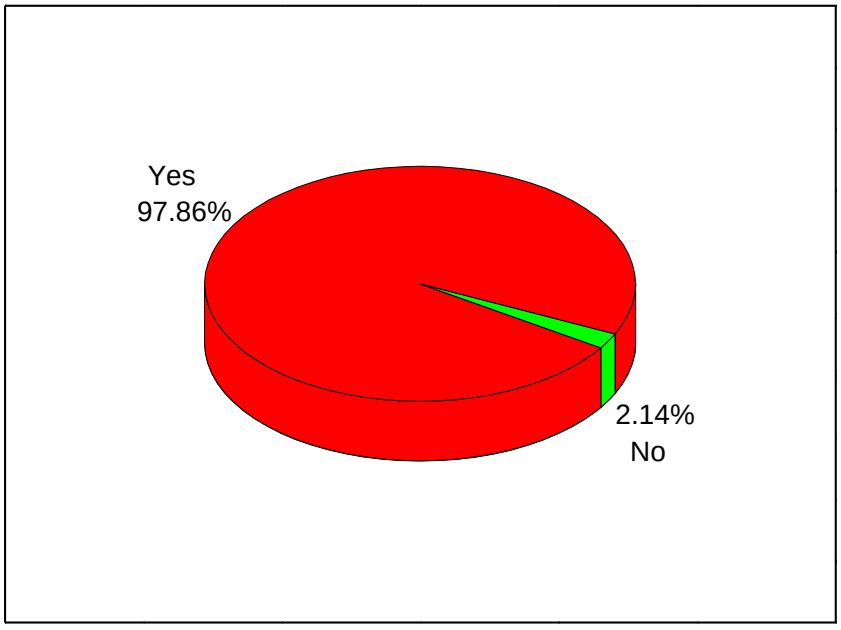
Figure A – 23. Percent recording cumulative air kerma in patient file or report.

RECORDING OF CUMULATIVE IRRADIATION TIME IN PATIENT FILE OR REPORT

Table A – 24. Frequency distribution for cumulative irradiation time recorded in patient file or report.

Cumulative irradiation time recorded in patient file or report	Frequency	Percent	Cumulative percent
Yes	183	97.9	97.9
No	4	2.1	100.0

Reference: Surveyor Worksheet (23 j).
Number observations = 187. Missing data = 12 (not entered by surveyors).



Reference: Surveyor Worksheet (23 j).
Number observations = 187. Missing data = 12 (not entered by surveyors).

Figure A – 24. Percent recording cumulative irradiation time in patient file or report.

ANNUAL FLUOROSCOPIC PROCEDURE WORKLOAD FOR SURVEYED FLUOROSCOPY UNIT (ADULT PROCEDURES)

Table A – 25. Descriptive statistics for fluoroscopic unit annual workload (adult procedures).

Fluoroscopy workload adult procedures	Mean	N	Std Dev	Minimum	Q25	Median	Q75	Maximum
	1013	186	1201	5	400	710	1103	8736

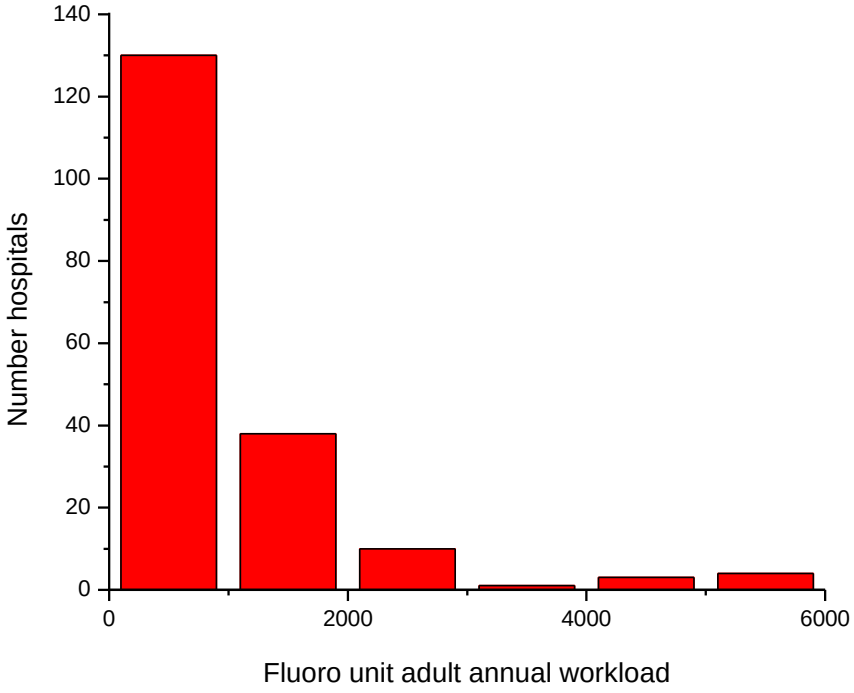
Reference: Surveyor Worksheet (24a).
Number observations = 186. Missing data = 13 (not entered by the surveyors).

Table A – 26. Frequency distribution for range of fluoroscopic unit annual workload (adult procedures).

Unit annual workload in number of adult procedures	Frequency	Percent	Cumulative percent
0-1000	130	69.9	69.9
1001-2000	38	20.4	90.3
2001-3000	10	5.4	95.7
3001-4000	1	0.5	96.2
4001-5000	3	1.6	97.8
5001 +	4	2.2	100.0

Reference: Surveyor Worksheet (24a).
Number observations = 186. Missing data = 13 (not entered by the surveyors).

ANNUAL FLUOROSCOPIC PROCEDURE WORKLOAD FOR SURVEYED FLUOROSCOPY UNIT (ADULT PROCEDURES)



Reference: Surveyor Worksheet (24a).
Number observations = 186. Missing data = 13 (not entered by the surveyors).

Figure A – 25. Fluoroscopic unit annual workload range for adult procedures per number of hospitals.

FLUOROSCOPIC UNIT ANNUAL PROCEDURE WORKLOAD (PEDIATRIC)

Not enough data available.

SOURCE-TO-IMAGE DISTANCE (SID) ON SURVEYED FLUOROSCOPIC UNIT AS CONFIGURED FOR A TYPICAL ADULT PATIENT

Table A – 27. Descriptive statistics for displayed source-to-image distance (in centimeters) as configured for adult patient.

Displayed	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
SID (cm)	93.0	195	9.1	65	88	90	97	122

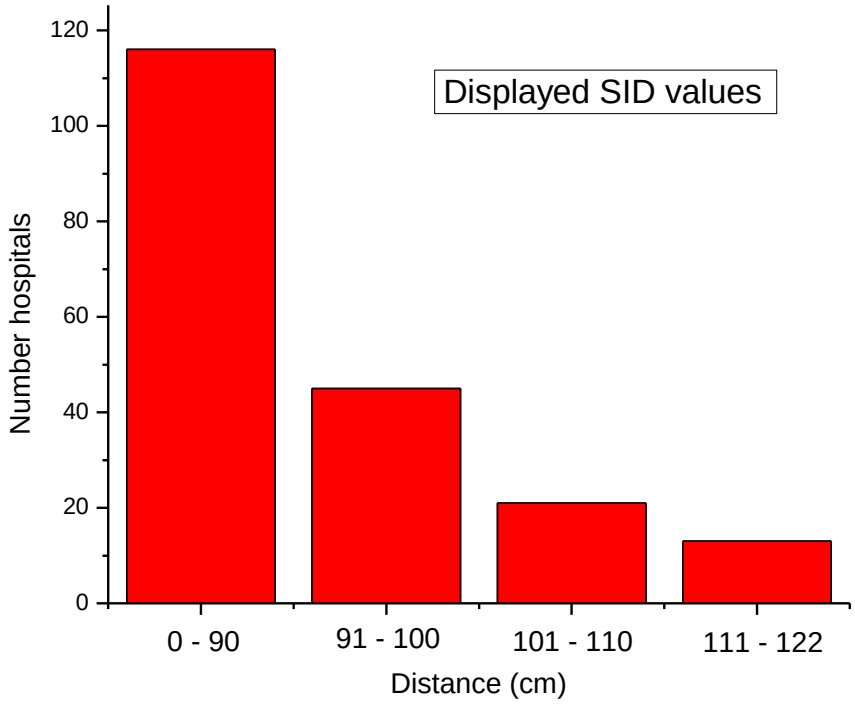
Reference: Surveyor Worksheet (28).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

Table A – 28. Frequency distribution for displayed source-to-image distance range (in centimeters) as configured for adult patient.

Displayed SID	Frequency	Percent	Cumulative percent
0-90	116	59.5	59.5
91-100	45	23.1	82.6
101-110	21	10.8	93.4
111 +	13	6.6	100.0

Reference: Surveyor Worksheet (28).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

SOURCE-TO-IMAGE DISTANCE (SID) ON SURVEYED FLUOROSCOPIC UNIT AS CONFIGURED FOR A TYPICAL ADULT PATIENT



Reference: Surveyor Worksheet (28).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

Figure A – 26. Displayed source-to-image distance range (in centimeters) as configured for adult patient by number of hospitals.

MEASURED SOURCE-TO-IMAGE DISTANCE (SID)

Table A – 29. Descriptive statistics for source-to-image distance as measured by the surveyor (in centimeters).

Measured	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
SID (cm)	98.7	161	11.0	39	90	100	104	125

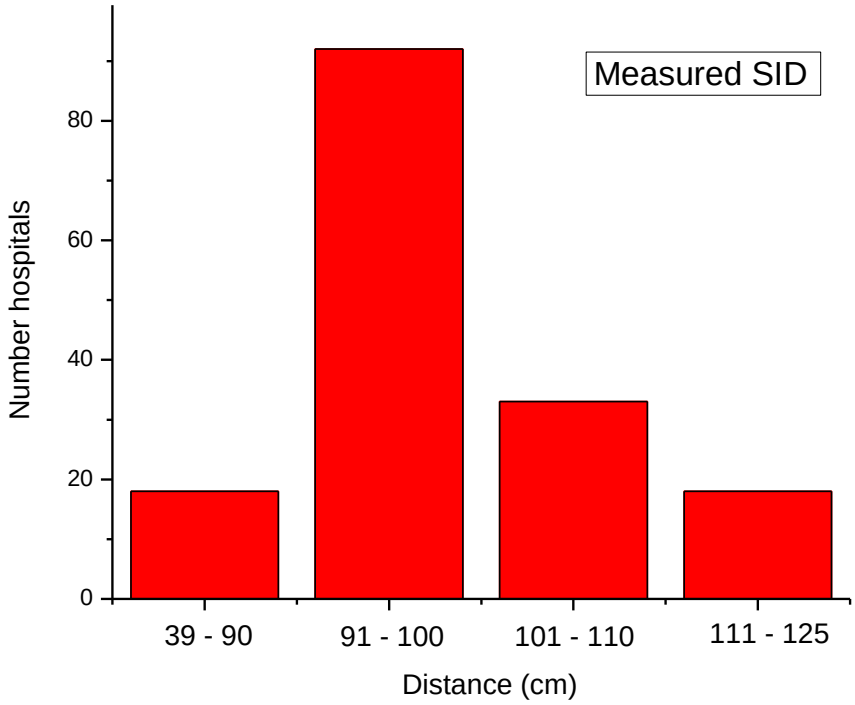
Number observations = 161.
Missing data = 38 (not entered by the surveyors).

Table A – 30. Frequency distribution for source-to-image distance ranges as measured by the surveyor (in centimeters).

Measured SID	Frequency	Percent	Cumulative percent
0-90	18	11.2	11.2
91-100	92	57.1	68.3
101-110	33	20.5	88.8
111 +	18	11.2	100.0

Number observations = 161.
Missing data = 38 (not entered by the surveyors).

MEASURED SOURCE-TO-IMAGE DISTANCE (SID)



Number observations = 161.
Missing data = 38 (not entered by the surveyors).

Figure A – 27. Source-to-image distance (SID) ranges as measured by the surveyor (in centimeters) per number of hospitals.

DIFFERENCE BETWEEN DISPLAYED AND MEASURED SOURCE-TO-IMAGE DISTANCE (SID) (ABSOLUTE VALUES)

Table A- 31. Descriptive statistics for difference between displayed and measured source-to-image distance (absolute value) in centimeters.

Difference	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
SID (cm)	7.5	160	9.1	0	0	4.5	11.0	48.0

Number observations = 160.
Missing data = 39 (not entered by the surveyors).

Note: The difference between the SID displayed and measured is expressed as an absolute value.

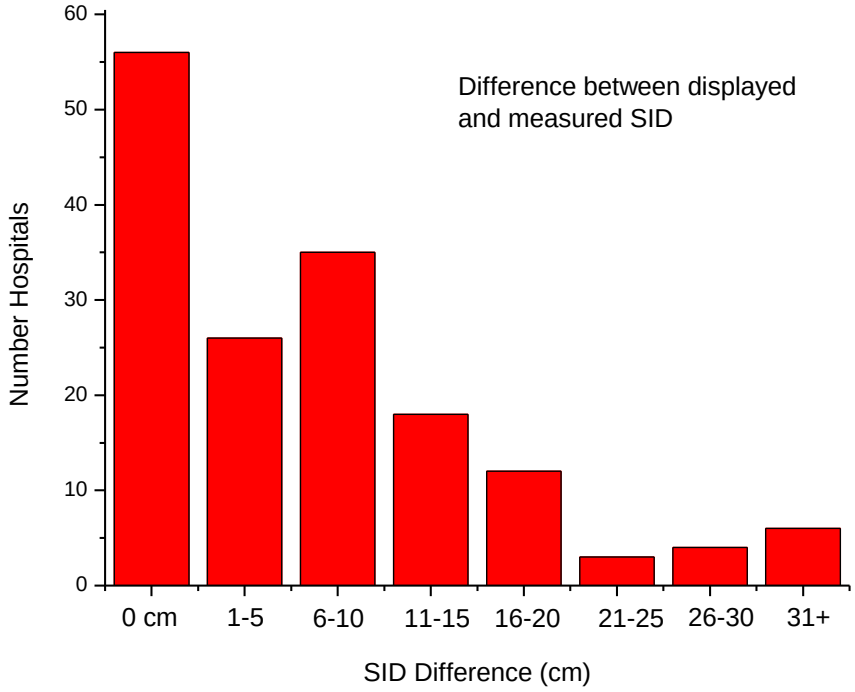
Table A- 32. Range of difference between displayed and measured source-to-image distance (absolute value) in centimeters.

Difference SID	Frequency	Percent	Cumulative percent
0	56	35.0	35.0
1 – 5	26	16.2	51.2
6 – 10	35	21.9	73.1
11 – 15	18	11.3	84.4
16 – 20	12	7.5	91.9
21 – 25	3	1.9	93.8
26 – 30	4	2.5	96.3
31 +	6	3.8	100.1

Number observations = 160.
Missing data = 39 (not entered by the surveyors).

Note: The difference between the SID displayed and measured is expressed as an absolute value.

DIFFERENCE BETWEEN DISPLAYED AND MEASURED SOURCE-TO-IMAGE DISTANCE (SID) (ABSOLUTE VALUES)



Number observations = 160.
Missing data = 39 (not entered by the surveyors).
Note: The difference between the SID displayed and measured is expressed as an absolute value.

Figure A – 28. Range of difference between displayed and measured source-to-image distance (absolute value) in centimeters per number of hospitals.

CLINICAL SETTING FOR FLUOROSCOPIC FIELD-OF-VIEW (FOV) ON SURVEYED FLUOROSCOPIC UNIT AS CONFIGURED FOR A TYPICAL ADULT PATIENT

Table A – 33. Descriptive statistics for displayed field-of-view (FOV) as configured for typical adult patient (in centimeters).

	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
FOV (cm)	21.8	195	5.2	10	20	22	25	48

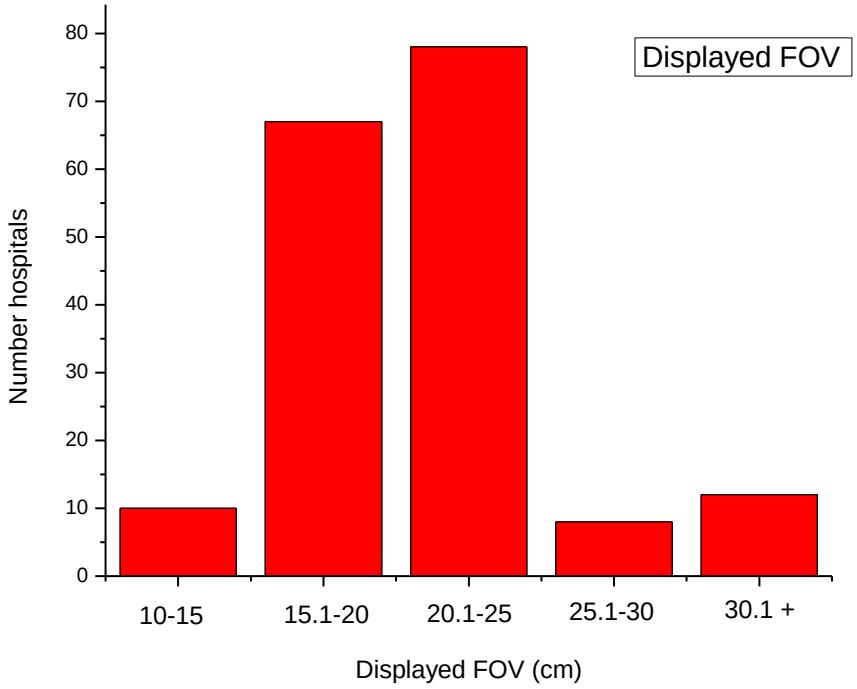
Reference: Surveyor Worksheet (29).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

Table A – 34. Frequency distribution of ranges of displayed field-of-view (FOV) as configured for typical adult patient (in centimeters).

FOV (cm)	Frequency	Percent	Cumulative percent
10 – 15	10	5.1	5.1
15.1 – 20	87	44.6	49.7
20.1 – 25	78	40.0	89.7
25.1 – 30	8	4.1	93.8
30.1 +	12	6.2	100.0

Reference: Surveyor Worksheet (29).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

CLINICAL SETTING FOR FLUOROSCOPIC FIELD-OF-VIEW (FOV) ON SURVEYED FLUOROSCOPIC UNIT AS CONFIGURED FOR A TYPICAL ADULT PATIENT



Reference: Surveyor Worksheet (29).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

Figure A – 29. Ranges of displayed field-of-view (FOV) as configured for typical adult patient (in centimeters) per number of hospitals.

MEASURED FIELD-OF-VIEW

Table A - 35. Descriptive statistics for measured field-of-view (FOV) (in centimeters).

Measured	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
FOV (cm)	20.4	196	5.0	10	17.5	20	23	48

Number observations = 196. Missing data = 3 (not entered by the surveyors).

Field-of-view (FOV) value, in centimeters, as measured by the surveyor.

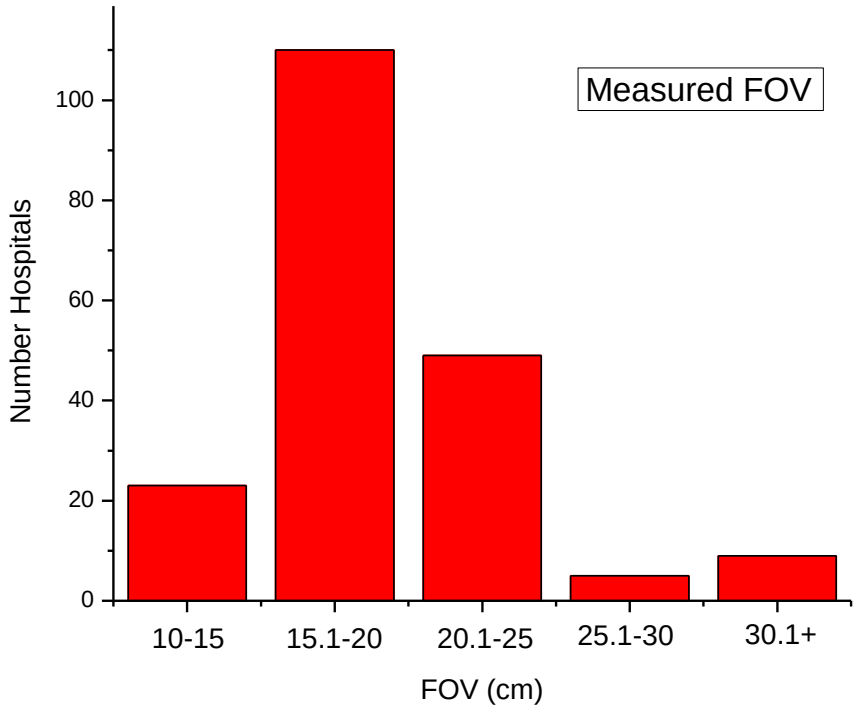
Table A - 36. Frequency distribution of measured field-of-view (FOV) ranges (in centimeters).

Measured FOV	Frequency	Percent	Cumulative percent
10 – 15	23	11.7	11.7
15.1 – 20	110	56.1	67.8
20.1 – 25	49	25.0	92.8
25.1 – 30	5	2.6	95.4
30.1 +	9	4.6	100.0

Number observations = 196. Missing data = 3 (not entered by the surveyors).

Field-of-view (FOV) value, in centimeters, as measured by the surveyor.

MEASURED FIELD-OF-VIEW



Number observations = 196. Missing data = 3 (not entered by the surveyors).

Field-of-view (FOV) value, in centimeters, as measured by the surveyor.

Figure A - 30. Measured field-of-view (FOV) ranges (in centimeters) per number of hospitals.

ABSOLUTE VALUE OF THE DIFFERENCE BETWEEN MEASURED AND DISPLAYED FIELD-OF-VIEW (FOV)

Table A - 37. Descriptive statistics for difference between measured and displayed field-of-view FOV in centimeters (absolute value).

Difference	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
FOV (cm)	2.5	193	3.7	0	0	0	5	26

Number observations = 193.
Missing data = 2 (not entered by the surveyors).

Absolute value of the difference between field-of-view measured by the surveyor and displayed value (in centimeters).

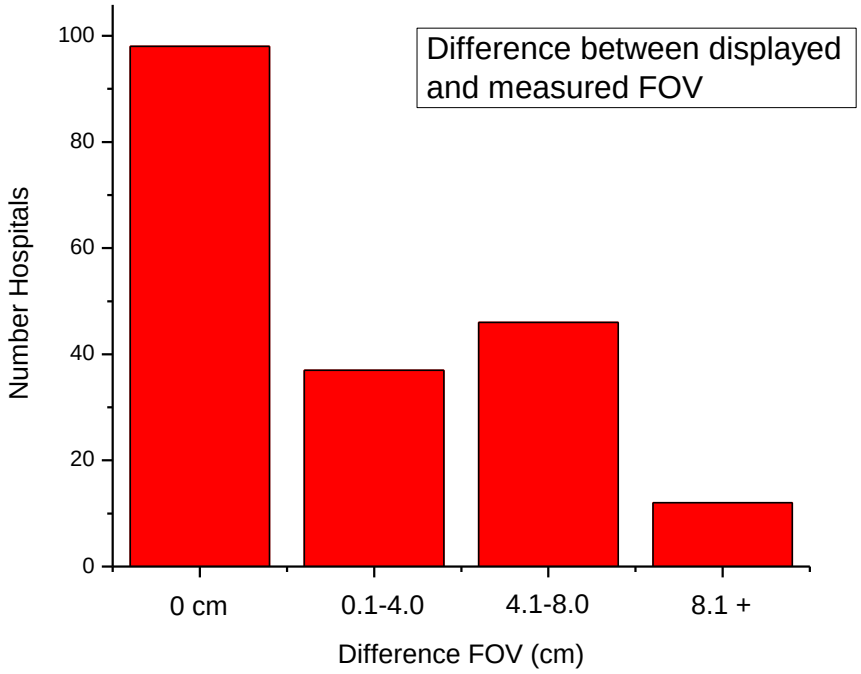
Table A - 38. Frequency distribution for ranges of difference between measured and displayed field-of-view FOV in centimeters (absolute value).

Difference FOV	Frequency	Percent	Cumulative percent
0	98	50.8	50.8
0.1 – 4.0	37	19.2	70.0
4.1 – 8.0	46	23.8	93.8
8.1 +	12	6.2	100.0

Number observations = 193.
Missing data = 2 (not entered by the surveyors).

Absolute value of the difference between field-of-view measured by the surveyor and displayed value (in centimeters).

ABSOLUTE VALUE OF THE DIFFERENCE BETWEEN MEASURED AND DISPLAYED FIELD-OF-VIEW (FOV)



Number observations = 193.
Missing data = 2 (not entered by the surveyors).

Absolute value of the difference between field-of-view measured by the surveyor and displayed value (in centimeters).

Figure A - 31. Ranges of difference between measured and displayed field-of-view FOV in centimeters (absolute value) per number of hospitals.

MOST USED FLUOROSCOPY PULSE FREQUENCY

Table A – 39. Frequency distribution for most used fluoroscopy pulse frequency (pulses/second).

Pulse frequency (pulses / sec)	Frequency count	Percent	Cumulative percent
15	119	81.0	81.0
30	15	10.2	91.2
other	13	8.8	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 147. Missing data = 52 (not entered by the surveyors).

Most used fluoroscopy mode pulse frequency (pulses/sec), such as displayed on the system console.

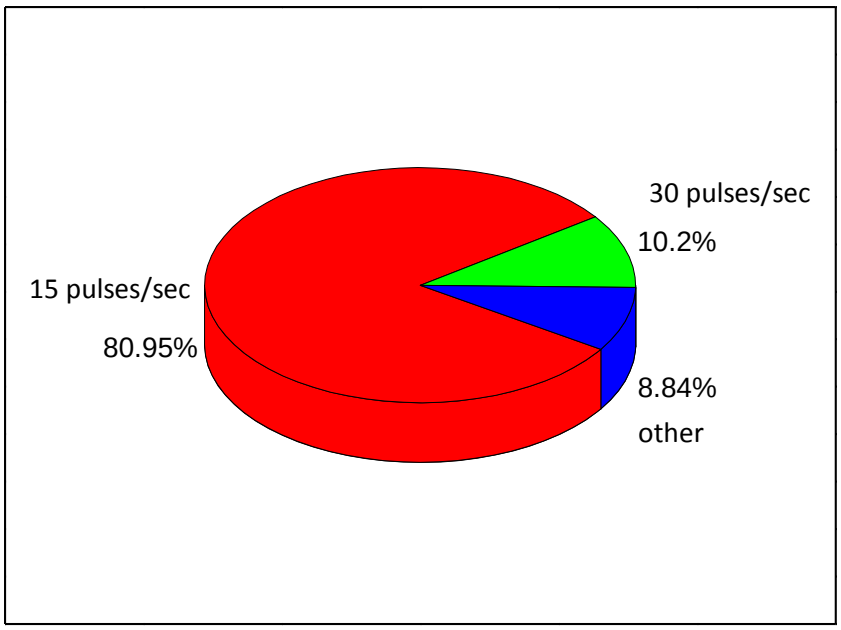


Figure A – 32. Percent of most used fluoroscopy pulse frequency (pulses/second).

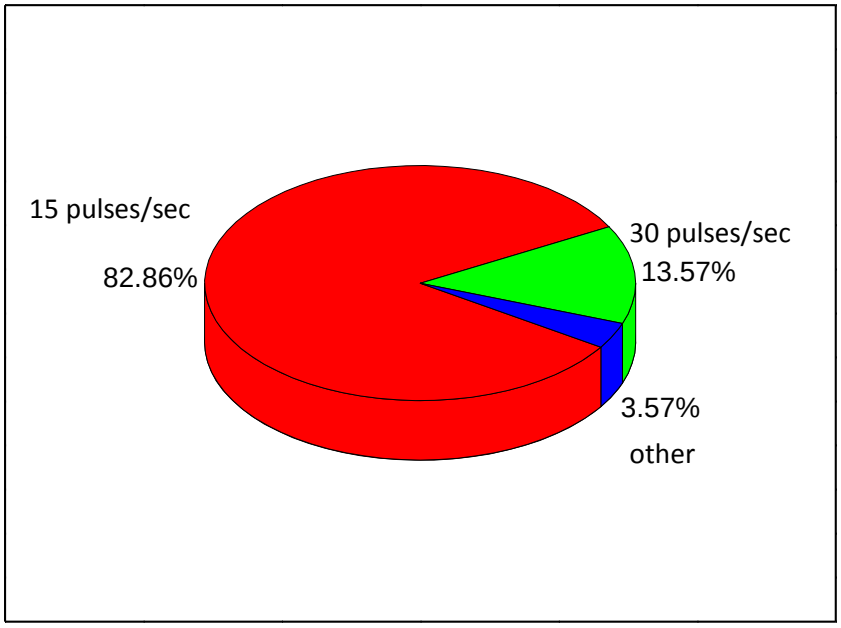
MOST USED CINERADIOGRAPHY FRAME RATE

Table A - 40. Frequency distribution of most used cineradiography frame rates (frames/second).

Frame rate (frames /sec)	Frequency count	Percent	Cumulative percent
15	116	82.9	82.9
30	19	13.6	96.5
other	5	3.5	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 140. Missing data = 59 (not entered by the surveyors).

Console display of most used cineradiography pulse frequency (pulses/sec).



Reference: Surveyor Worksheet (Table 1).
Number observations = 140. Missing data = 59 (not entered by the surveyors).

Console display of most used cineradiography pulse frequency (pulses/sec).

Figure A – 33. Percent of most used cineradiography frame rates (frames/second).

MEASURED EXPOSURE RATE IN FLUOROSCOPY MODE AS MEASURED BY THE SURVEYOR USING A PATIENT-REPRESENTATIVE PHANTOM

Table A- 41. Descriptive statistics for exposure rate in fluoroscopy mode measured using NEXT phantom.

Air kerma rate (mGy/min)	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	33.7	181	39.4	2.2	20.4	30.6	38.8	511.5

Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Note: Exposure rate values were measured using the fluoroscopy phantom. The gantry was positioned to minimize source-to-image distance (SID) and the exposure rate was measured at 1 cm above the table top. No inverse-square correction was performed.

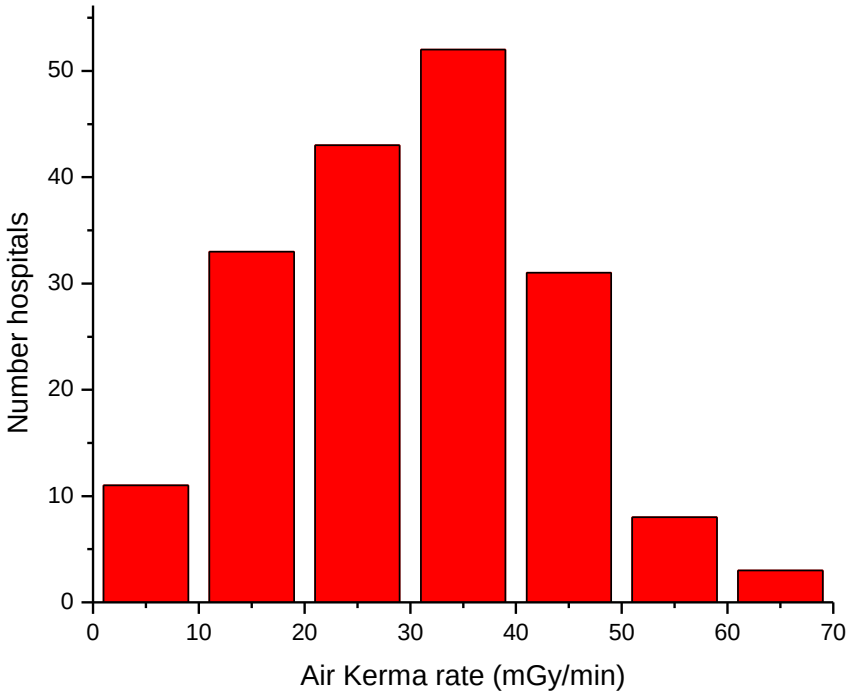
Table A- 42. Frequency distribution for range of exposure rate in fluoroscopy mode measured using NEXT phantom.

Air kerma rate	Frequency	Percent	Cumulative percent
0-10	11	6.1	6.1
10.1-20	33	18.2	24.3
20.1-30	43	23.8	48.1
30.1-40	52	28.7	76.8
40.1-50	31	17.1	93.9
50.1-60	8	4.4	98.3
60.1 +	3	1.7	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Note: Exposure rate values were measured using the fluoroscopy phantom. The gantry was positioned to minimize source-to-image distance (SID) and the exposure rate was measured at 1 cm above the table top. No inverse-square correction was performed.

MEASURED EXPOSURE RATE IN FLUOROSCOPY MODE AS MEASURED BY THE SURVEYOR USING A PATIENT-REPRESENTATIVE PHANTOM



Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Note: Exposure rate values were measured using the fluoroscopy phantom. The gantry was positioned to minimize source-to-image distance (SID) and the exposure rate was measured at 1 cm above the table top. No inverse-square correction was performed.

Figure A - 34. Range of exposure rate in fluoroscopy mode using NEXT phantom per number of hospitals.

EXPOSURE RATE IN CINEANGIOGRAPHY MODE MEASURED WITH PHANTOM ONLY

Table A- 43. Descriptive statistics for exposure rate in cine mode measured using the NEXT phantom.

Air kerma rate (mGy/min)	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	216.8	176	132.7	15.2	129.1	205.4	268.9	803.5

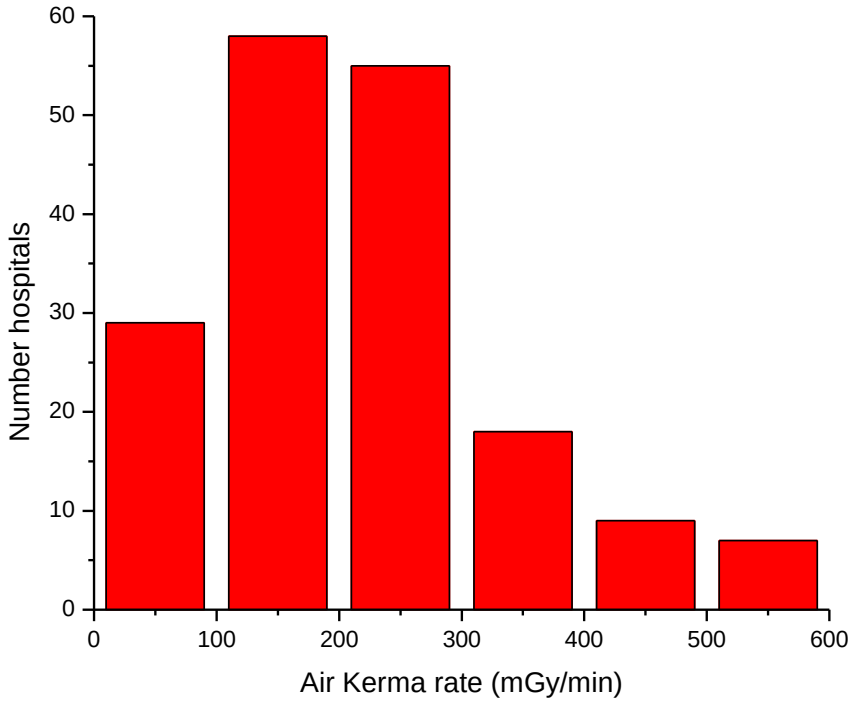
Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Table A- 44. Frequency distribution for range of exposure rate in cine mode measured using the NEXT phantom.

Air kerma rate	Frequency	Percent	Cumulative percent
0-100	29	16.5	16.5
100.1-200	58	33.0	49.5
200.1-300	55	31.2	80.7
300.1-400	18	10.2	90.9
400.1-500	9	5.1	96.0
500.1 +	7	4.0	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

EXPOSURE RATE IN CINEANGIOGRAPHY MODE MEASURED WITH PHANTOM ONLY



Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Figure A - 35. Range of exposure rate in cine mode measured using the NEXT phantom per number of hospitals.

X-RAY TUBE KILO-VOLTAGE (kVp) OBSERVED FOR THE MOST FREQUENTLY USED FLUOROSCOPY MODE MEASURED USING THE NEXT FLUOROSCOPY PHANTOM (NO ADDITIONAL ATTENUATOR)

Table A - 45. Descriptive statistics for kVp observed for the most frequently used fluoroscopy mode measured with only the NEXT phantom.

kVp	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	75.3	181	6.9	63	70	75	79	104

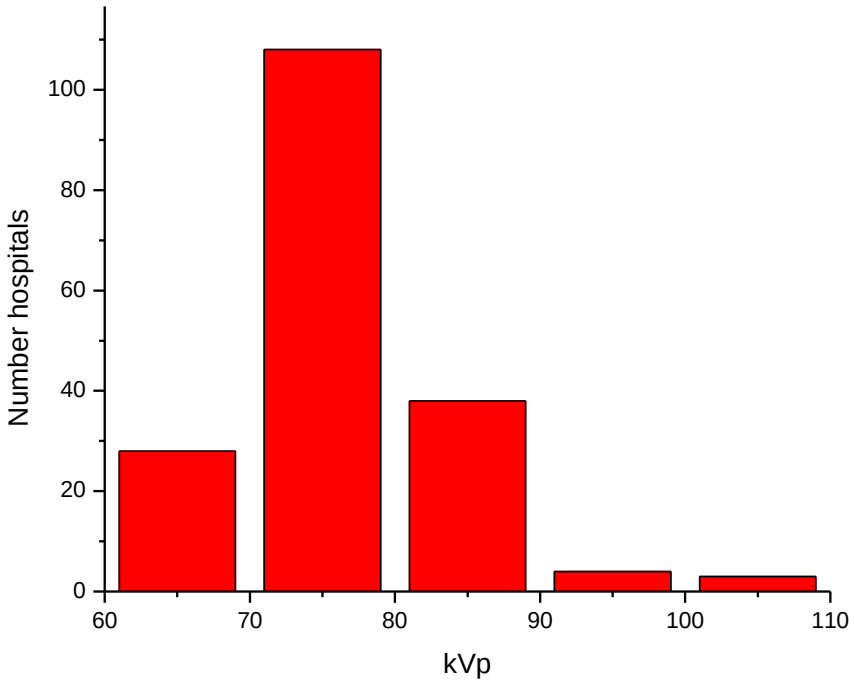
Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Table A - 46. Frequency distribution for range of kVp observed for the most frequently used fluoroscopy mode measured with only the NEXT phantom.

kVp	Frequency	Percent	Cumulative percent
60.1-70	28	15.5	15.5
70.1-80	108	59.6	75.1
80.1-90	38	21.0	96.1
90.1-100	4	2.2	98.3
100.1-110	3	1.7	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

X-RAY TUBE KILO-VOLTAGE (kVp) OBSERVED FOR THE MOST FREQUENTLY USED FLUOROSCOPY MODE MEASURED USING THE NEXT FLUOROSCOPY PHANTOM (NO ADDITIONAL ATTENUATOR)



Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Figure A - 36. Range of kVp observed for the most frequently used fluoroscopy mode measured with only the NEXT phantom per number of hospitals.

X-RAY TUBE KILOVOLTAGE (kVp) IN CINEANGIOGRAPHY MODE MEASURED USING THE NEXT FLUOROSCOPY PHANTOM (NO ADDITIONAL ATTENUATOR)

Table A – 47. Descriptive statistics for kVp used in cine mode measured using only the NEXT phantom.

kVp	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	70.0	175	5.9	52	67	70	72	91

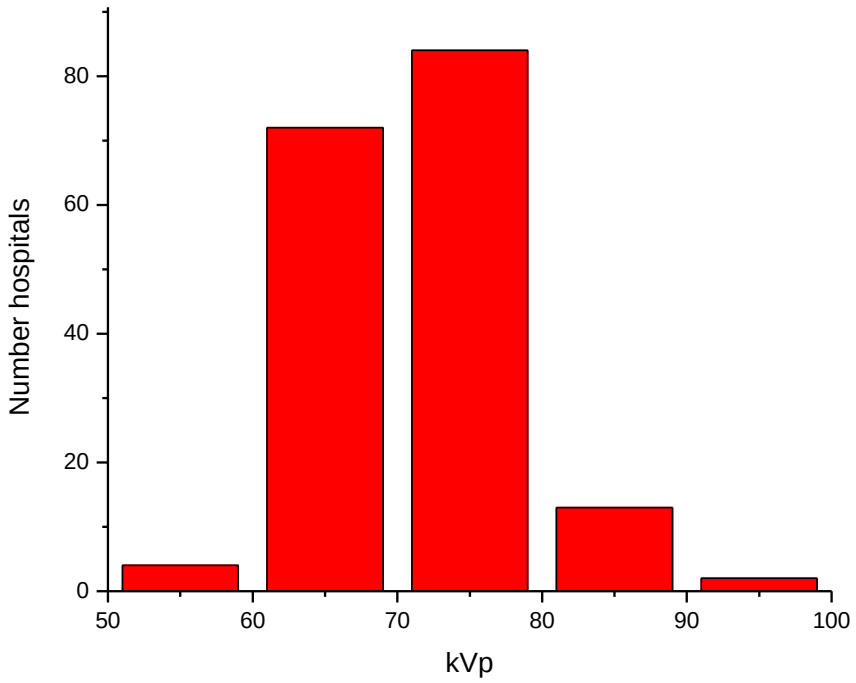
Reference: Surveyor Worksheet (Table 1)
Number observations = 175. Missing data = 24 (not entered by the surveyors).

Table A – 48. Frequency distribution for range of kVp used in cine mode measured using only the NEXT phantom.

kVp	Frequency	Percent	Cumulative percent
50.1-60	4	2.3	2.3
60.1-70	72	41.1	43.4
70.1-80	84	48.0	91.4
80.1-90	13	7.4	98.8
90.1-100	2	1.1	99.9

Reference: Surveyor Worksheet (Table 1)
Number observations = 175. Missing data = 24 (not entered by the surveyors).

X-RAY TUBE KILOVOLTAGE (kVp) IN CINEANGIOGRAPHY MODE MEASURED USING THE NEXT FLUOROSCOPY PHANTOM (NO ADDITIONAL ATTENUATOR)



Reference: Surveyor Worksheet (Table 1)
Number observations = 175. Missing data = 24 (not entered by the surveyors).

Figure A – 37. Range of kVp used in cine mode measured using only the NEXT phantom per number of hospitals.

FLUOROSCOPIC TUBE CURRENT (mA) FOR THE MOST FREQUENTLY USED FLUOROSCOPY MODE MEASURED USING THE NEXT FLUOROSCOPY PHANTOM (NO ADDITIONAL ATTENUATOR)

Table A - 49. Descriptive statistics for current used for the most frequently used fluoroscopy mode measured with NEXT phantom.

mA	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	43.0	181	62.6	1.9	9.6	12.7	50.0	489.0

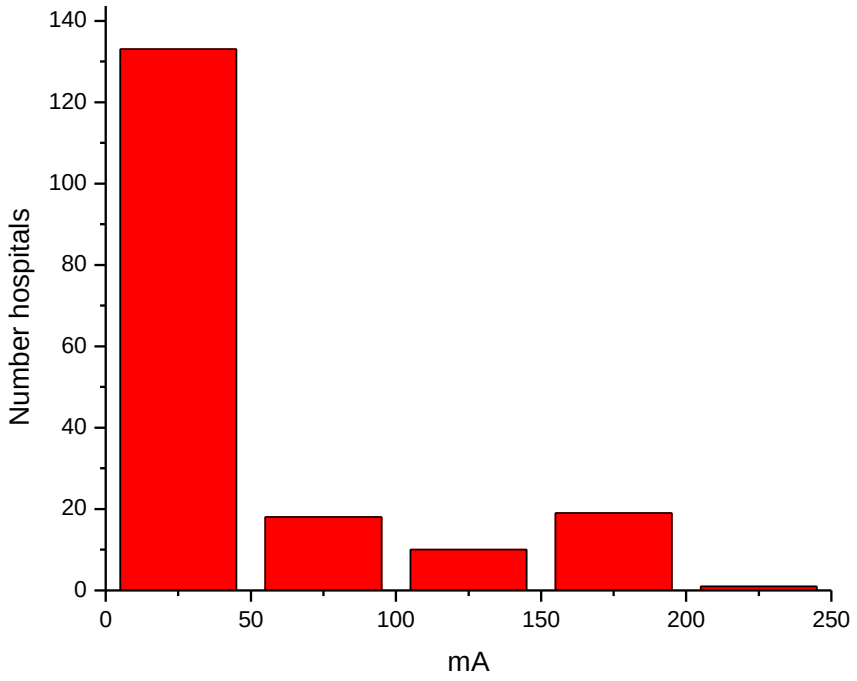
Reference: Surveyor Worksheet (Table 1)
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Table A - 50. Frequency distribution for range of current used for the most frequently used fluoroscopy mode measured with NEXT phantom.

mA	Frequency	Percent	Cumulative percent
0-50	133	73.5	73.5
51.1-100	18	9.9	83.4
100.1-150	10	5.5	88.9
150.1-200	19	10.5	99.4
200.1 +	1	0.6	100.0

Reference: Surveyor Worksheet (Table 1)
Number observations = 181. Missing data = 18 (not entered by the surveyors).

FLUOROSCOPIC TUBE CURRENT (mA) FOR THE MOST FREQUENTLY USED FLUOROSCOPY MODE MEASURED USING THE NEXT FLUOROSCOPY PHANTOM (NO ADDITIONAL ATTENUATOR)



Reference: Surveyor Worksheet (Table 1)
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Figure A - 38. Range of current used for the most frequently used fluoroscopy mode measured with NEXT phantom per number of hospitals.

CURRENT IN CINEANGIOGRAPHY MODE MEASURED USING THE NEXT FLUOROSCOPY PHANTOM (NO ADDITIONAL ATTENUATOR)

Table A – 51. Descriptive statistics for current used in cine mode measured using only the NEXT phantom.

mA	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	337.2	176	244.5	5.0	60	380.6	525.5	800.0

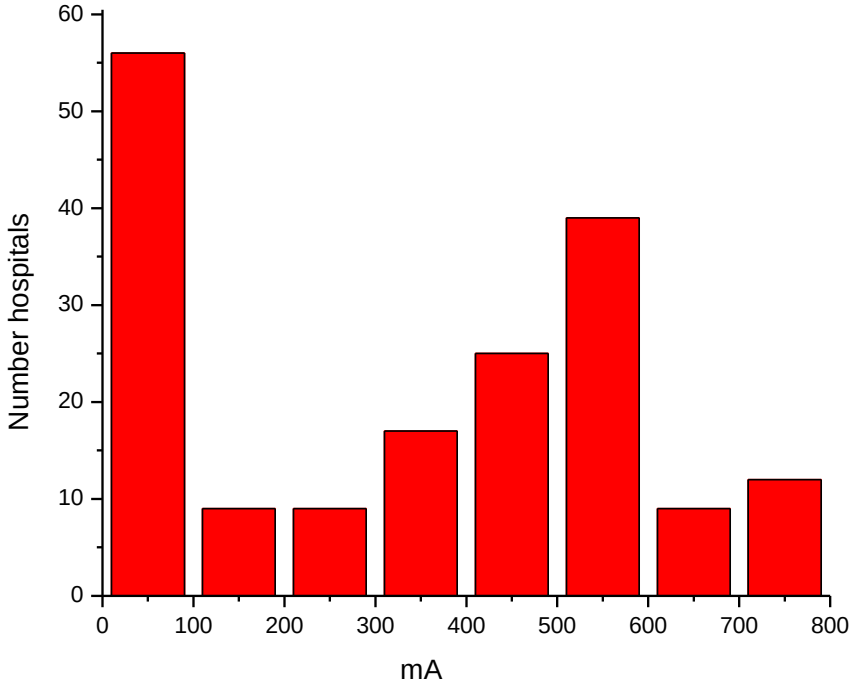
Reference: Surveyor Worksheet (Table 1)
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Table A – 52. Frequency distribution for range of current used in cine mode measured using only the NEXT phantom.

mA	Frequency	Percent	Cumulative percent
0-100	56	31.8	31.8
100.1-200	9	5.1	36.9
200.1-300	9	5.1	42.0
300.1-400	17	9.7	51.7
400.1-500	25	14.2	65.9
500.1-600	39	22.2	88.1
600.1-700	9	5.1	93.2
700.1-800	12	6.8	100.0

Reference: Surveyor Worksheet (Table 1)
Number observations = 176. Missing data = 23 (not entered by the surveyors).

CURRENT IN CINEANGIOGRAPHY MODE MEASURED USING THE NEXT FLUOROSCOPY PHANTOM (NO ADDITIONAL ATTENUATOR)



Reference: Surveyor Worksheet (Table 1)
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Figure A – 39. Range of current used in cine mode measured using only the NEXT phantom per number of hospitals.

EXPOSURE RATE FOR THE MOST FREQUENTLY USED FLUOROSCOPY MODE MEASURED WITH NEXT PHANTOM AND 0.8 mm COPPER (Cu) IN THE BEAM

Table A – 53. Descriptive statistics for exposure rate for fluoroscopy mode measured using the NEXT phantom and 0.8 mm copper.

AK rate	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
(mGy/min)	73.4	181	113.5	6.8	47.4	62.6	76.8	1306.6

Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Note: Exposure rate values were measured using the fluoroscopy phantom. The gantry was positioned to minimize source-to-image-distance (SID) and the exposure rate was measured at 1 cm above the table top. No inverse-square correction was performed.

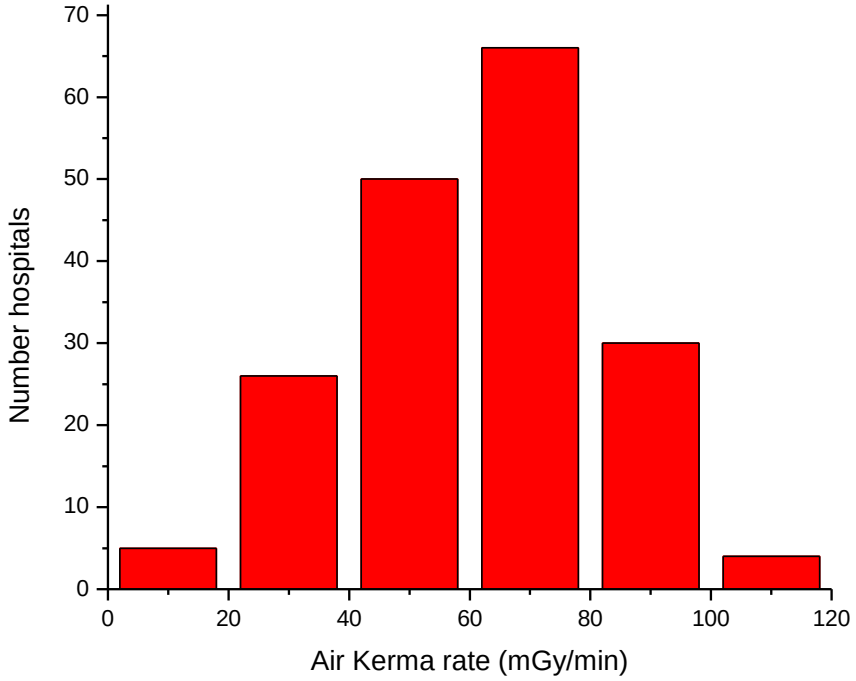
Table A – 54. Frequency distribution for range of exposure rate for fluoroscopy mode measured using the NEXT phantom and 0.8 mm copper.

AK rate	Frequency	Percent	Cumulative percent
0-20	5	2.8	2.8
20.1-40	26	14.4	17.2
40.1-60	50	27.6	44.8
60.1-80	66	36.5	81.3
80.1-100	30	16.6	97.9
100.1 +	4	2.2	100.1

Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Note: Exposure rate values were measured using the fluoroscopy phantom. The gantry was positioned to minimize source-to-image-distance (SID) and the exposure rate was measured at 1 cm above the table top. No inverse-square correction was performed.

EXPOSURE RATE FOR THE MOST FREQUENTLY USED FLUOROSCOPY MODE MEASURED WITH NEXT PHANTOM AND 0.8 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Note: Exposure rate values were measured using the fluoroscopy phantom. The gantry was positioned to minimize source-to-image-distance (SID) and the exposure rate was measured at 1 cm above the table top. No inverse-square correction was performed.

Figure A - 40. Range of exposure rate for fluoroscopy mode measured using the NEXT phantom and 0.8 mm copper.

EXPOSURE RATE IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 0.8 mm COPPER (Cu) IN THE BEAM

Table A - 55. Descriptive statistics for exposure rate in cine mode measured with the NEXT phantom and 0.8 mm copper.

AK rate	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
(mGy/min)	558.5	176	323.1	11.1	358.4	522.8	696.2	2486.9

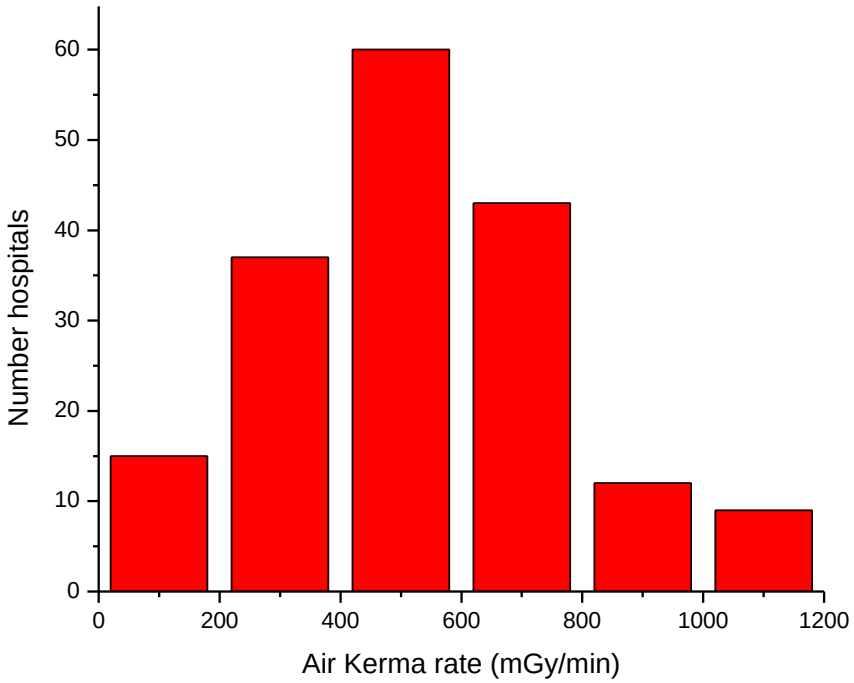
Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Table A – 56. Frequency distribution for range of exposure rate in cine mode measured with the NEXT phantom and 0.8 mm copper.

AK rate	Frequency	Percent	Cumulative percent
0-200	15	8.5	8.5
200.1-400	37	21.0	29.5
400.1-600	60	34.1	63.6
600.1-800	43	24.4	88.0
800.1-1000	12	6.8	94.8
1000.1 +	9	5.1	99.9

Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

EXPOSURE RATE IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 0.8 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1.)
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Figure A - 41. Range of exposure rate in cine mode measured with the NEXT phantom and 0.8 mm copper per number of hospitals.

VOLTAGE IN THE MOST USED FLUOROSCOPY MODE READING WITH THE NEXT PHANTOM AND 0.8 mm COPPER (Cu) IN THE BEAM

Table A – 58. Descriptive statistics for kVp in most used fluoroscopy mode reading with NEXT phantom and 0.8 mm copper.

kVp	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	90.8	181	12.7	65	82	89	97	124

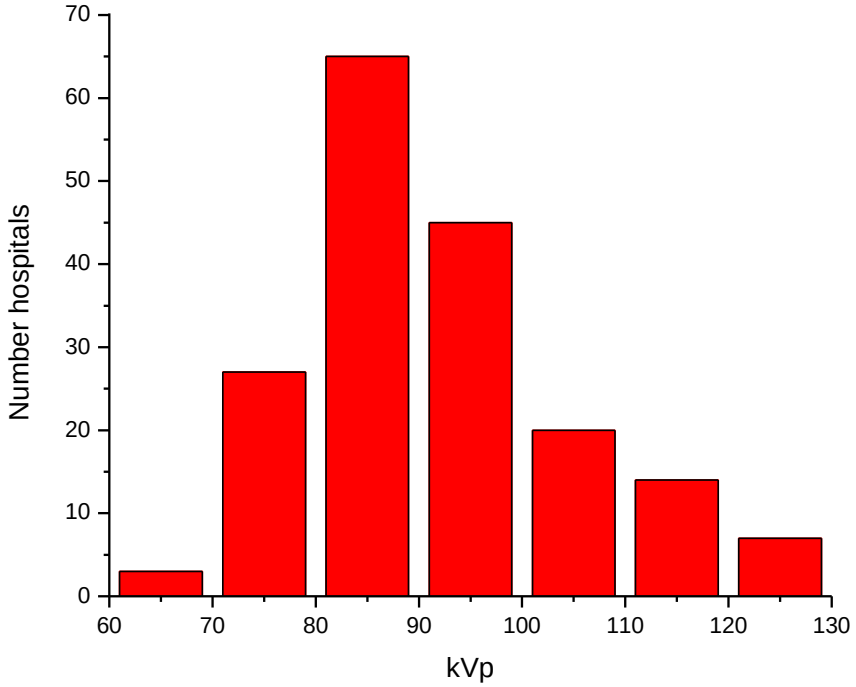
Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Table A – 58. Frequency distribution for range of kVp in most used fluoroscopy mode reading with NEXT phantom and 0.8 mm copper.

kVp	Frequency	Percent	Cumulative percent
60-70	3	1.7	1.7
70.1-80	27	14.9	16.6
80.1-90	65	35.9	52.5
90.1-100	45	24.9	77.4
100.1-110	20	11.0	88.4
110.1-120	14	7.7	96.1
120.1 +	7	3.9	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

VOLTAGE IN THE MOST USED FLUOROSCOPY MODEREADING WITH THE NEXT PHANTOM AND 0.8 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Figure A – 42. Range of kVp in most used fluoroscopy mode reading with NEXT phantom and 0.8 mm copper per number of hospitals.

VOLTAGE IN CINEANGIOGRAPHY MODE READING WITH THE NEXT PHANTOM AND 0.8 mm COPPER (Cu) IN THE BEAM

Table A – 59. Descriptive statistics kVp in cine mode reading with NEXT phantom and 0.8 mm copper.

kVp	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	80.2	176	7.6	65	76	79.9	83	125

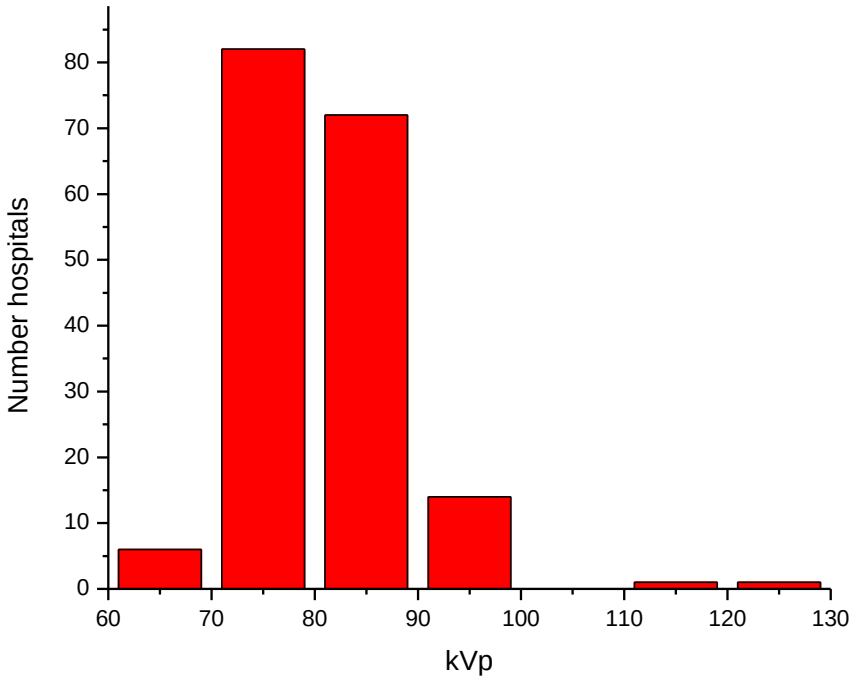
Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Table A – 60. Frequency distribution for range of kVp in cine mode reading with NEXT phantom and 0.8 mm copper.

kVp	Frequency	Percent	Cumulative percent
60-70	6	3.4	3.4
70.1-80	82	46.6	50.0
80.1-90	72	40.9	90.9
90.1-100	14	8.0	98.9
100.1-110	0	0	98.9
110.1-120	1	0.6	99.5
120.1 +	1	0.6	100.1

Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

VOLTAGE IN CINEANGIOGRAPHY MODE READING WITH THE NEXT PHANTOM AND 0.8 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Figure A – 43. Range of kVp in cine mode reading with NEXT phantom and 0.8 mm copper per number of hospitals.

CURRENT IN THE MOST USED FLUOROSCOPY MODE READING WITH THE NEXT PHANTOM AND 0.8 mm COPPER (Cu) IN THE BEAM

Table A – 61. Descriptive statistics for current in fluoroscopy mode reading with NEXT phantom and 0.8 mm copper.

mA	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	47.6	181	66.1	2.3	8.8	11.8	50.0	200.0

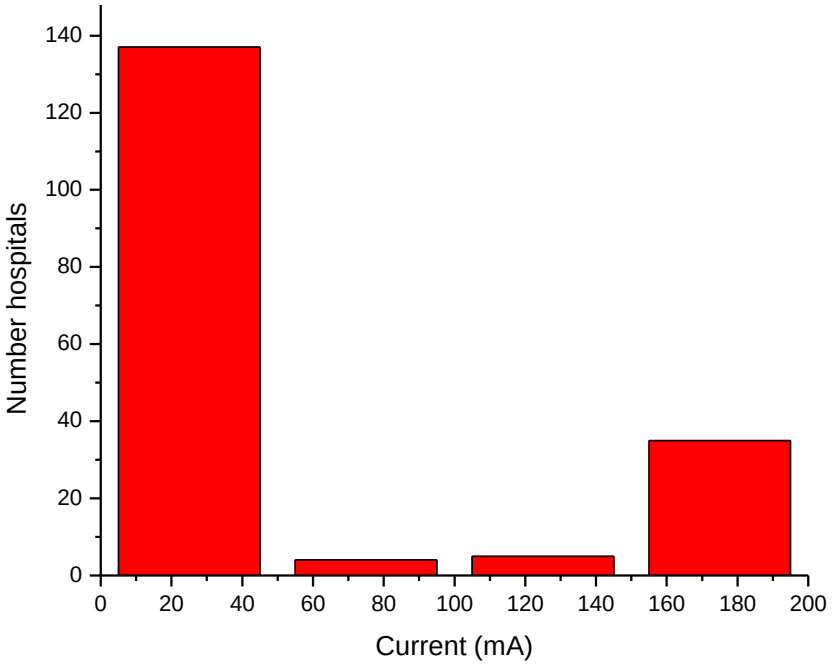
Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Table A – 62. Frequency distribution for range of current in fluoroscopy mode reading with NEXT phantom and 0.8 mm copper.

mA	Frequency	Percent	Cumulative percent
0-50	137	75.7	75.7
50.1-100	4	2.2	77.9
100.1-150	5	2.8	80.7
150.1-200	35	19.3	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

CURRENT IN THE MOST USED FLUOROSCOPY MODE READING WITH THE NEXT PHANTOM AND 0.8 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Figure A - 44. Range of current in fluoroscopy mode reading with NEXT phantom and 0.8 mm copper per number of hospitals.

CURRENT IN CINEANGIOGRAPHY MODE READING WITH THE NEXT PHANTOM AND 0.8 mm COPPER (Cu) IN THE BEAM

Table A – 63. Descriptive statistics for current in cine mode reading with NEXT phantom and 0.8 mm copper.

mA	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	463.0	176	323.9	3.3	76.6	609.8	752.5	996.0

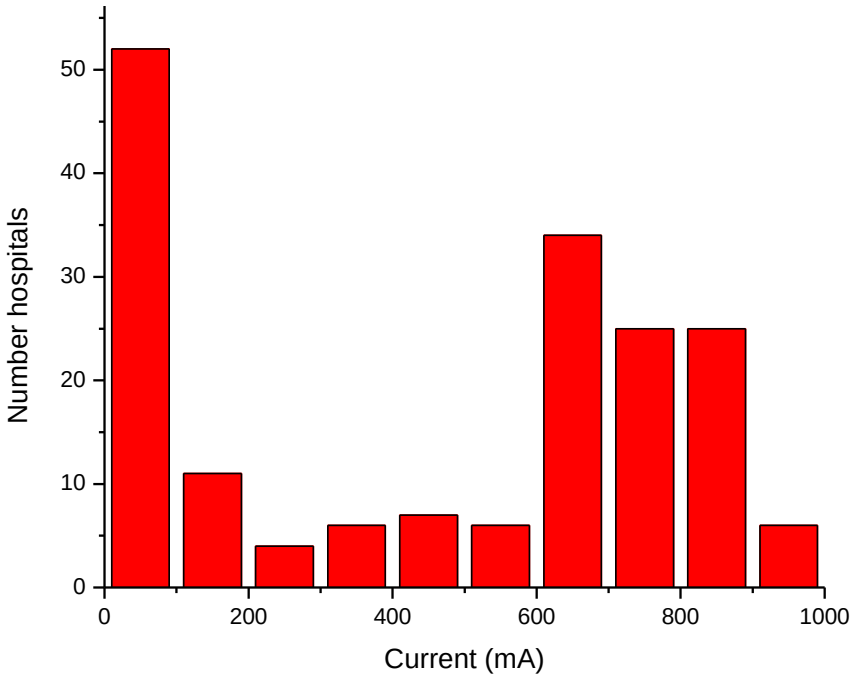
Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Table A – 64. Frequency distribution for range of current in cine mode reading with NEXT phantom and 0.8 mm copper.

mA	Frequency	Percent	Cumulative percent
0-100	52	29.5	29.5
100.1-200	11	6.3	35.8
200.1-300	4	2.3	38.1
300.1-400	6	3.4	41.5
400.1-500	7	4.0	45.5
500.1-600	6	3.4	48.9
600.1-700	34	19.3	68.2
700.1-800	25	14.2	82.4
800.1-900	25	14.2	96.6
900.1-1000	6	3.4	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

CURRENT IN CINEANGIOGRAPHY MODE, READING WITH THE NEXT PHANTOM AND 0.8 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Figure A – 45. Range of current in cine mode reading with NEXT phantom and 0.8 mm copper per number of hospitals.

EXPOSURE RATE IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM AND 1.5 mm COPPER (Cu) IN THE BEAM

Table A – 65. Descriptive statistics for exposure rate in fluoroscopy mode measured with NEXT phantom and 1.5 mm copper.

AK rate	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
(mGy/min)	82.4	181	85.4	8.4	66.9	78.0	86.1	1017.4

Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Exposure rate values were measured using the fluoroscopy phantom. The gantry was positioned to minimize source-to-image distance (SID) and the exposure rate was measured at 1 cm above the table top. No inverse-square correction was performed.

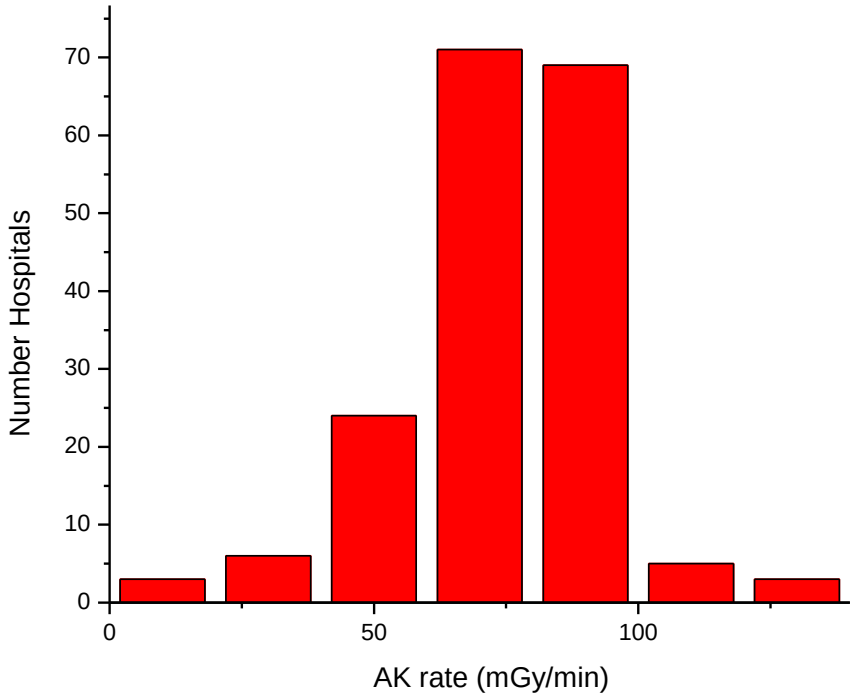
Table A – 66. Frequency distribution for range of exposure rate in fluoroscopy mode measured with NEXT phantom and 1.5 mm copper.

AK rate	Frequency	Percent	Cumulative percent
0-20	3	1.7	1.7
20.1-40	6	3.3	5.0
40.1-60	24	13.3	18.3
60.1-80	71	39.2	57.5
80.1-100	69	38.1	95.6
100.1-120	5	2.8	98.4
120.1 +	3	1.7	100.1

Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Exposure rate values were measured using the fluoroscopy phantom. The gantry was positioned to minimize source-to-image distance (SID) and the exposure rate was measured at 1 cm above the table top. No inverse-square correction was performed.

EXPOSURE RATE IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM AND 1.5 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Exposure rate values were measured using the fluoroscopy phantom. The gantry was positioned to minimize source-to-image distance (SID) and the exposure rate was measured at 1 cm above the table top. No inverse-square correction was performed.

Figure A – 46. Range of exposure rate in fluoroscopy mode measured with NEXT phantom and 1.5 mm copper per number of hospitals.

EXPOSURE RATE IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 1.5 mm COPPER (Cu) IN THE BEAM

Table A – 67. Descriptive statistics for exposure rate in cine mode measured with NEXT phantom and 1.5 mm copper.

AK rate	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
(mGy/min)	807.3	176	383.0	14.0	587.4	739.0	965.6	2826.1

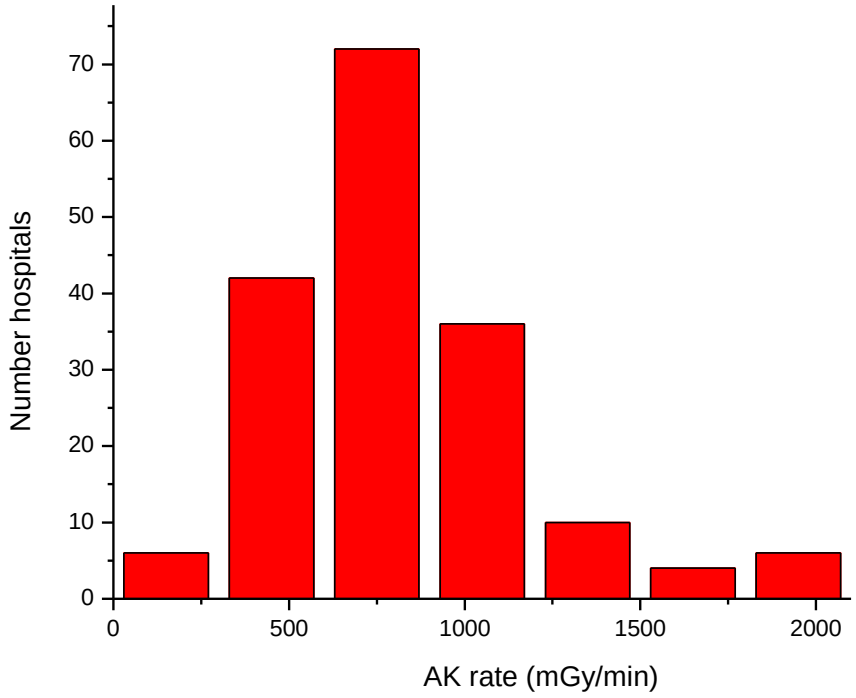
Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Table A – 68. Frequency distribution for range of exposure rate in cine mode measured with NEXT phantom and 1.5 mm copper.

AK rate	Frequency	Percent	Cumulative percent
0-300	6	3.4	3.4
300.1-600	42	23.9	27.3
600.1-900	72	40.9	68.2
900.1-1200	36	20.5	88.7
1200.1-1500	10	5.7	94.4
1500.1-1800	4	2.3	96.7
1800.1 +	6	3.4	100.1

Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

EXPOSURE RATE IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 1.5 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Figure A – 47. Range of exposure rate in cine mode measured with NEXT phantom and 1.5 mm copper per number of hospitals.

VOLTAGE IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM AND 1.5 mm COPPER (Cu) IN THE BEAM

Table A - 69. Descriptive statistics for voltage in fluoroscopy mode measured with NEXT phantom and 1.5 mm copper.

kVp	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	103.0	181	12.4	70	94	104	110	125

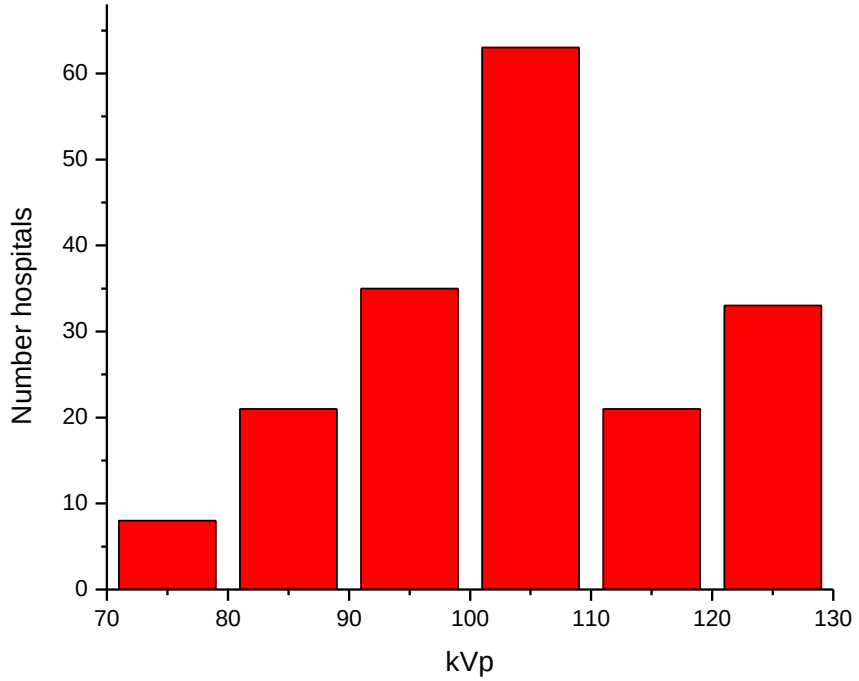
Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Table A - 70. Frequency distribution for range of voltage in fluoroscopy mode measured with NEXT phantom and 1.5 mm copper.

kVp	Frequency	Percent	Cumulative percent
70.1-80	8	4.4	4.4
80.1-90	21	11.6	16.0
90.1-100	35	19.3	35.3
100.1-110	63	34.8	70.1
110.1-120	21	11.6	81.7
120.1 +	33	18.2	99.9

Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

VOLTAGE IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM AND 1.5 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Figure A – 48. Range of voltage in fluoroscopy mode measured with NEXT phantom and 1.5 mm copper per number of hospitals.

VOLTAGE IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 1.5 mm COPPER (Cu) IN THE BEAM

Table A – 71. Descriptive statistics for voltage in cine mode measured with NEXT phantom and 1.5 mm copper.

kVp	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	89.7	176	9.1	72	84	89	95	120

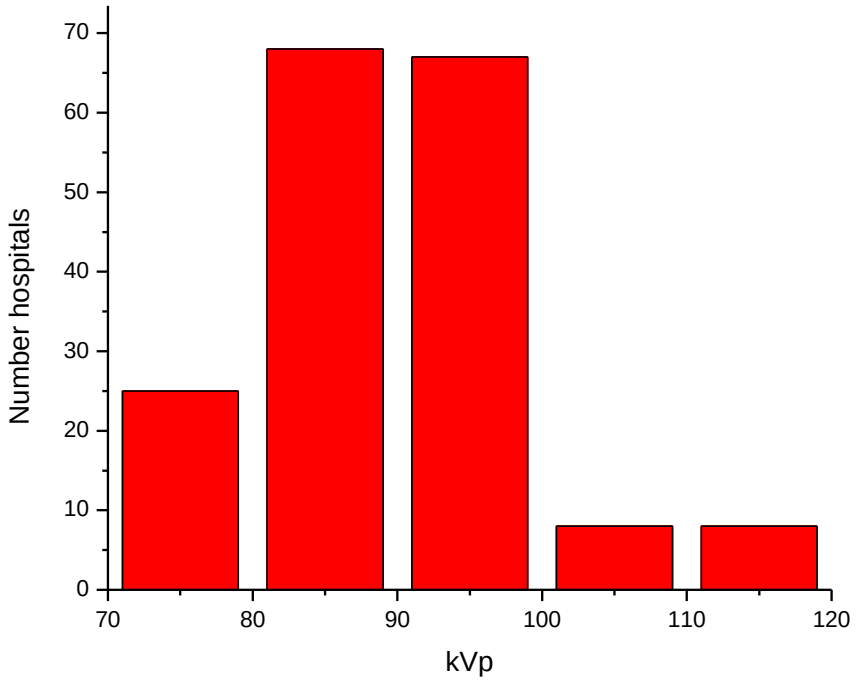
Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Table A – 72. Frequency distribution for range of voltage in cine mode measured with NEXT phantom and 1.5 mm copper.

kVp	Frequency	Percent	Cumulative percent
70.1-80	25	14.2	14.2
80.1-90	68	38.6	52.8
90.1-100	67	38.1	90.9
100.1-110	8	4.5	95.4
110.1-120	8	4.5	99.9

Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

VOLTAGE IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 1.5 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Figure A – 49. Range of voltage in cine mode measured with NEXT phantom and 1.5 mm copper per number of hospitals.

CURRENT IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM AND 1.5 mm COPPER (Cu) IN THE BEAM

Table A – 73. Descriptive statistics for current in fluoroscopy mode measured with NEXT phantom and 1.5 mm copper.

mA	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	44.3	180	64.2	2.1	7.3	10.1	48.0	200.0

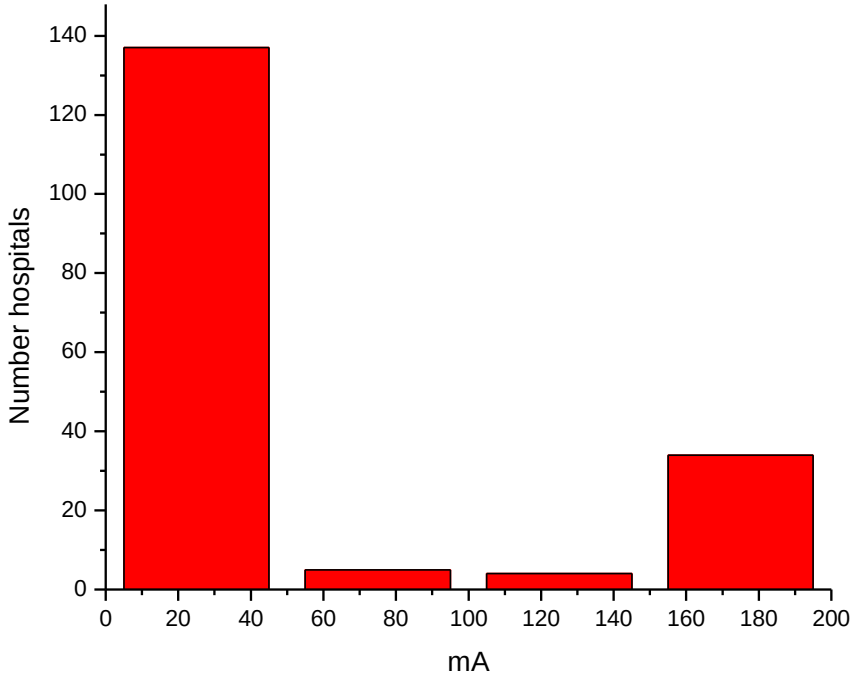
Reference: Surveyor Worksheet (Table 1).
Number observations = 180. Missing data = 19 (not entered by the surveyors).

Table A – 74. Frequency distribution for range of current in fluoroscopy mode measured with NEXT phantom and 1.5 mm copper.

mA	Frequency	Percent	Cumulative percent
0-50	137	76.1	76.1
50.1-100	5	2.8	78.9
100.1-150	4	2.2	81.1
150.1-200	34	18.9	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 180. Missing data = 19 (not entered by the surveyors).

CURRENT IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM AND 1.5 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 180. Missing data = 19 (not entered by the surveyors).

Figure A - 50. Range of current in fluoroscopy mode measured with NEXT phantom and 1.5 mm copper per number of hospitals.

CURRENT IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 1.5 mm COPPER (Cu) IN THE BEAM

Table A - 75. Descriptive statistics for current in cine mode measured with NEXT phantom and 1.5 mm copper.

mA	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	477.9	176	341.2	3	72	592.5	816	915

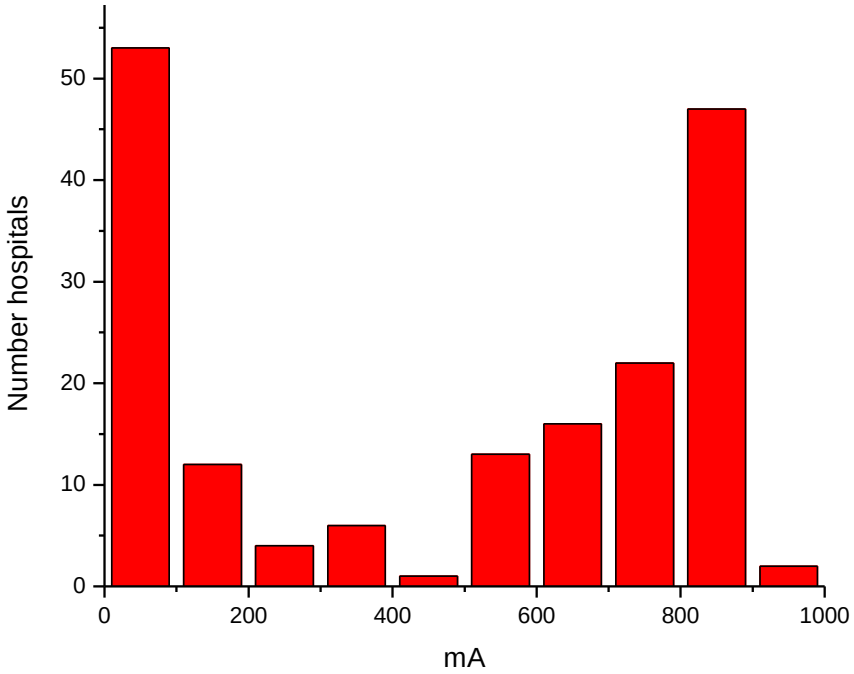
Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Table A – 76. Frequency distribution for range of current in cine mode measured with NEXT phantom and 1.5 mm copper.

mA	Frequency	Percent	Cumulative percent
0-100	53	30.1	30.1
100.1-200	12	6.8	36.9
200.1-300	4	2.3	39.2
300.1-400	6	3.4	42.6
400.1-500	1	0.6	43.2
500.1-600	13	7.4	50.6
600.1-700	16	9.1	59.7
700.1-800	22	12.5	72.2
800.1-900	47	26.7	98.9
900.1-1000	2	1.1	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

CURRENT IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 1.5 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Figure A – 51. Range of current in cine mode measured with NEXT phantom and 1.5 mm copper per number of hospitals.

EXPOSURE RATE IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM AND 2.3 mm COPPER (Cu) IN THE BEAM

Table A – 77. Descriptive statistics for exposure in fluoroscopy mode measured with NEXT phantom and 2.3 mm copper.

AK rate	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
(mGy/min)	92.0	180	99.0	8.5	71.0	82.9	91.1	960.9

Reference: Surveyor Worksheet (Table 1).
Number observations = 180. Missing data = 19 (not entered by the surveyors).

Exposure rate values were measured using the fluoroscopy phantom. The gantry was positioned to minimize source-to-image distance (SID) and the exposure rate was measured at 1 cm above the table top. No inverse-square correction was performed.

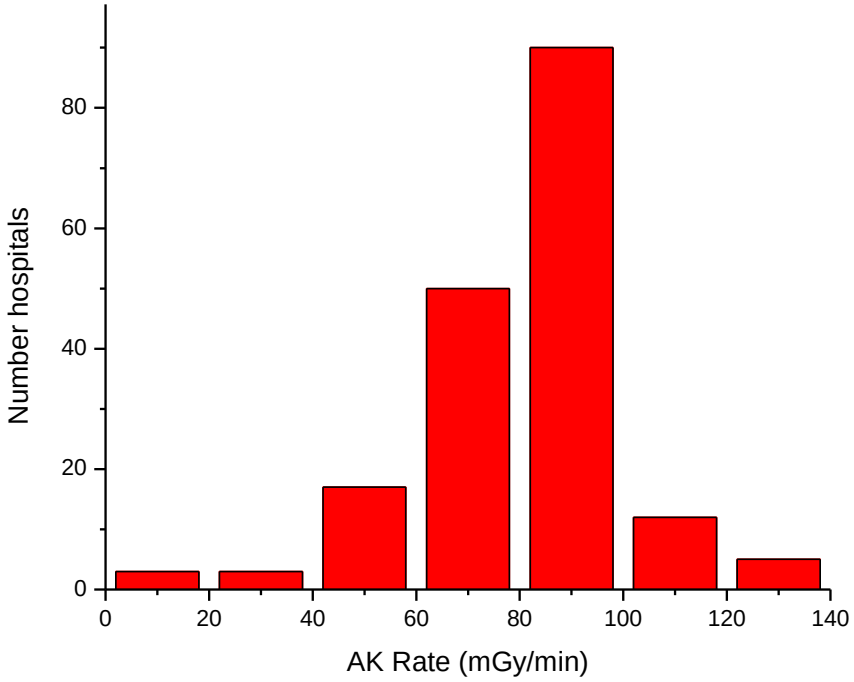
Table A – 78. Frequency distribution for range of exposure in fluoroscopy mode measured with NEXT phantom and 2.3 mm copper.

AK rate	Frequency	Percent	Cumulative percent
0-20	3	1.7	1.7
20.1-40	3	1.7	3.4
40.1-60	17	9.4	12.8
60.1-80	50	27.8	40.6
80.1-100	90	50.0	90.6
100.1-120	12	6.7	97.3
120.1 +	5	2.8	100.1

Reference: Surveyor Worksheet (Table 1).
Number observations = 180. Missing data = 19 (not entered by the surveyors).

Exposure rate values were measured using the fluoroscopy phantom. The gantry was positioned to minimize source-to-image distance (SID) and the exposure rate was measured at 1 cm above the table top. No inverse-square correction was performed.

EXPOSURE RATE IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM AND 2.3 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 180. Missing data = 19 (not entered by the surveyors).

Exposure rate values were measured using the fluoroscopy phantom. The gantry was positioned to minimize source-to-image distance (SID) and the exposure rate was measured at 1 cm above the table top. No inverse-square correction was performed.

Figure A – 52. Range of exposure in fluoroscopy mode measured with NEXT phantom and 2.3 mm copper per number of hospitals.

EXPOSURE RATE IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 2.3 mm COPPER (Cu) IN THE BEAM

Table A - 79. Descriptive statistics for exposure rate in cine mode with NEXT phantom and 2.3 mm copper.

AK rate	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
(mGy/min)	1025.1	176	640.5	12.4	777.6	913.3	1177.5	7432.6

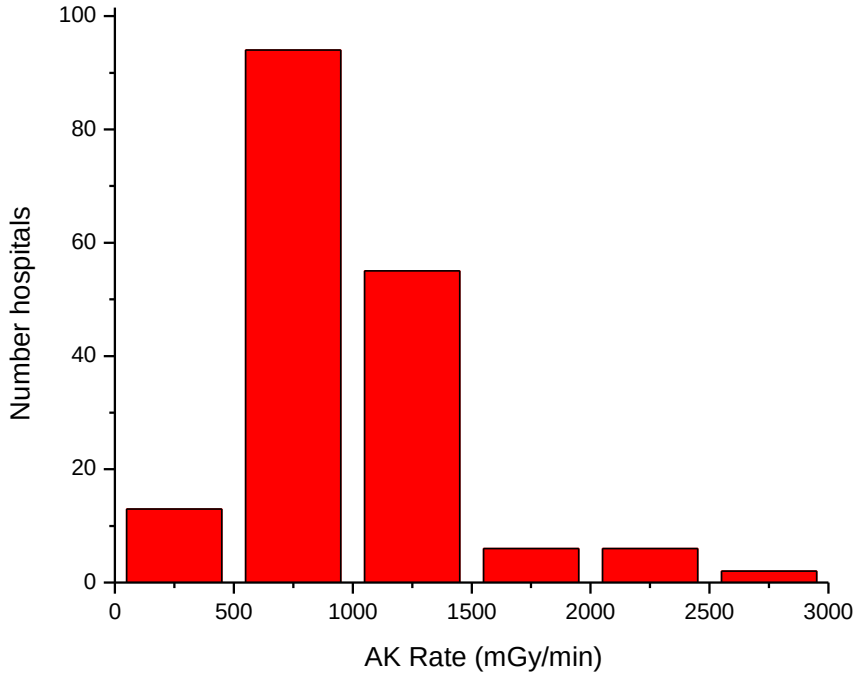
Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Table A - 80. Frequency distribution for range of exposure rate in cine mode with NEXT phantom and 2.3 mm copper.

AK rate	Frequency	Percent	Cumulative percent
0-500	13	7.4	7.4
500.1-1000	94	53.4	60.8
1000.1-1500	55	31.3	92.1
1500.1-2000	6	3.4	95.5
2000.1-2500	6	3.4	98.9
2500.1 +	2	1.1	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

EXPOSURE RATE IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 2.3 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Figure A – 53. Range of exposure rate in cine mode with NEXT phantom and 2.3 mm copper per number of hospitals.

VOLTAGE IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM AND 2.3 mm COPPER (Cu) IN THE BEAM

Table A – 81. Descriptive statistics for voltage in fluoroscopy mode measured with NEXT phantom and 2.3 mm copper.

kVp	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	112.0	180	10.1	84.0	107.5	115.0	120.0	125.0

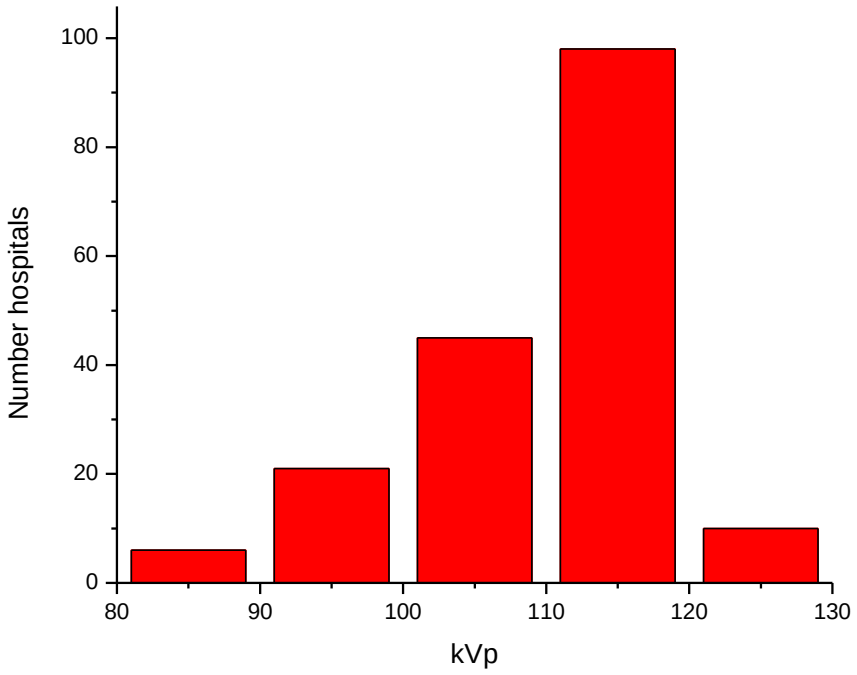
Reference: Surveyor Worksheet (Table 1).
Number observations = 180. Missing data = 19 (not entered by the surveyors).

Table A – 82. Frequency distribution for range of voltage in fluoroscopy mode measured with NEXT phantom and 2.3 mm copper.

kVp	Frequency	Percent	Cumulative percent
80-90	6	3.3	3.3
90.1-100	21	11.7	15.0
100.1-110	45	25.0	40.0
110.1-120	98	54.4	94.4
120.1-130	10	5.6	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 180. Missing data = 19 (not entered by the surveyors).

VOLTAGE IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM AND 2.3 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 180. Missing data = 19 (not entered by the surveyors).

Figure A – 54. Range of voltage in fluoroscopy mode measured with NEXT phantom and 2.3 mm copper per number of hospitals.

VOLTAGE IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 2.3 mm COPPER (Cu) IN THE BEAM

Table A – 83. Descriptive statistics for voltage in cineangiography mode measured with NEXT phantom and 2.3 mm copper.

kVp	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	99.0	176	10.5	73.9	93.0	98.0	104.0	125.0

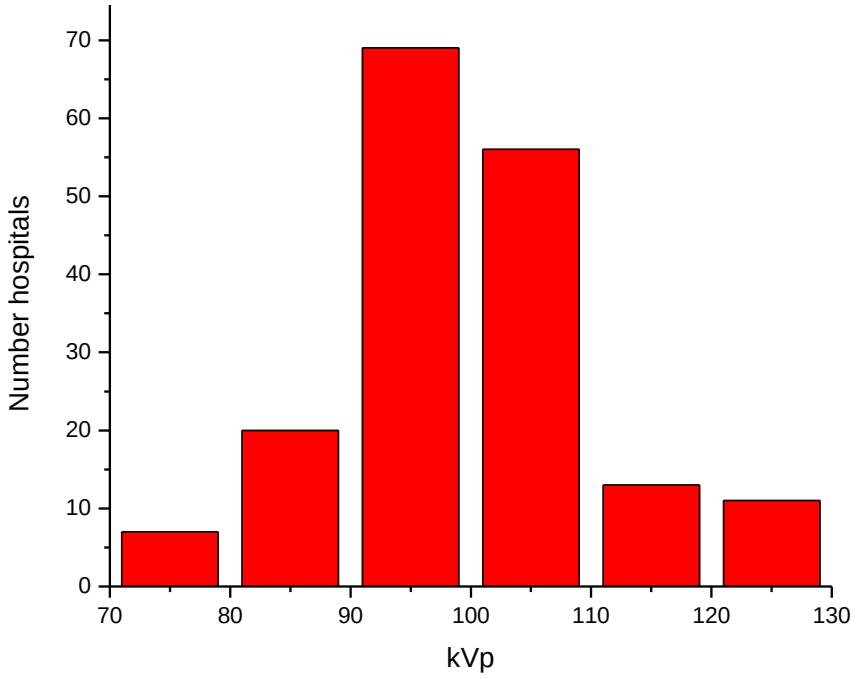
Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Table A – 84. Frequency distribution for range of voltage in cineangiography mode measured with NEXT phantom and 2.3 mm copper.

kVp	Frequency	Percent	Cumulative percent
70-80	7	4.0	4.0
80.1-90	20	11.4	15.4
90.1-100	69	39.2	54.6
100.1-110	56	31.8	86.4
110.1-120	13	7.4	93.8
120.1-130	11	6.3	100.1

Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

VOLTAGE IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 2.3 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Figure A – 55. Range of voltage in cineangiography mode measured with NEXT phantom and 2.3 mm copper per number of hospitals.

CURRENT IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM AND 2.3 mm COPPER (Cu) IN THE BEAM

Table A – 85. Descriptive statistics for current in fluoroscopy mode measured with NEXT phantom and 2.3 mm copper.

mA	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	41.4	179	59.5	2.2	6.8	8.5	50.0	190.0

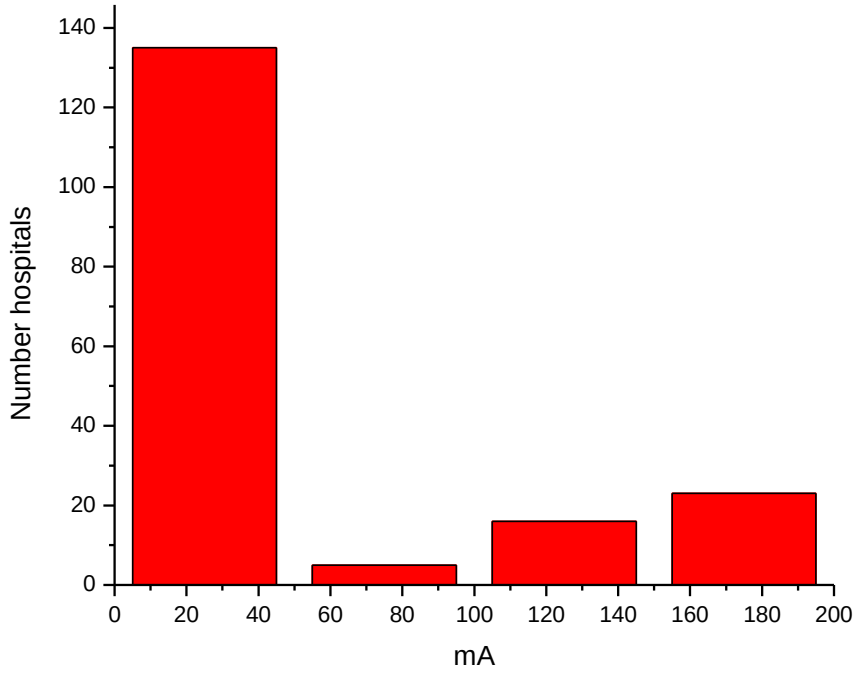
Reference: Surveyor Worksheet (Table 1).
Number observations = 179. Missing data = 20 (not entered by the surveyors).

Table A – 86. Frequency distribution for range of current in fluoroscopy mode measured with NEXT phantom and 2.3 mm copper.

mA	Frequency	Percent	Cumulative percent
0-50	135	75.4	75.4
50.1-100	5	2.8	78.2
100.1-150	16	8.9	87.1
150.1-200	23	12.8	99.9

Reference: Surveyor Worksheet (Table 1).
Number observations = 179. Missing data = 20 (not entered by the surveyors).

CURRENT IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM AND 2.3 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 179. Missing data = 20 (not entered by the surveyors).

Figure A – 56. Range of current in fluoroscopy mode measured with NEXT phantom and 2.3 mm copper per number of hospitals.

CURRENT IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 2.3 mm COPPER (Cu) IN THE BEAM

Table A – 87. Descriptive statistics for current in cine mode measured with NEXT phantom and 2.3 mm copper.

mA	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	462.3	175	325.0	4.1	73.0	555.0	766.0	1000.0

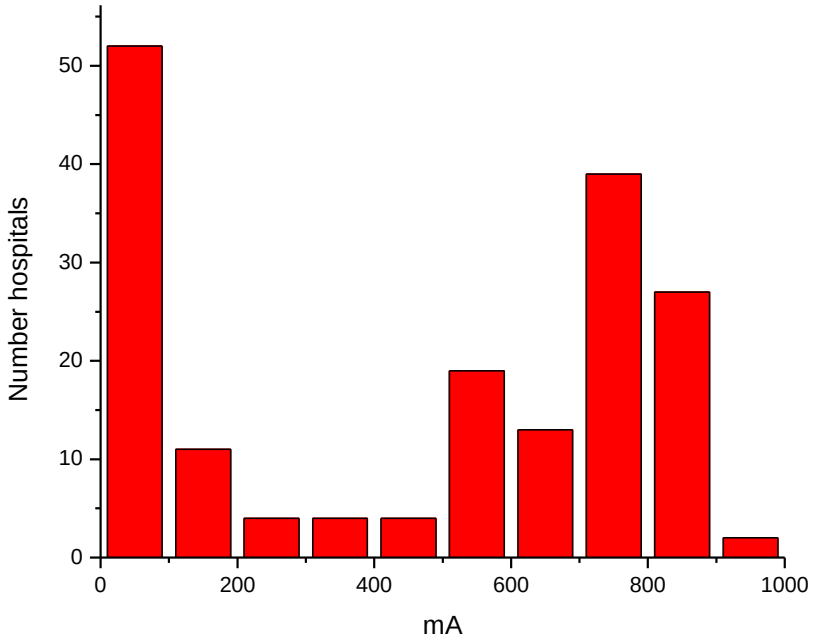
Reference: Surveyor Worksheet (Table 1).
Number observations = 175. Missing data = 24 (not entered by the surveyors).

Table A – 88. Frequency distribution for current in cine mode measured with NEXT phantom and 2.3 mm copper.

mA	Frequency	Percent	Cumulative percent
0-100	52	29.7	29.7
100.1-200	11	6.3	36.0
200.1-300	4	2.3	38.3
300.1-400	4	2.3	40.6
400.1-500	4	2.3	42.9
500.1-600	19	10.9	53.8
600.1-700	13	7.4	61.2
700.1-800	39	22.3	83.5
800.1-900	27	15.4	98.9
900.1-1000	2	1.1	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 175. Missing data = 24 (not entered by the surveyors).

CURRENT IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 2.3 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 175. Missing data = 24 (not entered by the surveyors).

Figure A - 57. Range of current in cine mode measured with NEXT phantom and 2.3 mm copper per number of hospitals.

EXPOSURE RATE IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM AND 3.1 mm COPPER (Cu) IN THE BEAM

Table A – 89. Descriptive statistics for exposure rate in fluoroscopy mode measured with NEXT phantom and 3.1 mm copper.

AK rate	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
(mGy/min)	92.6	179	99.1	8.6	74.1	85.2	93.3	1045.6

Reference: Surveyor Worksheet (Table 1).
Number observations = 179. Missing data = 20 (not entered by the surveyors).

Exposure rate values were measured using the fluoroscopy phantom and copper. The gantry was positioned to minimize source-to-image (SID) and the exposure rate was measured at 1 cm above the table top. No inverse square correction was performed.

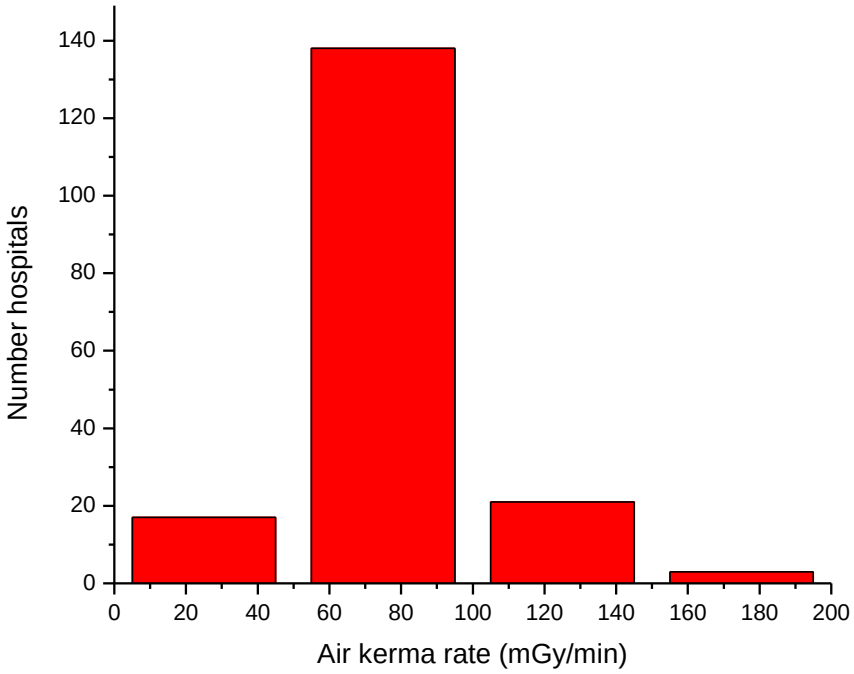
Table A – 90. Frequency distribution for range of exposure rate in fluoroscopy mode measured with NEXT phantom and 3.1 mm copper.

AK rate	Frequency	Percent	Cumulative percent
0-50	17	9.5	9.5
50.1-100	138	77.1	86.6
100.1-150	21	11.7	98.3
150.1 +	3	1.7	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 179. Missing data = 20 (not entered by the surveyors).

Exposure rate values were measured using the fluoroscopy phantom and copper. The gantry was positioned to minimize source-to-image (SID) and the exposure rate was measured at 1 cm above the table top. No inverse square correction was performed.

EXPOSURE RATE IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM AND 3.1 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 179. Missing data = 20 (not entered by the surveyors).

Exposure rate values were measured using the fluoroscopy phantom and copper. The gantry was positioned to minimize source-to-image (SID) and the exposure rate was measured at 1 cm above the table top. No inverse square correction was performed.

Figure A – 58. Range of exposure in fluoroscopy mode measured with NEXT phantom and 3.1 mm copper per number of hospitals.

EXPOSURE RATE IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 3.1 mm COPPER (Cu) IN THE BEAM

Table A – 91. Descriptive statistics for exposure rate in cine mode measured with NEXT phantom and 3.1 mm copper.

AK rate (mGy/min)	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	1180.7	176	499.5	14.6	874.7	1092.7	1413.0	2788.4

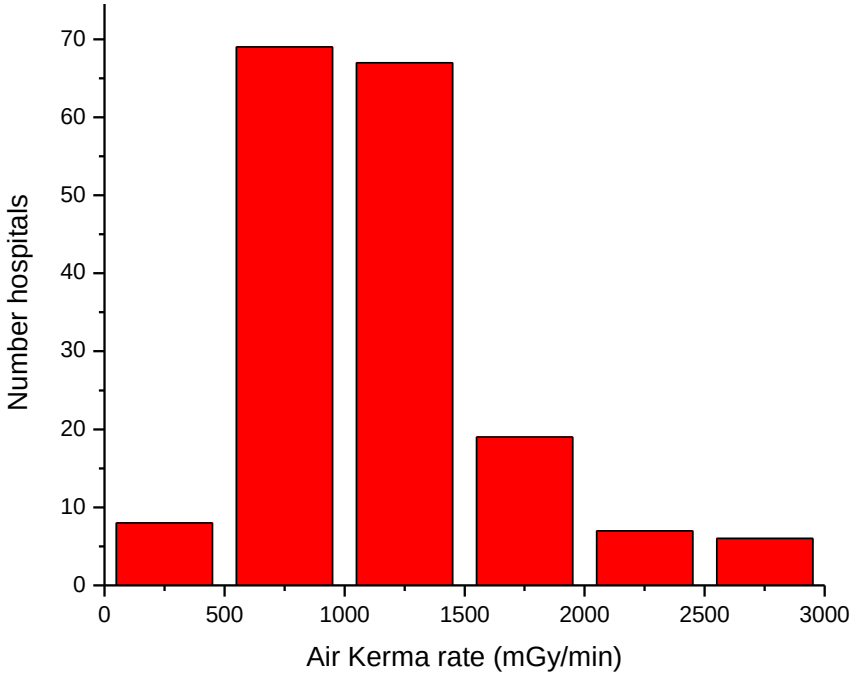
Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Table A – 92. Frequency distribution for range of exposure rate in cine mode measured with NEXT phantom and 3.1 mm copper.

AK rate	Frequency	Percent	Cumulative percent
0-500	8	4.5	4.5
500.1-1000	69	39.2	43.7
1000.1-1500	67	38.1	81.8
1500.1-2000	19	10.8	92.6
2000.1-2500	7	4.0	96.6
2500.1 +	6	3.4	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

EXPOSURE RATE IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 3.1 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Figure A – 59. Range of exposure rate in cine mode measured with NEXT phantom and 3.1 mm copper per number of hospitals.

VOLTAGE IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM AND 3.1 mm COPPER (Cu) IN THE BEAM

Table A – 93. Descriptive statistics for voltage in fluoroscopy mode measured with NEXT phantom and 3.1 mm copper.

kVp	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	115.6	179	10.8	7.7	110.0	120.0	120.0	127.0

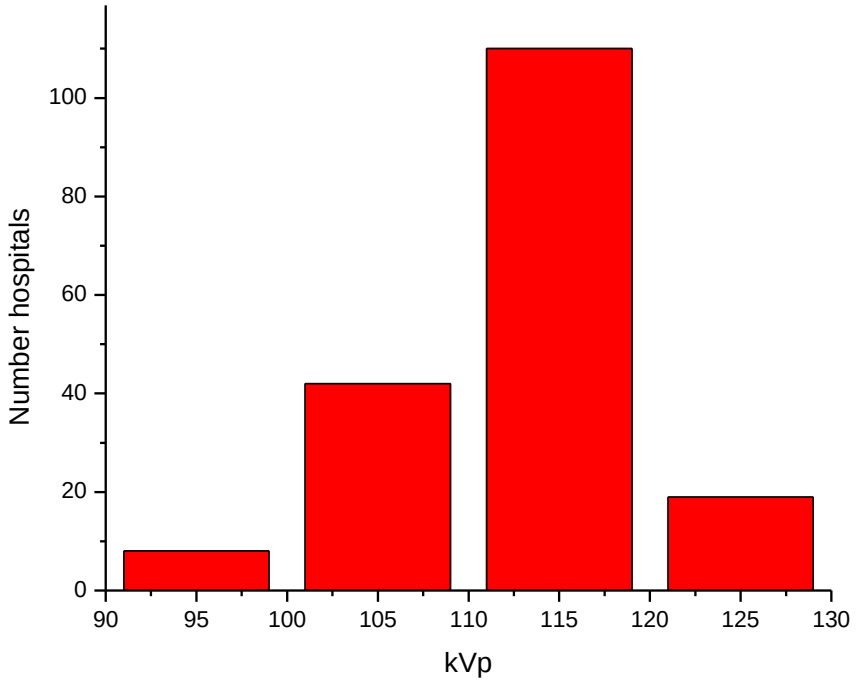
Reference: Surveyor Worksheet (Table 1).
Number observations = 179. Missing data = 20 (not entered by the surveyors).

Table A – 94. Frequency distribution for range of voltage in fluoroscopy mode measured with NEXT phantom and 3.1 mm copper.

kVp	Frequency	Percent	Cumulative percent
90-100	8	4.5	4.5
100.1-110	42	23.5	28.0
110.1-120	110	61.5	89.5
120.1-130	19	10.6	100.1

Reference: Surveyor Worksheet (Table 1).
Number observations = 179. Missing data = 20 (not entered by the surveyors).

VOLTAGE IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM AND 3.1 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 179. Missing data = 20 (not entered by the surveyors).

Figure A – 60. Range of voltage in fluoroscopy mode measured with NEXT phantom and 3.1 mm copper per number of hospitals.

VOLTAGE IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 3.1 mm COPPER (Cu) IN THE BEAM

Table A – 95. Descriptive statistics for voltage in fluoroscopy mode measured with NEXT phantom and 3.1 mm copper.

kVp	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	110.1	176	44.4	70	101	106	116	679

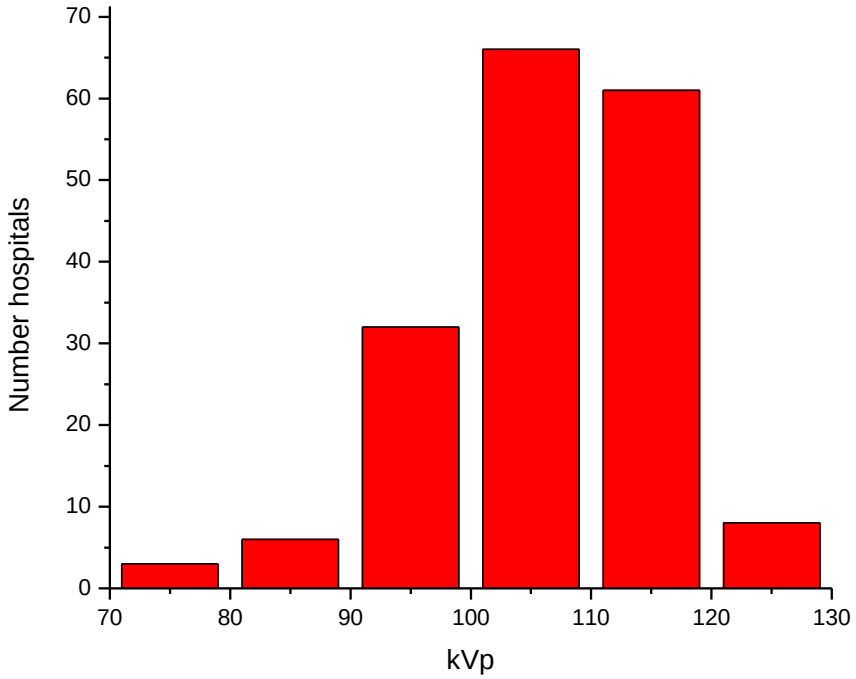
Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Table A – 96. Frequency distribution for range of voltage in fluoroscopy mode measured with NEXT phantom and 3.1 mm copper.

kVp	Frequency	Percent	Cumulative percent
70-80	3	1.7	1.7
80.1-90	6	3.4	5.1
90.1-100	32	18.2	23.3
100.1-110	66	37.5	60.8
110.1-120	61	34.7	95.5
120.1-130	8	4.5	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

VOLTAGE IN CINEANGIOGRAPHY MODE, MEASURED WITH THE NEXT PHANTOM AND 3.1 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Figure A – 61. Range of voltage in fluoroscopy mode measured with NEXT phantom and 3.1 mm copper per number of hospitals.

CURRENT IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM AND 3.1 mm COPPER (Cu) IN THE BEAM

Table A – 97. Descriptive statistics for current in fluoroscopy mode measured with NEXT phantom and 3.1 mm copper.

mA	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	42.9	179	76.5	2.1	6.7	8.2	62.7	752.0

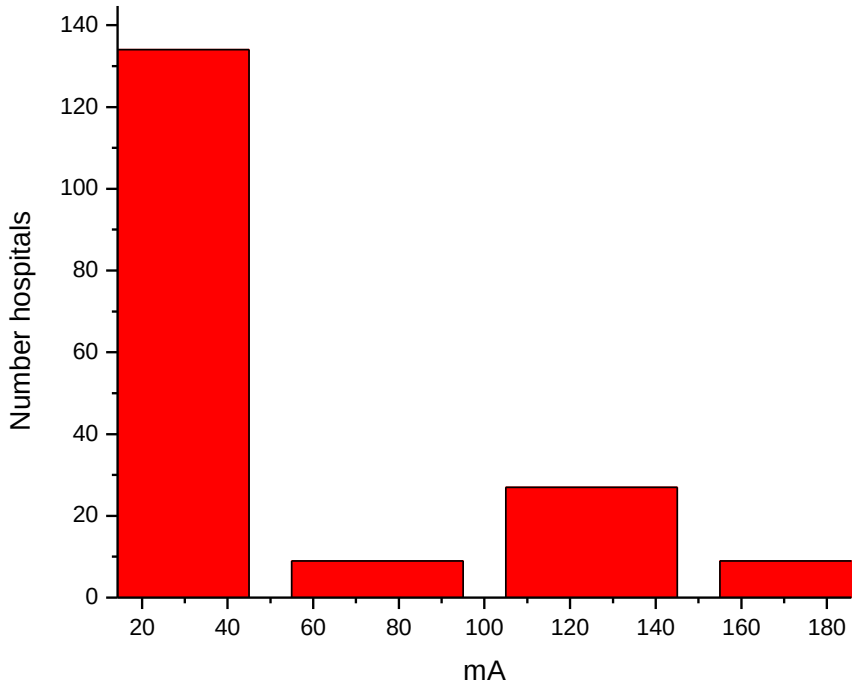
Reference: Surveyor Worksheet (Table 1).
Number observations = 179. Missing data = 20 (not entered by the surveyors).

Table A – 98. Frequency distribution for range of current in fluoroscopy mode measured with NEXT phantom and 3.1 mm copper.

mA	Frequency	Percent	Cumulative percent
0-50	134	74.9	74.9
50.1-100	9	5.0	79.9
100.1-150	27	15.1	95.0
150.1 +	9	5.0	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 179. Missing data = 20 (not entered by the surveyors).

CURRENT IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM AND 3.1 mm COPPER (Cu) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 179. Missing data = 20 (not entered by the surveyors).

Figure A - 62. Range of current in fluoroscopy mode measured with NEXT phantom and 3.1 mm copper per number of hospitals.

CURRENT IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 3.1 mm COPPER (Cu)

Table A – 99. Descriptive statistics for current in cine mode measured with NEXT phantom and 3.1 mm copper.

mA	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	427.1	176	298.3	4.6	74.0	502.9	703.5	940.0

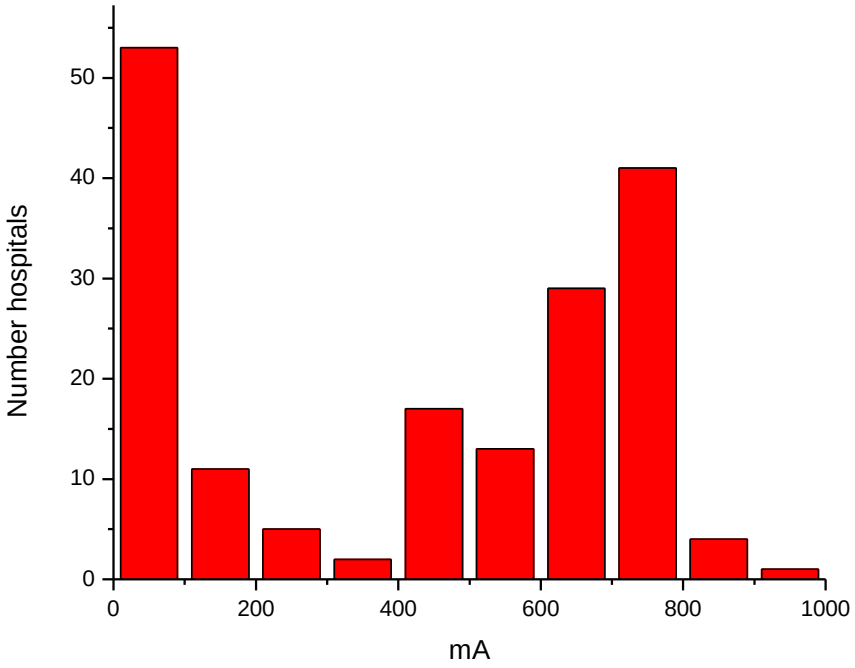
Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Table A – 100. Frequency distribution for range of current in cine mode measured with NEXT phantom and 3.1 mm copper.

mA	Frequency	Percent	Cumulative percent
0-100	53	30.1	30.1
100.1-200	11	6.3	36.4
200.1-300	5	2.8	39.2
300.1-400	2	1.1	40.3
400.1-500	17	9.7	50.0
500.1-600	13	7.4	57.4
600.1-700	29	16.5	73.9
700.1-800	41	23.3	97.2
800.1-900	4	2.3	99.5
900.1-1000	1	0.6	100.1

Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

CURRENT IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM AND 3.1 mm COPPER (Cu)



Reference: Surveyor Worksheet (Table 1).
Number observations = 176. Missing data = 23 (not entered by the surveyors).

Figure A - 63. Range of current in cine mode measured with NEXT phantom and 3.1 mm copper per number of hospitals.

EXPOSURE RATE IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM, 3.1 MM COPPER (CU) AND 2.0 mm LEAD (PB) IN THE BEAM

Table A – 101. Descriptive statistics for exposure rate in fluoroscopy mode measured with NEXT phantom, 3.1 mm copper and one 2.0 mm lead sheet.

AK rate	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
(mGy/min)	83.8	151	22.2	14.4	73.5	88.0	95.1	147.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 151. Missing data = 48 (not entered by the surveyors).

Exposure rate values were measured using the fluoroscopy phantom. The gantry was positioned to minimize source-to-image (SID) and the exposure rate was measured at 1 cm above the table top. No inverse square correction was performed.

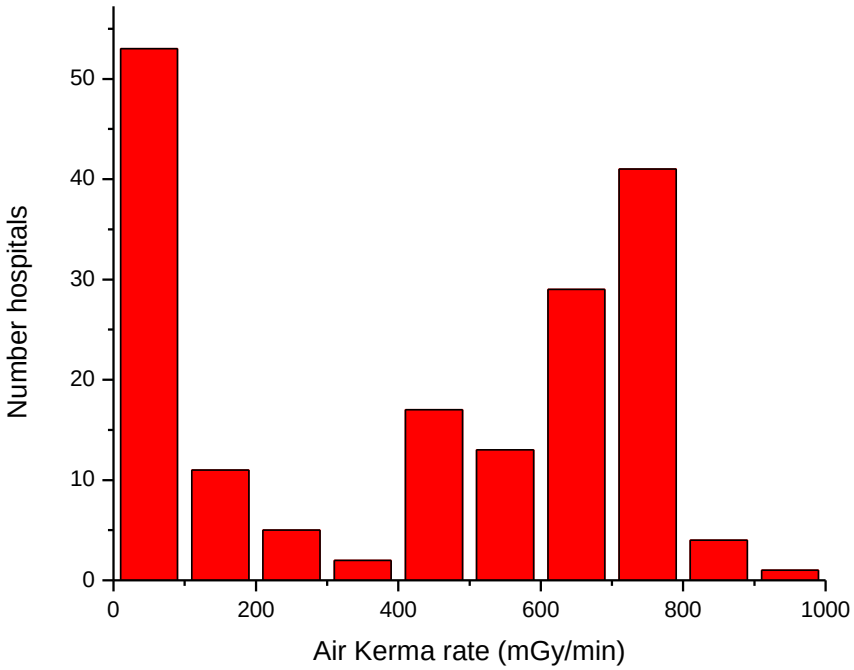
Table A – 102. Frequency distribution for range of exposure rate in fluoroscopy mode measured with NEXT phantom, 3.1 mm copper and one 2.0 mm lead sheet.

AK rate	Frequency	Percent	Cumulative percent
0-50	16	10.6	10.6
50.1-100	112	74.2	84.8
100.1-150	23	15.2	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 151. Missing data = 48 (not entered by the surveyors).

Exposure rate values were measured using the fluoroscopy phantom. The gantry was positioned to minimize source-to-image (SID) and the exposure rate was measured at 1 cm above the table top. No inverse square correction was performed.

EXPOSURE RATE IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM, 3.1 MM COPPER (CU) AND 2.0 mm LEAD (PB) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 151. Missing data = 48 (not entered by the surveyors).

Exposure rate values were measured using the fluoroscopy phantom. The gantry was positioned to minimize source-to-image (SID) and the exposure rate was measured at 1 cm above the table top. No inverse square correction was performed.

Figure A – 64. Range of exposure rate in fluoroscopy mode measured with NEXT phantom, 3.1 mm copper and one 2.0 mm lead sheet per number of hospitals.

EXPOSURE RATE IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM, 3.1 mm COPPER (Cu) AND 2.0 mm LEAD (Pb) IN THE BEAM

Table A – 103. Descriptive statistics for exposure rate in cineangiography mode measured with NEXT phantom, 3.1 mm copper (Cu) and one 2.0 mm lead (Pb) sheet.

AK rate	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
(mGy/min)	1551.4	149	695.9	13.6	1158.7	1573.2	1921.7	3928.2

Reference: Surveyor Worksheet (Table 1).
Number observations = 149. Missing data = 50 (not entered by the surveyors).

Table A – 104. Frequency distribution for range of exposure rate in cineangiography mode measured with NEXT phantom, 3.1 mm copper (Cu) and one 2.0 mm lead (Pb) sheet.

AK rate	Frequency	Percent	Cumulative percent
0-500	10	6.7	6.7
500.1-1000	17	11.4	18.1
1000.1-1500	37	24.8	42.9
1500.1-2000	54	36.2	79.1
2000.1-2500	21	14.1	93.2
2500.1 +	10	6.7	99.9

Reference: Surveyor Worksheet (Table 1).
Number observations = 149. Missing data = 50 (not entered by the surveyors).

EXPOSURE RATE IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM, 3.1 mm COPPER (Cu) AND 2.0 mm LEAD (Pb) IN THE BEAM

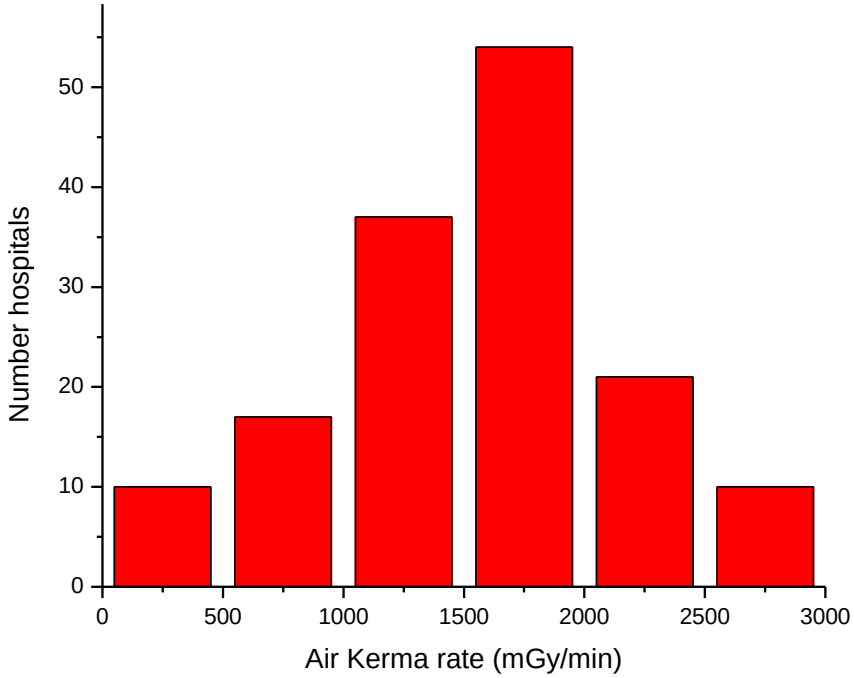


Figure A - 65. Range of exposure rate in cineangiography mode measured with NEXT phantom, 3.1 mm copper (Cu) and one 2.0 mm lead (Pb) sheet per number of hospitals.

VOLTAGE IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM, 3.1 mm COPPER (Cu) AND 2.0 mm LEAD (Pb) IN THE BEAM

Table A - 105. Descriptive statistics for voltage in fluoroscopy mode measured with NEXT phantom, 3.1 mm copper and one 2.0 mm lead sheet.

kVp	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	119.1	159	5.8	74.0	120.0	120.0	120.0	127.0

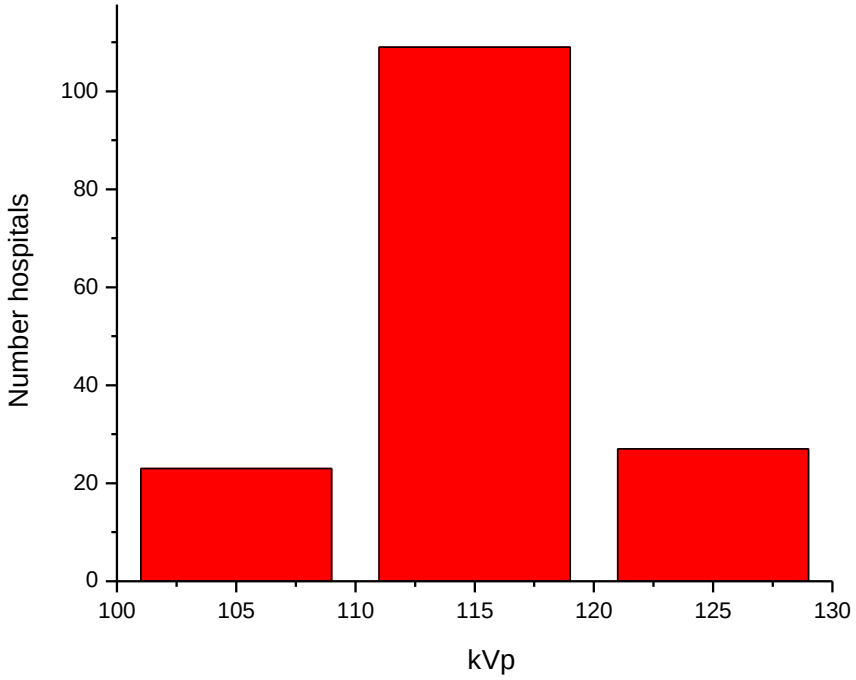
Reference: Surveyor Worksheet (Table 1).
Number observations = 159. Missing data = 40 (not entered by the surveyors).

Table A - 106. Frequency distribution for range of voltage in fluoroscopy mode measured with NEXT phantom, 3.1 mm copper and one 2.0 mm lead sheet.

kVp	Frequency	Percent	Cumulative percent
0-110	23	14.5	14.5
110.1-120	109	68.6	83.1
120.1 +	27	17.0	100.1

Reference: Surveyor Worksheet (Table 1).
Number observations = 159. Missing data = 40 (not entered by the surveyors).

VOLTAGE IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM, 3.1 mm COPPER (Cu) AND 2.0 mm LEAD (Pb) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 159. Missing data = 40 (not entered by the surveyors).

Figure A - 66. Range of voltage in fluoroscopy mode measured with NEXT phantom, 3.1 mm copper and one 2.0 mm lead sheet per number of hospitals.

VOLTAGE IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM, 3.1 mm COPPER (Cu) AND 2.0 MM LEAD (Pb) IN THE BEAM

Table A - 107. Descriptive statistics for voltage in cine mode measured with NEXT phantom, 3.1 mm copper and one 2.0 mm lead sheet.

kVp	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	124.6	155	36.9	70	120	125	125	572

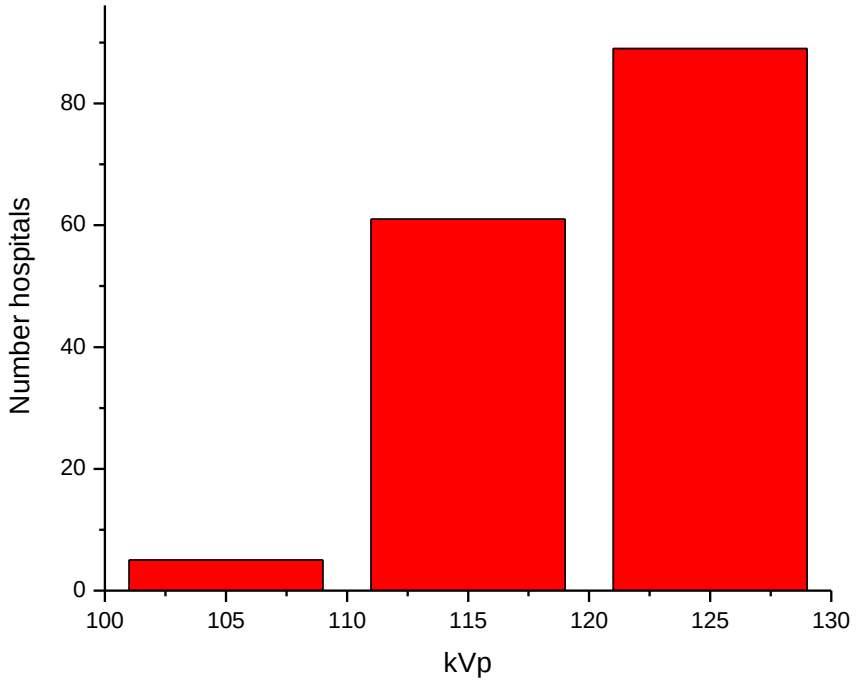
Reference: Surveyor Worksheet (Table 1).
Number observations = 155. Missing data = 44 (not entered by the surveyors).

Table A - 108. Frequency distribution for range of voltage in cine mode measured with NEXT phantom, 3.1 mm copper and one 2.0 mm lead sheet.

kVp	Frequency	Percent	Cumulative percent
0-110	5	3.2	3.2
110.1-120	61	39.4	42.6
120.1 +	89	57.4	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 155. Missing data = 44 (not entered by the surveyors).

VOLTAGE IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM, 3.1 mm COPPER (Cu) AND 2.0 MM LEAD (Pb) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 155. Missing data = 44 (not entered by the surveyors).

Figure A - 67. Range of voltage in cine mode measured with NEXT phantom, 3.1 mm copper and one 2.0 mm lead sheet per number of hospitals.

CURRENT IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM, 3.1 mm COPPER (Cu) AND 2.0 mm LEAD (Pb) IN THE BEAM

Table A – 109. Descriptive statistics for current in fluoroscopy mode measured with NEXT phantom, 3.1 mm copper thickness and one 2.0 mm lead sheet.

mA	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	28.3	157	43.3	2.1	6.4	8.0	13.0	154.0

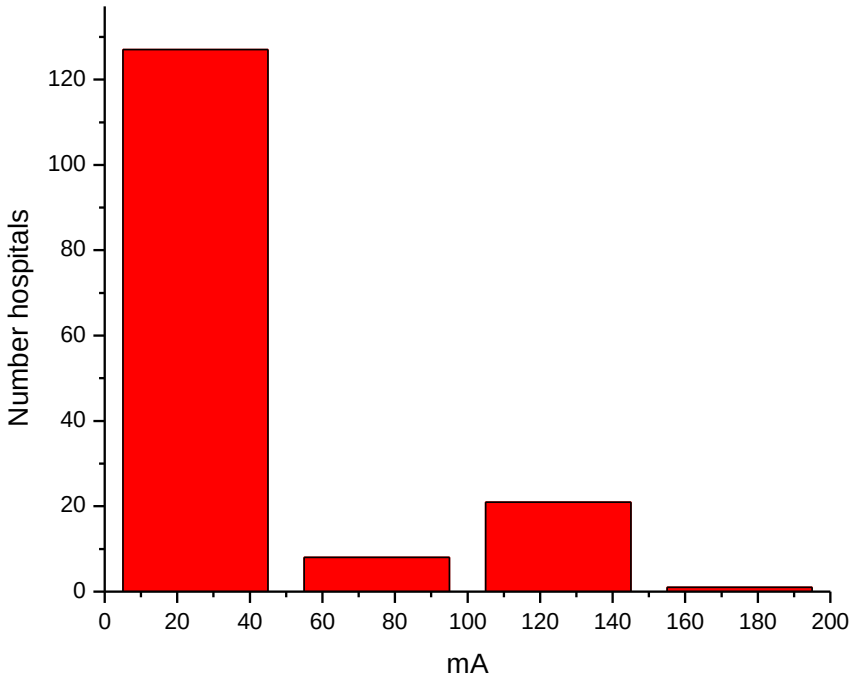
Reference: Surveyor Worksheet (Table 1).
Number observations = 157. Missing data = 42 (not entered by the surveyors).

Table A – 110. Frequency distribution for range of current in fluoroscopy mode measured with NEXT phantom, 3.1 mm copper thickness and one 2.0 mm lead sheet.

mA	Frequency	Percent	Cumulative percent
0-50	127	80.9	80.9
50.1-100	8	5.1	86.0
100.1-150	21	13.4	99.4
150.1-200	1	0.6	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 157. Missing data = 42 (not entered by the surveyors).

CURRENT IN THE MOST USED FLUOROSCOPY MODE MEASURED WITH THE NEXT PHANTOM, 3.1 mm COPPER (Cu) AND 2.0 mm LEAD (Pb) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 157. Missing data = 42 (not entered by the surveyors).

Figure A – 68. Range of current in fluoroscopy mode measured with NEXT phantom, 3.1 mm copper thickness and one 2.0 mm lead sheet per number of hospitals.

X-RAY TUBE CURRENT IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM, 3.1 mm COPPER (Cu) AND 2.0 mm LEAD (Pb) IN THE BEAM

Table A – 111. Descriptive statistics for current in cine mode measured with NEXT phantom, 3.1 mm copper thickness and one 2.0 mm lead sheet.

mA	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	341.8	153	234.3	5.7	80.0	426.0	572.0	752.0

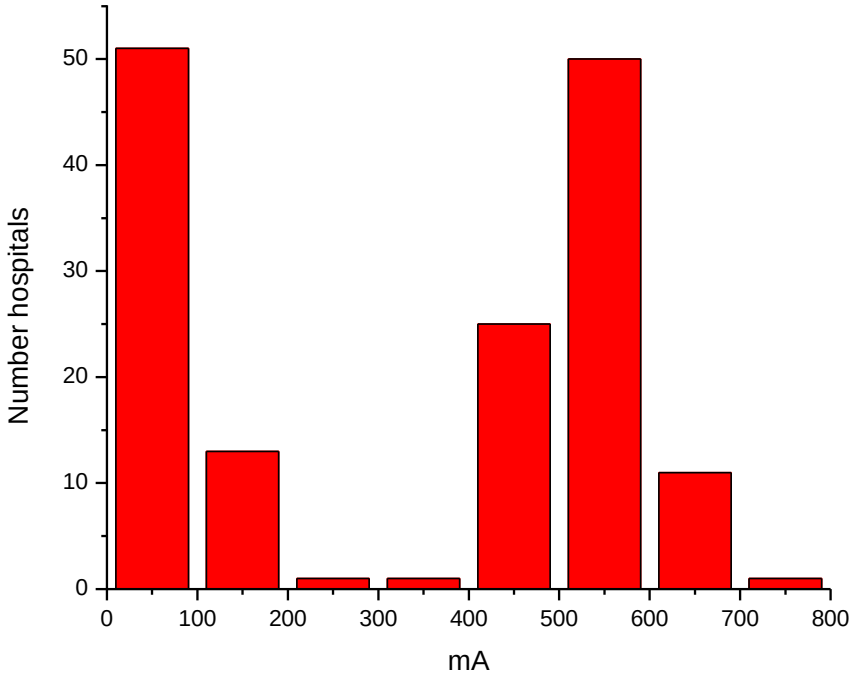
Reference: Surveyor Worksheet (Table 1).
Number observations = 153. Missing data = 46 (not entered by the surveyors).

Table A – 112. Frequency distribution for range of current in cine mode measured with NEXT phantom, 3.1 mm copper thickness and one 2.0 mm lead sheet.

mA	Frequency	Percent	Cumulative percent
0-100	51	33.3	33.3
100.1-200	13	8.5	41.8
200.1-300	1	0.7	42.5
300.1-400	1	0.7	43.2
400.1-500	25	16.3	59.5
500.1-600	50	32.6	92.1
600.1-700	11	7.2	99.3
700.1-800	1	0.7	100.0

Reference: Surveyor Worksheet (Table 1).
Number observations = 153. Missing data = 46 (not entered by the surveyors).

X-RAY TUBE CURRENT IN CINEANGIOGRAPHY MODE MEASURED WITH THE NEXT PHANTOM, 3.1 mm COPPER (Cu) AND 2.0 mm LEAD (Pb) IN THE BEAM



Reference: Surveyor Worksheet (Table 1).
Number observations = 153. Missing data = 46 (not entered by the surveyors).

Figure A - 69. Range of current in cine mode measured with NEXT phantom, 3.1 mm copper thickness and one 2.0 mm lead sheet per number of hospitals.

NUMBER OF VISIBLE MESHES IN FLUOROSCOPY MODE

Table A – 113. Descriptive statistics for number of visible meshes in fluoroscopy mode.

Number of meshes visible	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	6.4	196	1.2	2	6	6	7	8

Reference: Surveyor Worksheet (30).
Number observations = 196. Missing data = 3 (not entered by the surveyors).

The number of visible meshes (used to measure image resolution) was determined using the image quality fluoroscopy test tool. See Introduction in this report for more information on the test tool.

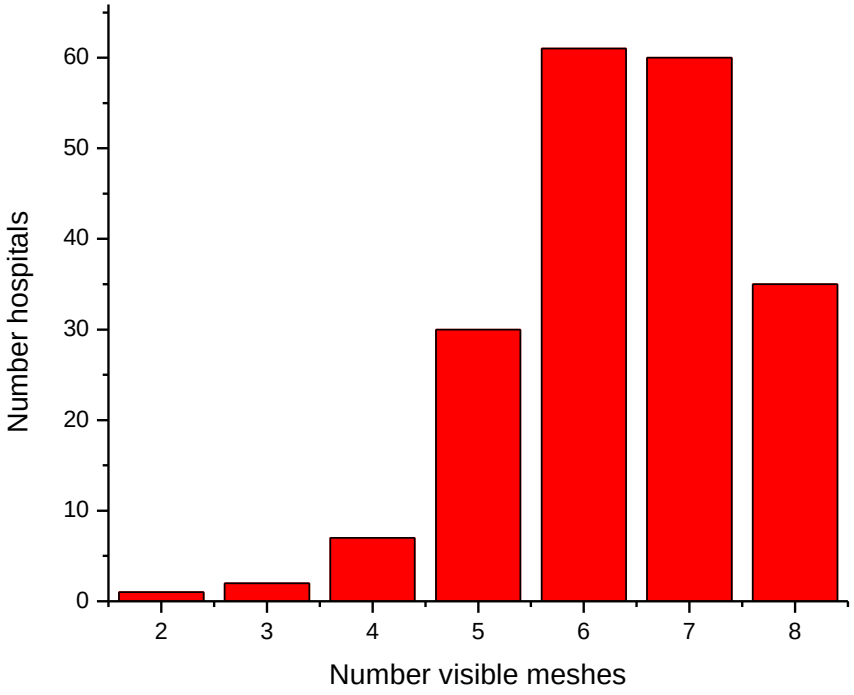
Table A – 114. Frequency distribution for number of visible meshes in fluoroscopy mode.

Number of meshes visible	Frequency	Percent	Cumulative percent
2	1	0.5	0.5
3	2	1.0	1.5
4	7	4.6	5.1
5	30	15.3	20.4
6	61	31.1	51.5
7	60	30.6	82.1
8	35	17.9	100.0

Reference: Surveyor Worksheet (30).
Number observations = 196. Missing data = 3 (not entered by the surveyors).

The number of visible meshes (used to measure image resolution) was determined using the image quality fluoroscopy test tool. See Introduction in this report for more information on the test tool.

NUMBER OF VISIBLE MESHES IN FLUOROSCOPY MODE



Reference: Surveyor Worksheet (30).
Number observations = 196. Missing data = 3 (not entered by the surveyors).

The number of visible meshes (used to measure image resolution) was determined using the image quality fluoroscopy test tool. See Introduction in this report for more information on the test tool.

Figure A – 70. Number of visible meshes in fluoroscopy mode per number of hospitals.

NUMBER OF VISIBLE HOLES IN FLUOROSCOPY MODE

Table A – 115. Descriptive statistics for number of visible holes in fluoroscopy mode.

Number of holes visible	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	5.9	193	1.4	2	5	6	7	8

Reference: Surveyor Worksheet (31).
Number observations = 193. Missing data = 6 (not entered by the surveyors).

The number of visible holes (used to measure image contrast) was determined using the fluoroscopy test tool. See Introduction in this report for more information on the test tool.

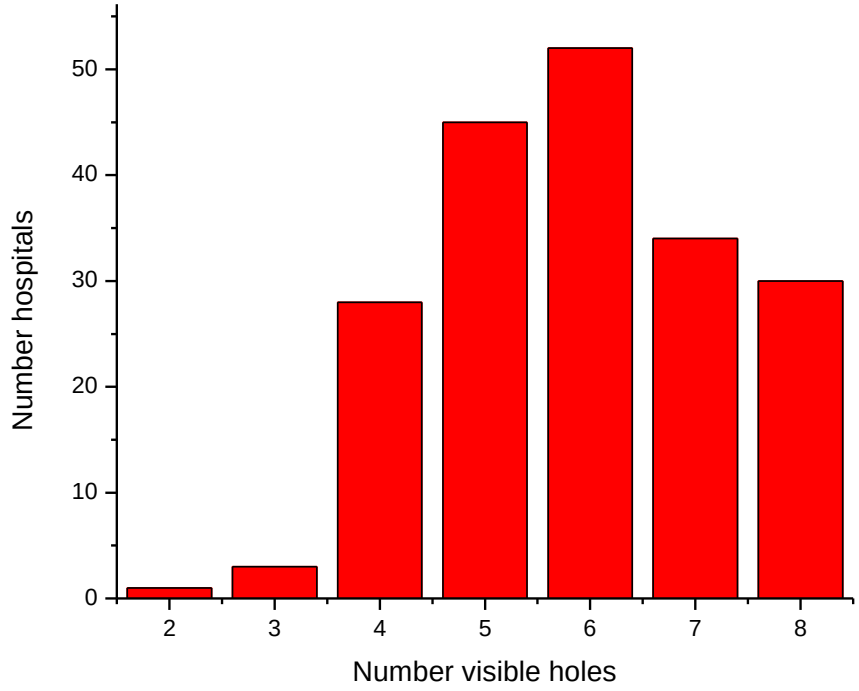
Table A – 116. Frequency distribution for range of number of visible holes in fluoroscopy mode.

Number holes visible	Frequency	Percent	Cumulative percent
2	1	0.5	0.5
3	3	1.6	2.1
4	28	14.5	16.6
5	45	23.3	39.9
6	52	26.9	66.8
7	34	17.6	84.4
8	30	15.5	99.9

Reference: Surveyor Worksheet (31).
Number observations = 193. Missing data = 6 (not entered by the surveyors).

The number of visible holes (used to measure image contrast) was determined using the fluoroscopy test tool. See Introduction in this report for more information on the test tool.

NUMBER OF VISIBLE HOLES IN FLUOROSCOPY MODE



Reference: Surveyor Worksheet (31).
Number observations = 193. Missing data = 6 (not entered by the surveyors).

The number of visible holes (used to measure image contrast) was determined using the fluoroscopy test tool. See Introduction in this report for more information on the test tool.

Figure A - 71. Number of visible holes in fluoroscopy mode per number of hospitals.

NUMBER OF VISIBLE MESHES IN CINEANGIOGRAPHY MODE

Table A – 117. Descriptive statistics for number of visible meshes in cine mode.

Number of meshes visible	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	6.4	196	0.9	4	6	6	7	8

Reference: Surveyor Worksheet (32).
Number observations= 196. Missing data = 3 (not entered by the surveyors).

The number of visible meshes (image resolution) was determined using the fluoroscopy test tool. See Introduction in this report for more information on the test tool.

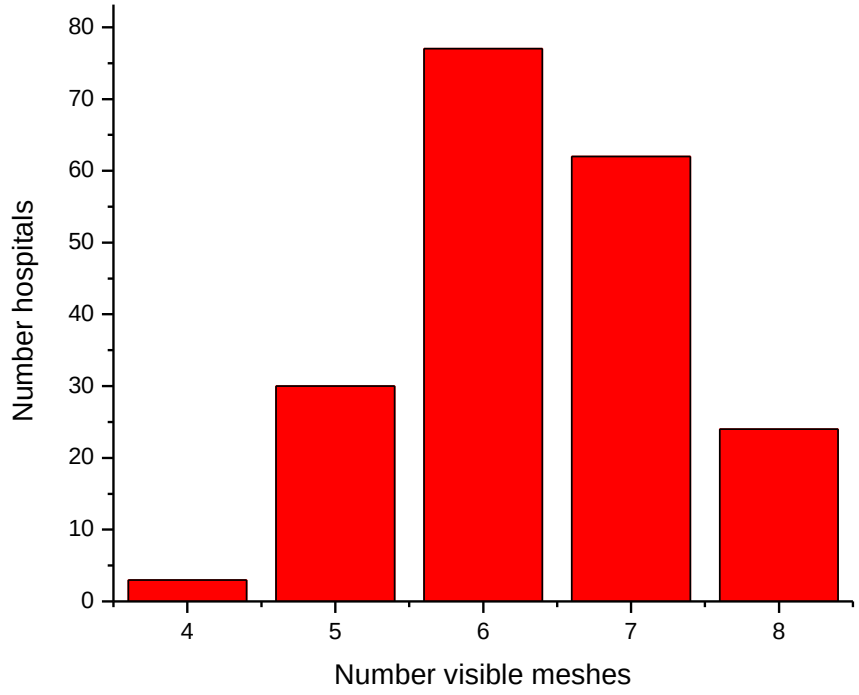
Table A – 118. Frequency distribution for number of visible meshes in cine mode.

Number of meshes visible	Frequency	Percent	Cumulative percent
4	3	1.5	1.5
5	30	15.3	16.8
6	77	39.3	56.1
7	62	31.6	87.7
8	24	12.2	99.9

Reference: Surveyor Worksheet (32).
Number observations= 196. Missing data = 3 (not entered by the surveyors).

The number of visible meshes (image resolution) was determined using the fluoroscopy test tool. See Introduction in this report for more information on the test tool.

NUMBER OF VISIBLE MESHES IN CINEANGIOGRAPHY MODE



Reference: Surveyor Worksheet (32).
Number observations= 196. Missing data = 3 (not entered by the surveyors).

The number of visible meshes (image resolution) was determined using the fluoroscopy test tool. See Introduction in this report for more information on the test tool.

Figure A - 72. Number of visible meshes in cine mode per number of hospitals.

NUMBER VISIBLE HOLES IN CINEANGIOGRAPHY MODE

Table A – 119. Descriptive statistics for number of visible holes in cine mode.

Number of holes	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	6.5	193	1.2	3	6	7	7	9

Reference: Surveyor Worksheet (33).
Number observations = 193. Missing data = 6 (not entered by the surveyors).

The number of visible holes (image contrast) was determined using the fluoroscopy test tool. See Introduction in this report for more information on the test tool.

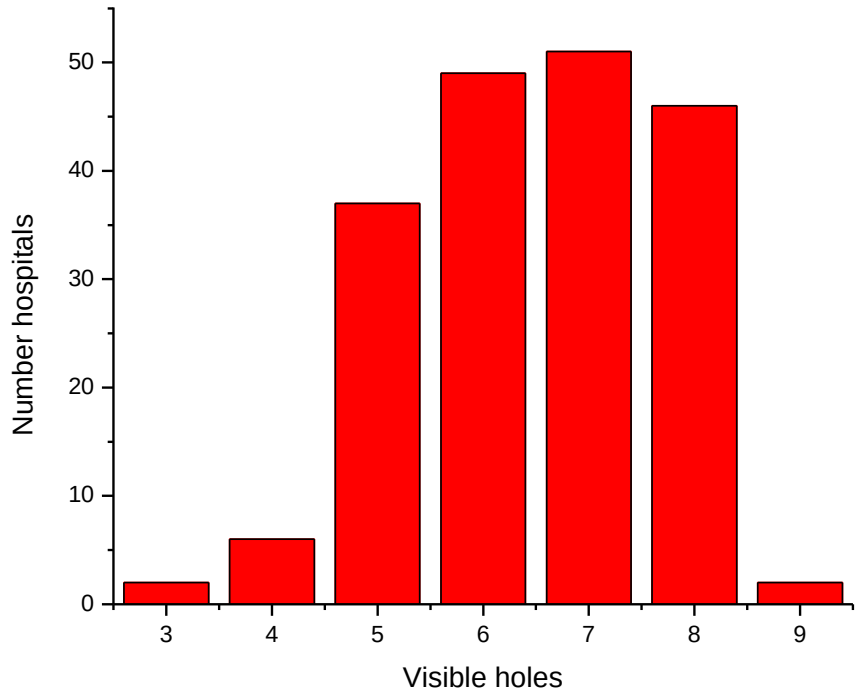
Table A – 120. Frequency distribution for number of visible holes in cine mode.

Number holes	Frequency	Percent	Cumulative percent
3	2	1.0	1.0
4	6	3.1	4.1
5	37	19.2	23.3
6	49	25.4	48.7
7	51	26.4	75.1
8	46	23.8	99.0
9	2	1.0	100.0

Reference: Surveyor Worksheet (33).
Number observations = 193. Missing data = 6 (not entered by the surveyors).

The number of visible holes (image contrast) was determined using the fluoroscopy test tool. See Introduction in this report for more information on the test tool.

NUMBER VISIBLE HOLES IN CINEANGIOGRAPHY MODE



Reference: Surveyor Worksheet (33).
Number observations = 193. Missing data = 6 (not entered by the surveyors).

The number of visible holes (image contrast) was determined using the fluoroscopy test tool. See Introduction in this report for more information on the test tool.

Figure A – 73. Number of visible holes in cine mode per number of hospitals.

MEASURED HALF-VALUE LAYER (HVL)

Table A – 121. Descriptive statistics for measured HVL value [(mm aluminum(Al)].

HVL (mm Al)	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	5.3	187	1.3	1.9	4.7	5.0	6.1	10.2

Reference: Surveyor Worksheet (34 – 40).
Number observations = 187. Missing data = 12 (not entered by the surveyors).

The aluminum half-value layer (HVL) was calculated by measuring five exposure rates:
Exposure rate with no Al in the beam
Exposure rate with 2 mm Al in the beam
Exposure rate with 4 mm Al in the beam
Exposure rate with 6 mm Al in the beam
Exposure rate with 8 mm Al in the beam
An Excel program was used to compute the final HVL value.

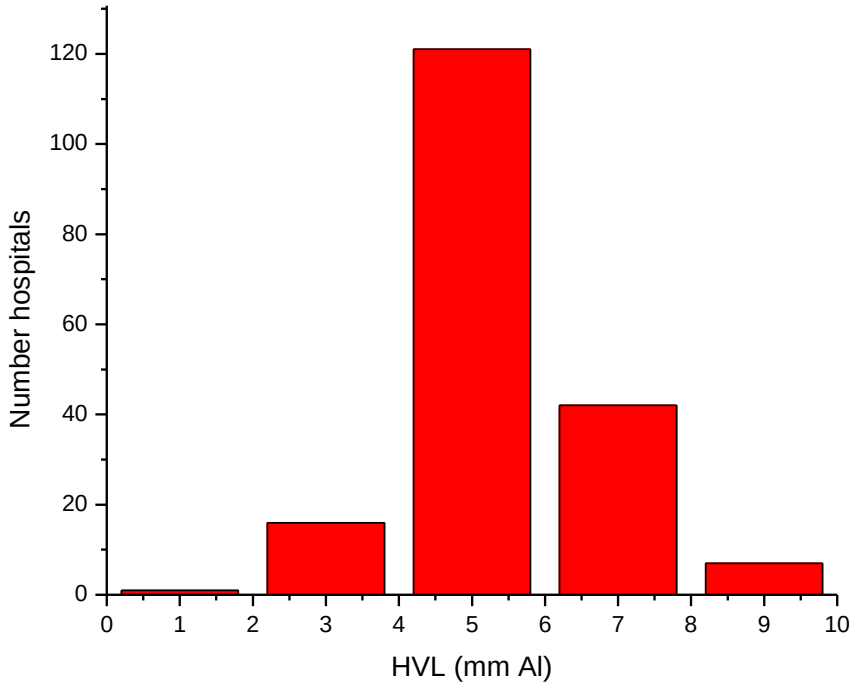
Table A – 122. Frequency distribution for range of measured HVL value [(mm aluminum(Al)].

HVL (mm Al)	Frequency	Percent	Cumulative percent
0-2.0	1	0.5	0.5
2.1-4.0	16	8.6	9.1
4.1-6.0	121	64.7	73.8
6.1-8.0	42	22.5	96.3
8.0 +	7	3.7	100.0

Reference: Surveyor Worksheet (34 – 40).
Number observations = 187. Missing data = 12 (not entered by the surveyors).

The aluminum half-value layer (HVL) was calculated by measuring five exposure rates:
Exposure rate with no Al in the beam
Exposure rate with 2 mm Al in the beam
Exposure rate with 4 mm Al in the beam
Exposure rate with 6 mm Al in the beam
Exposure rate with 8 mm Al in the beam
An Excel program was used to compute the final HVL value.

MEASURED HALF-VALUE LAYER (HVL)



Reference: Surveyor Worksheet (34 – 40).
Number observations = 187. Missing data = 12 (not entered by the surveyors).

The aluminum half-value layer (HVL) was calculated by measuring five exposure rates:
Exposure rate with no Al in the beam
Exposure rate with 2 mm Al in the beam
Exposure rate with 4 mm Al in the beam
Exposure rate with 6 mm Al in the beam
Exposure rate with 8 mm Al in the beam
An Excel program was used to compute the final HVL value.

Figure A - 74. Measured HVL value (mm Al) range per number of hospitals.

APPENDIX B - DATA FROM FACILITY QUESTIONNAIRE

ANNUAL NUMBER OF INVASIVE PROCEDURES PERFORMED BY THE DEPARTMENT DIRECTOR

Table B – 1. Descriptive statistics for number of invasive procedures performed annually by the department director.

	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
Number annual invasive procedures	444	163	527	0	185	337	521	4437

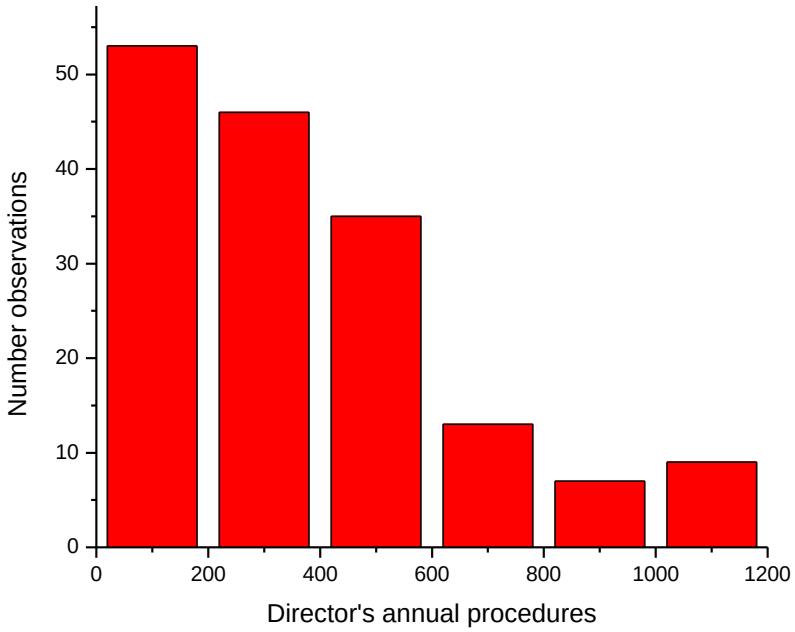
Reference: Facility Questionnaire (11).
Number observations = 163. Missing data = 36 (not entered by the surveyors).

Table B – 2. Frequency distribution for range of number of invasive procedures performed annually by the department director.

Number annual invasive procedures	Frequency	Percent	Cumulative percent
0-200	53	32.5	32.5
201-400	46	28.2	60.7
401-600	35	21.5	82.2
601-800	13	8.	90.2
801-1000	7	4.3	94.5
1001 +	9	5.5	100.0

Reference: Facility Questionnaire (11).
Number observations = 163. Missing data = 36 (not entered by the surveyors).

ANNUAL NUMBER OF INVASIVE PROCEDURES PERFORMED BY THE DEPARTMENT DIRECTOR



Reference: Facility Questionnaire (11).
Number observations = 163. Missing data = 36 (not entered by the surveyors).

Figure B – 1. Range of number of invasive procedures performed annually by the department director per number of observations.

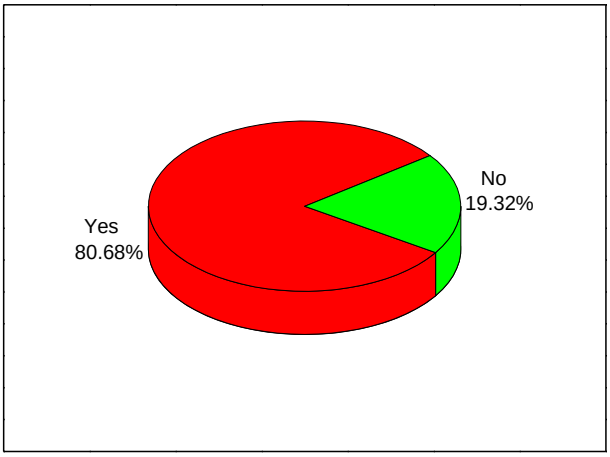
PROCEDURES OTHER THAN CARDIAC PERFORMED IN THE DEPARTMENT

Table B – 3. Frequency distribution for procedures other than cardiac performed in the department.

Procedures other than cardiac performed	Frequency count	Percent	Cumulative percent
Y	142	80.7	80.7
N	34	19.3	100.0

Reference: Facility Questionnaire (12).
Number observations = 176. Missing data = 19 (not entered by the surveyors).

Department personnel must indicate (Y/N) whether invasive diagnostic or interventional fluoroscopic procedures other than cardiac are performed in the department.



Reference: Facility Questionnaire (12).
Number observations = 176. Missing data = 19 (not entered by the surveyors).

Department personnel must indicate (Y/N) whether invasive diagnostic or interventional fluoroscopic procedures other than cardiac are performed in the department.

Figure B - 2. Percent performing procedures other than cardiac in the department.

NUMBER OF CARDIOLOGISTS IN THE DEPARTMENT

Table B – 4. Descriptive statistics for number of cardiologists in the department performing cardiac procedures.

Cardiologists in department	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	12.4	183	11.5	1	4	8	17	74

Reference: Facility Questionnaire (13 a).
Number observations = 183. Missing data = 16 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a cardiologist working part time.

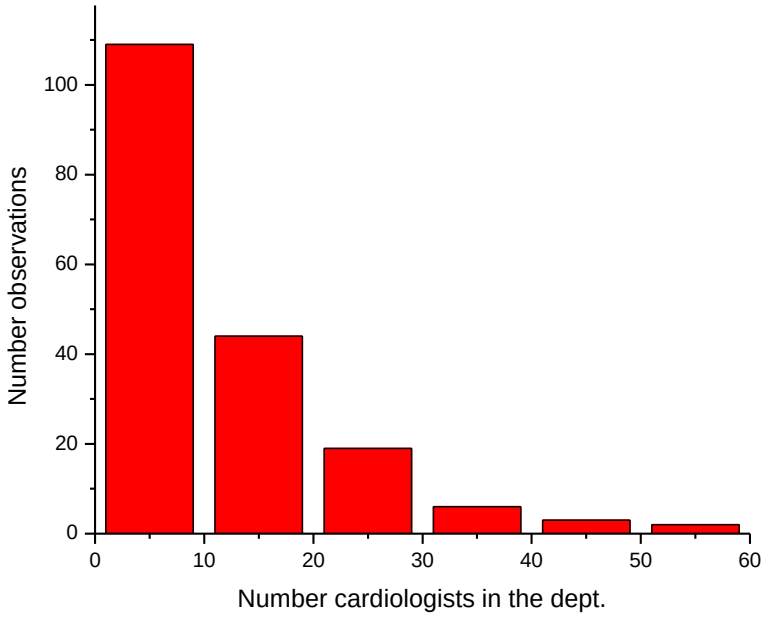
Table B – 5. Frequency distribution for range of number of cardiologists in the department performing cardiac procedures.

Number cardiologists	Frequency	Percent	Cumulative percent
1-10	109	59.6	59.6
11-20	44	24.0	83.6
21-30	19	10.4	94.0
31-40	6	3.3	97.3
41-50	3	1.6	98.9
51 +	2	1.1	100.0

Reference: Facility Questionnaire (13 a).
Number observations = 183. Missing data = 16 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a cardiologist working part time.

NUMBER OF CARDIOLOGISTS IN THE DEPARTMENT



Reference: Facility Questionnaire (13 a).
Number observations = 183. Missing data = 16 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a cardiologist working part time.

Figure B – 3. Range of number of cardiologists in the department performing cardiac procedures per number of observations.

NUMBER OF VASCULAR SURGEONS IN THE DEPARTMENT

Table B – 6. Descriptive statistics for number vascular/cardio-thoracic surgeons in the department.

Vascular surgeons in department	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	1.47	148	2.03	0	0	1	2	13

Reference: Facility Questionnaire (13 b).
Number observations = 148. Missing data = 51 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a vascular surgeon working part time.

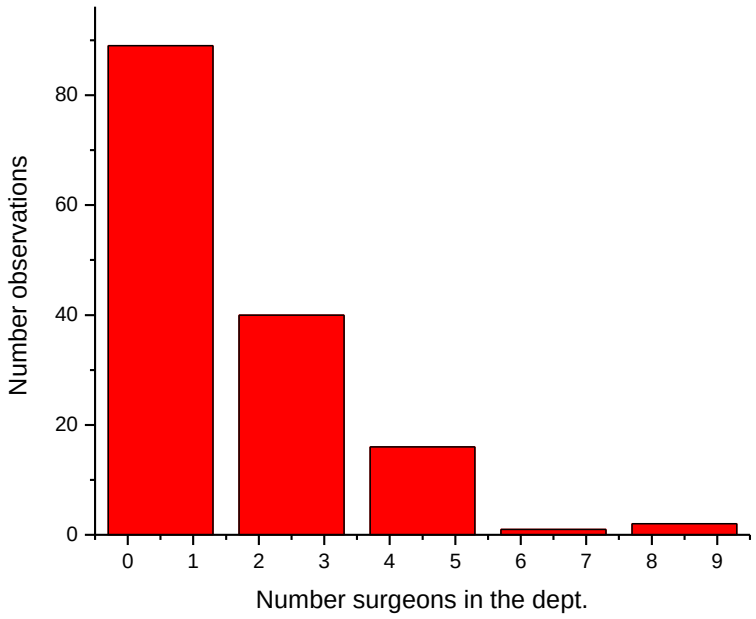
Table B – 7. Frequency distribution for range number vascular/cardio-thoracic surgeons in the department.

Number vascular surgeons	Frequency	Percent	Cumulative percent
0-1	89	60.1	60.1
2-3	40	27.0	87.1
4-5	16	10.8	97.9
6-7	1	0.7	98.6
8 +	2	1.4	100.0

Reference: Facility Questionnaire (13 b).
Number observations = 148. Missing data = 51 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a vascular surgeon working part time.

NUMBER OF VASCULAR SURGEONS IN THE DEPARTMENT



Reference: Facility Questionnaire (13 b).
Number observations = 148. Missing data = 51 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a vascular surgeon working part time.

Figure B – 4. Range of number of vascular/cardio-thoracic surgeons in the department per number of observations.

NUMBER OF INTERVENTIONAL RADIOLOGISTS IN THE DEPARTMENT

Table B – 8. Descriptive statistics for number of interventional radiologists in the department.

Interventional radiologists in the department	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	1.32	148	2.38	0	0	0	2	15

Reference: Facility Questionnaire (13 c).
Number observations = 148. Missing data = 51 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for an interventional radiologist working part time.

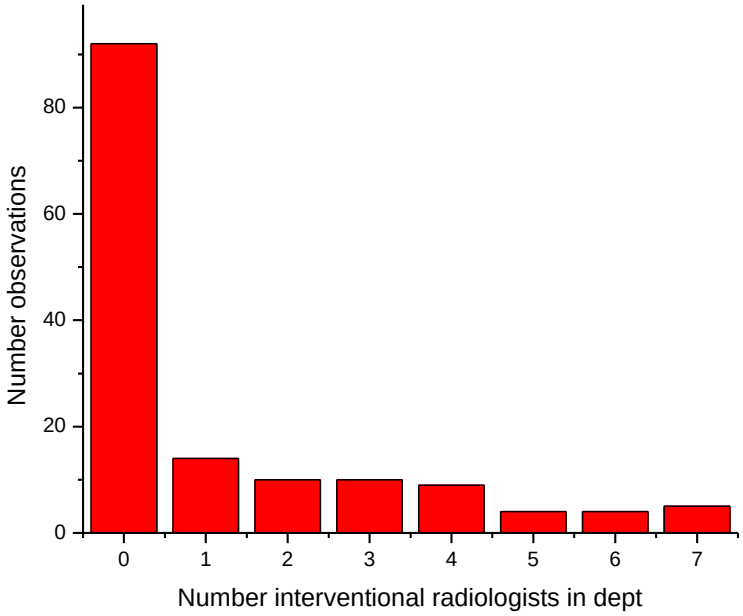
Table B – 9. Frequency distribution for number of interventional radiologists in the department.

Interventional radiologists in the department	Frequency	Percent	Cumulative percent
0	92	62.2	62.2
1	14	9.5	71.7
2	10	6.8	78.5
3	10	6.8	85.3
4	9	6.1	91.4
5	4	2.7	94.1
6	4	2.7	96.8
7	5	3.4	100.2

Reference: Facility Questionnaire (13 c).
Number observations = 148. Missing data = 51 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for an interventional radiologist working part time.

NUMBER OF INTERVENTIONAL RADIOLOGISTS IN THE DEPARTMENT



Reference: Facility Questionnaire (13 c).
Number observations = 148. Missing data = 51 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for an interventional radiologist working part time.

Figure B – 5. Number of interventional radiologists in the department per number of observations.

NUMBER OF NURSES IN THE DEPARTMENT

Table B - 10. Descriptive statistics for number of nurses in the department.

Nurses in department	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	7.92	184	8.03	0	3.5	6.0	9.0	65.0

Reference: Facility Questionnaire (14 a).
Number observations = 184. Missing data = 15 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a nurse working part time.

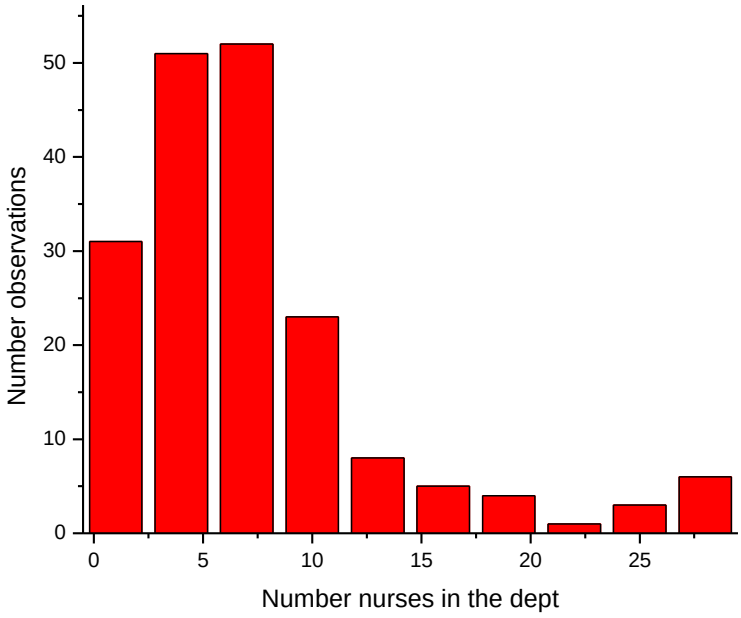
Table B - 11. Frequency distribution for range of the number of nurses in the department.

Number nurses	Frequency	Percent	Cumulative percent
0-2	31	16.8	16.8
3-5	51	27.7	44.5
6-8	52	28.3	72.8
9-11	23	12.5	85.3
12-14	8	4.3	89.6
15-17	5	2.7	92.3
18-20	4	2.2	94.5
21-23	1	0.5	95.0
24-26	3	1.6	96.6
27+	6	3.3	99.9

Reference: Facility Questionnaire (14 a).
Number observations = 184. Missing data = 15 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a nurse working part time.

NUMBER OF NURSES IN THE DEPARTMENT



Reference: Facility Questionnaire (14 a).
Number observations = 184. Missing data = 15 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a nurse working part time.

Figure B - 6. Range of number of nurses in the department per number of observations.

OTHER PERSONNEL IN THE DEPARTMENT

Table B – 12. Descriptive statistics for number of other personnel in the department.

Other personnel	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	1.53	63	1.63	0	0	1	2	7

Reference: Facility Questionnaire (14 b).
Number observations = 63. Missing data = 136 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for staff working part time.

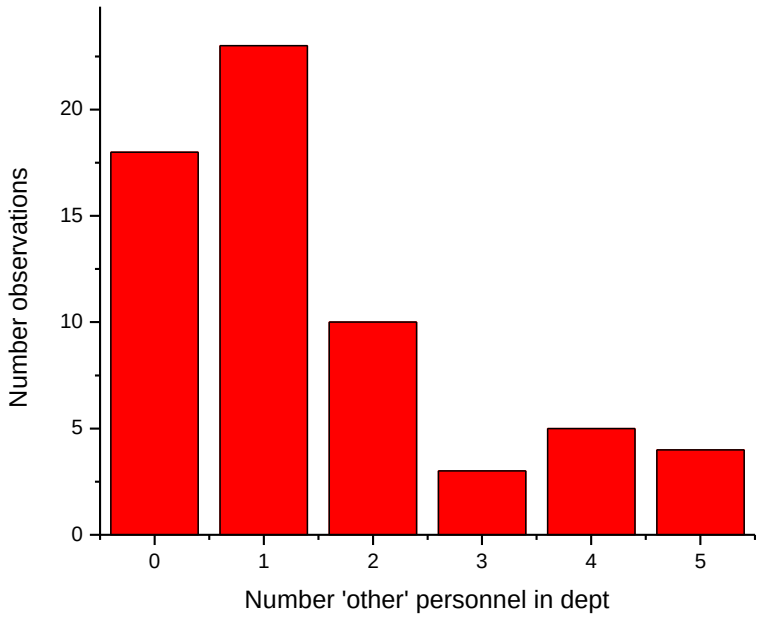
Table B – 13. Frequency distribution for number of other personnel in the department.

Number of other personnel	Frequency	Percent	Cumulative percent
0	18	28.6	28.6
1	23	36.5	65.1
2	10	15.9	81.0
3	3	4.8	85.8
4	5	7.9	93.7
5+	4	6.3	100.0

Reference: Facility Questionnaire (14 b).
Number observations = 63. Missing data = 136 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for staff working part time.

OTHER PERSONNEL IN THE DEPARTMENT



Reference: Facility Questionnaire (14 b).
Number observations = 63. Missing data = 136 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for staff working part time.

Figure B – 7. Number of other personnel in the department per number of observations.

NUMBER OF CARDIOVASCULAR TECHNOLOGISTS IN THE DEPARTMENT

Table B – 14. Descriptive statistics for number of cardiology/cardiovascular technologists in the department.

Cardiovascular	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
technologists	3.08	159	4.11	0	0	2	4	29

Reference: Facility Questionnaire (14 c).
Number observations = 159. Missing data = 40 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a cardiovascular technologist working part time.

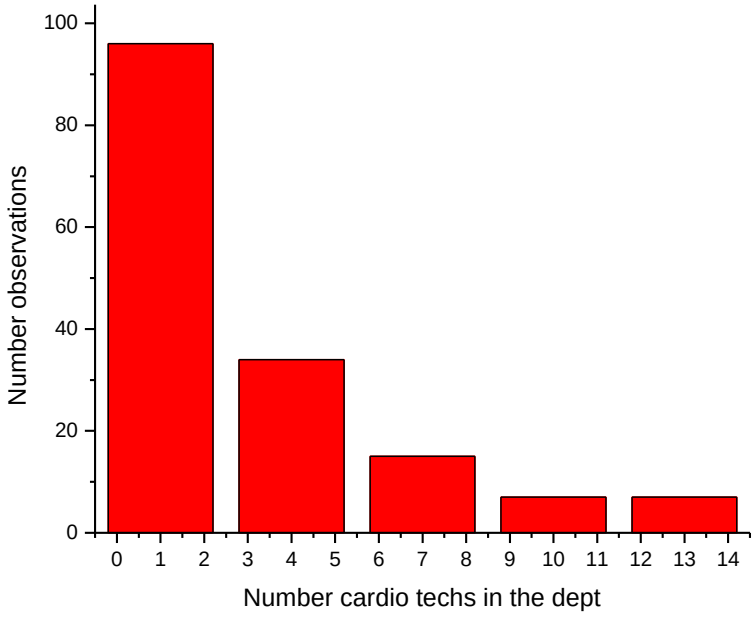
Table B – 15. Frequency distribution for range of number of cardiology/cardiovascular technologists in the department.

Number cardiovascular technologists	Frequency	Percent	Cumulative percent
0-2	96	60.4	60.4
3-5	34	21.4	81.8
6-8	15	9.4	91.2
9-11	7	4.4	95.6
12 +	7	4.4	100.0

Reference: Facility Questionnaire (14 c).
Number observations = 159. Missing data = 40 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a cardiovascular technologist working part time.

NUMBER OF CARDIOVASCULAR TECHNOLOGISTS IN THE DEPARTMENT



Reference: Facility Questionnaire (14 c).
Number observations = 159. Missing data = 40 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a cardiovascular technologist working part time.

Figure B – 8. Range of number of cardiology/cardiovascular technologists in the department per number of observations.

NUMBER OF RADIOLOGIC TECHNOLOGISTS IN THE DEPARTMENT

Table B – 16. Descriptive statistics for number of radiologic technologists in the department.

Radiologic technologists	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	3.60	181	3.18	0	1	3	5	21

Reference: Facility Questionnaire (14 d).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a radiological technologist working part time.

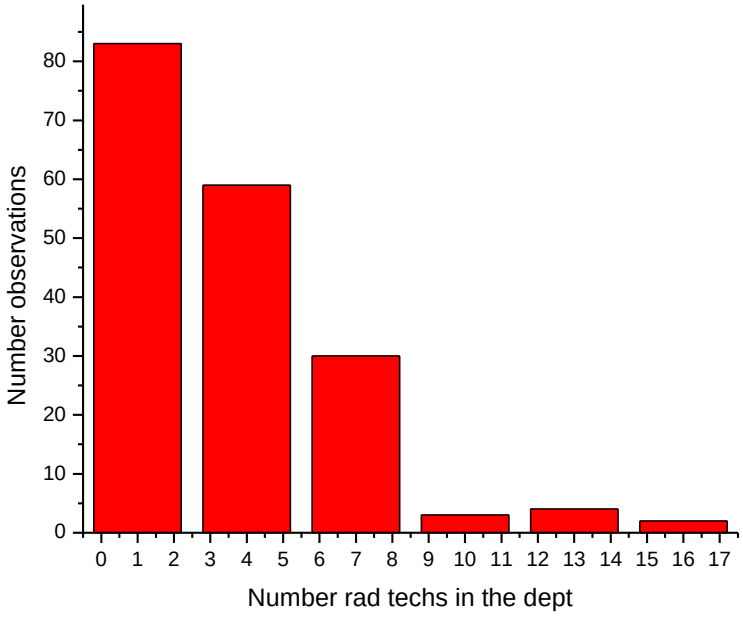
Table B – 17. Frequency distribution for range of number of radiologic technologists in the department.

Number radiologic technologists	Frequency	Percent	Cumulative percent
0-2	83	45.9	45.9
3-5	59	32.6	78.5
6-8	30	16.6	95.1
9-11	3	1.7	96.8
12-14	4	2.2	99.0
15 +	2	1.1	100.1

Reference: Facility Questionnaire (14 d).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a radiological technologist working part time.

NUMBER OF RADIOLOGIC TECHNOLOGISTS IN THE DEPARTMENT



Reference: Facility Questionnaire (14 d).
Number observations = 181. Missing data = 18 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a radiological technologist working part time.

Figure B – 9. Range of number of radiologic technologists in the department per number of observations.

NUMBER OF MEDICAL PHYSICISTS EXCLUSIVELY SUPPORTING THE DEPARTMENT

Table B – 18. Descriptive statistics for number of medical physicists exclusively supporting the department.

	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
Medical physicists exclusively supporting department	0.04	120	0.24	0	0	0	0	2

Reference: Facility Questionnaire (15a).
Number observations = 120. Missing data = 79 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a medical physicist working part time.

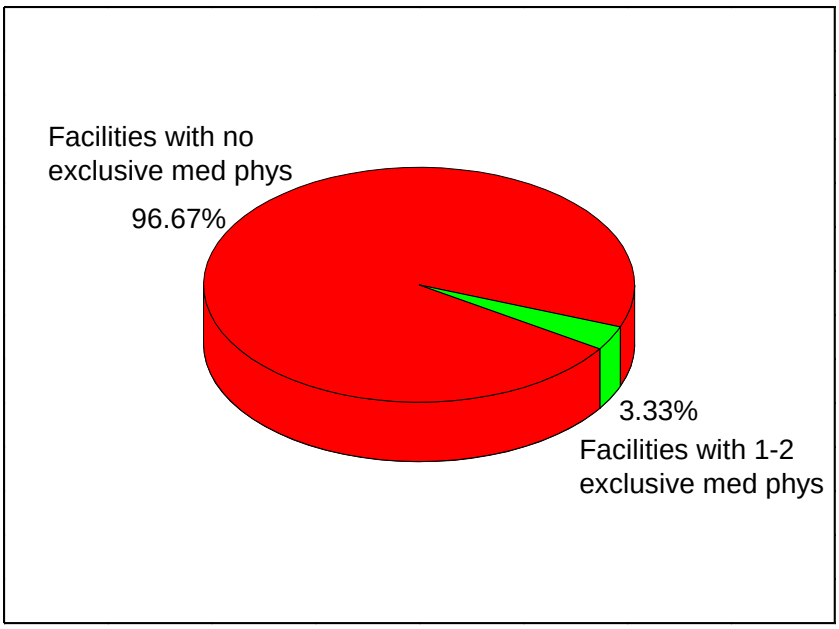
Table B – 19. Frequency distribution for range of number of medical physicists supporting exclusively the department.

Number medical physicists exclusively supporting department	Frequency	Percent	Cumulative percent
0	116	96.7	96.7
1-2	4	3.3	100

Reference: Facility Questionnaire (15a).
Number observations = 120. Missing data = 79 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a medical physicist working part time.

NUMBER OF MEDICAL PHYSICISTS EXCLUSIVELY SUPPORTING THE DEPARTMENT



Reference: Facility Questionnaire (15a).
Number observations = 120. Missing data = 79 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a medical physicist working part time.

Figure B - 10. Percent of facilities with medical physicists exclusively supporting the department.

NUMBER OF MEDICAL PHYSICISTS IN THE FACILITY

Table B – 20. Descriptive statistics for number of medical physicists providing support throughout the facility.

	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
Medical physicists in the facility	0.81	136	1.11	0	0	0	1	6

Reference: Facility Questionnaire (15b).
Number observations = 136. Missing data = 63 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a medical physicist working part time.

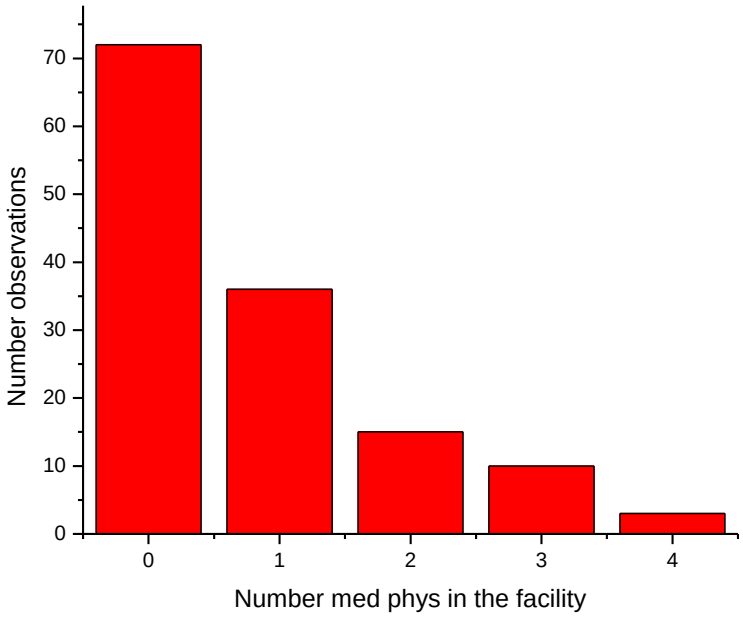
Table B – 21. Frequency distribution for number of medical physicists providing support throughout the facility.

Number medical physicists in the facility	Frequency	Percent	Cumulative percent
0	72	52.9	52.9
1	36	26.5	79.4
2	15	11.0	90.4
3	10	7.4	97.8
4 +	3	2.2	100.0

Reference: Facility Questionnaire (15b).
Number observations = 136. Missing data = 63 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a medical physicist working part time.

NUMBER OF MEDICAL PHYSICISTS IN THE FACILITY



Reference: Facility Questionnaire (15b).
Number observations = 136. Missing data = 63 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a medical physicist working part time.

Figure B - 11. Number of medical physicists providing support throughout the facility per number of observations.

NUMBER OF MEDICAL PHYSICISTS ON CONTRACT

Table B – 22. Descriptive statistics for number of medical physicists on contract.

	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
Medical physicists on contract	1.49	148	0.97	0	1	1	1	6

Reference: Facility Questionnaire (15c).
Number observations = 148. Missing data = 51 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a medical physicist working part time.

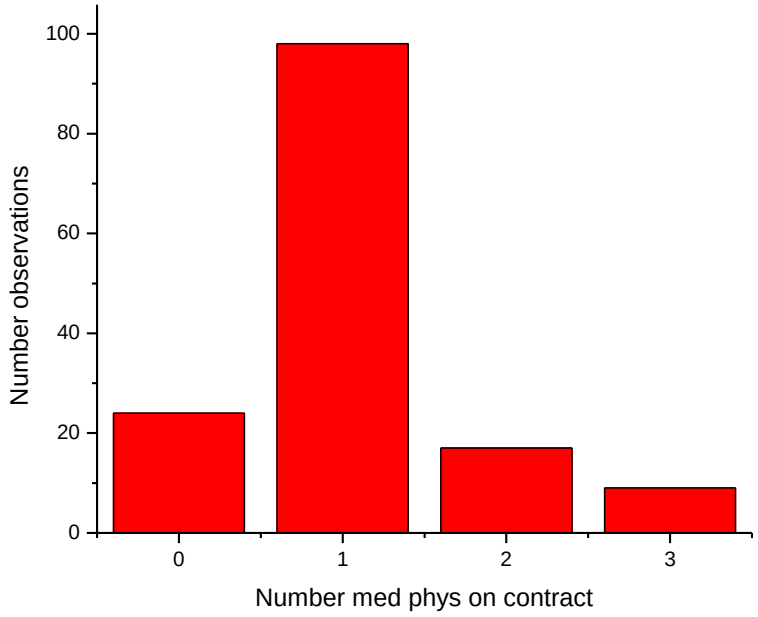
Table B – 23. Frequency distribution for number of medical physicists on contract.

Number medical physicists on contract	Frequency	Percent	Cumulative percent
0	24	16.2	16.2
1	98	66.2	82.4
2	17	11.5	93.9
3 +	9	6.1	100.0

Reference: Facility Questionnaire (15c).
Number observations = 148. Missing data = 51 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a medical physicist working part time.

NUMBER OF MEDICAL PHYSICISTS ON CONTRACT



Reference: Facility Questionnaire (15c).
Number observations = 148. Missing data = 51 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a medical physicist working part time.

Figure B – 12. Number of medical physicists on contract per number of observations.

OTHER MEDICAL PHYSICISTS ON STAFF

Table B – 24. Descriptive statistics for other medical physicists on staff.

Other type of medical physicists on staff	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	0.20	61	0.48	0	0	0	0	2

Reference: Facility Questionnaire (15d).
Number observations = 61. Missing data = 138 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a medical physicist working part time.

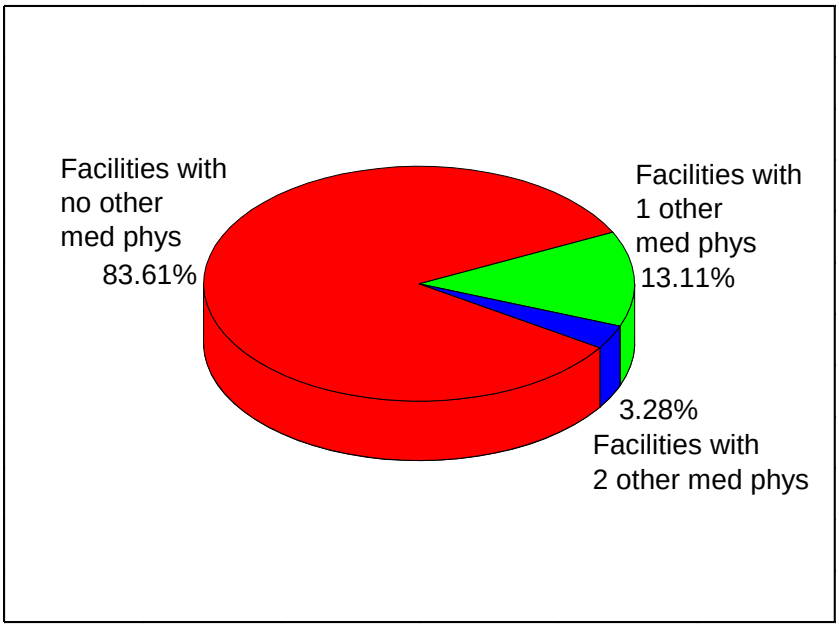
Table B – 25. Frequency distribution for other medical physicists on staff.

Other type of medical physicists	Frequency	Percent	Cumulative percent
0	51	83.6	83.6
1	8	13.1	96.7
2	2	3.3	100.0

Reference: Facility Questionnaire (15d).
Number observations = 61. Missing data = 138 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a medical physicist working part time.

OTHER TYPE OF MEDICAL PHYSICISTS ON STAFF



Reference: Facility Questionnaire (15d).
Number observations = 61. Missing data = 138 (not entered by the surveyors).

Some entries in the questionnaire can be fractional numbers. Example: 0.5 for a medical physicist working part time.

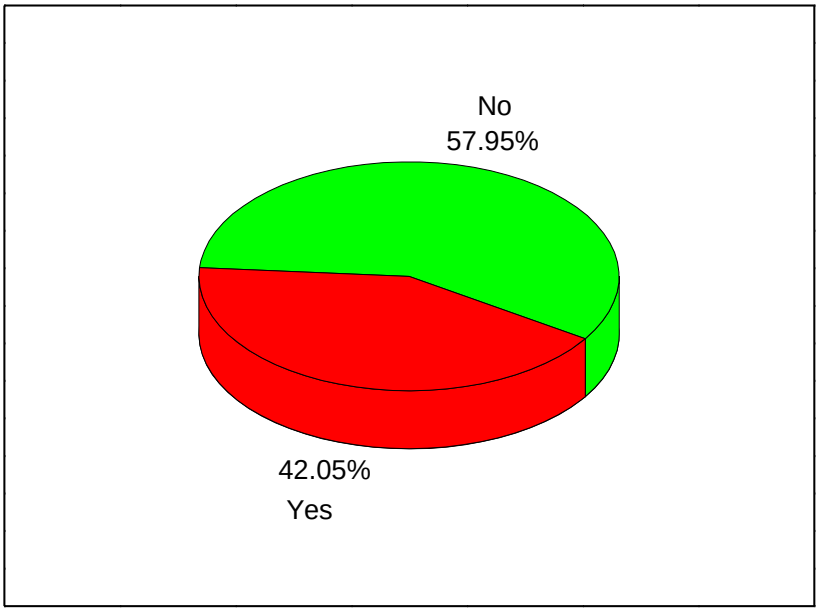
Figure B – 13. Percent of facilities with other medical physicists on staff.

RADIATION SAFETY DUTIES PERFORMED BY MEDICAL PHYSICIST

Table B – 26. Frequency distribution for medical physicist performing radiation safety duties.

Medical physicist performing radiation safety duties	Frequency	Percent	Cumulative percent
Yes	82	42.1	42.1
No	113	57.9	100.0

Reference: Facility Questionnaire (16).
Number observations = 195. Missing data = 4 (not entered by the surveyors).



Reference: Facility Questionnaire (16).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

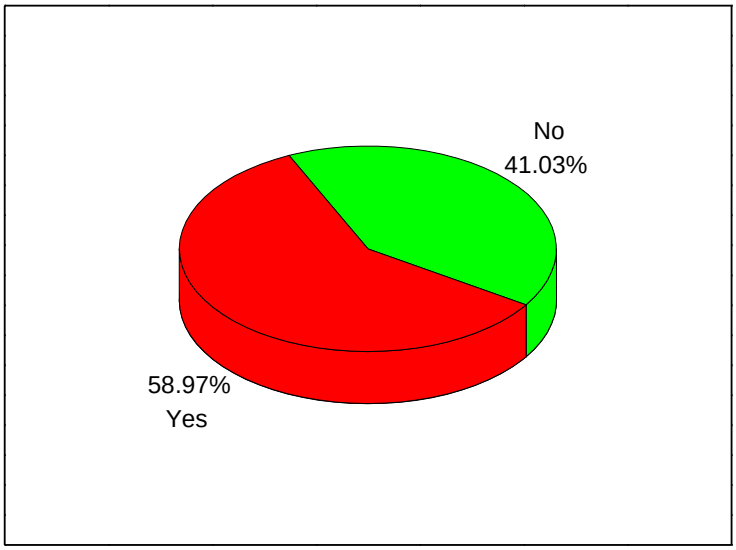
Figure B – 14. Percent of medical physicist performing radiation safety duties.

RADIATION SAFETY DUTIES PERFORMED BY RADIATION SAFETY OFFICER

Table B – 27. Frequency distribution for radiation safety officer performing radiation safety duties.

Radiation safety officer performing radiation safety duties	Frequency	Percent	Cumulative percent
Yes	115	59.0	59.0
No	80	41.0	100.0

Reference: Facility Questionnaire (16a)
Number observations = 195. Missing data = 4 (not entered by the surveyors).



Reference: Facility Questionnaire (16a)
Number observations = 195. Missing data = 4 (not entered by the surveyors).

Figure B – 15. Percent of facilities with radiation safety officer performing radiation safety duties.

NUMBER OF ADULT DIAGNOSTIC CORONARY ARTERIOGRAMS (DCA) PERFORMED AT THE HOSPITAL ANNUALLY

Table B – 28. Descriptive statistics for annual number of adult DCA procedures performed at hospital.

Annual number adult DCA	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	1557	180	2966	2	453	1026	1790	36860

Reference: Facility Questionnaire (17a).
Number observations = 180. Missing data = 19 (not entered by the surveyors).

Data collected for number of adult diagnostic coronary angiography (DCA) procedures performed in a 12 month interval before the survey.

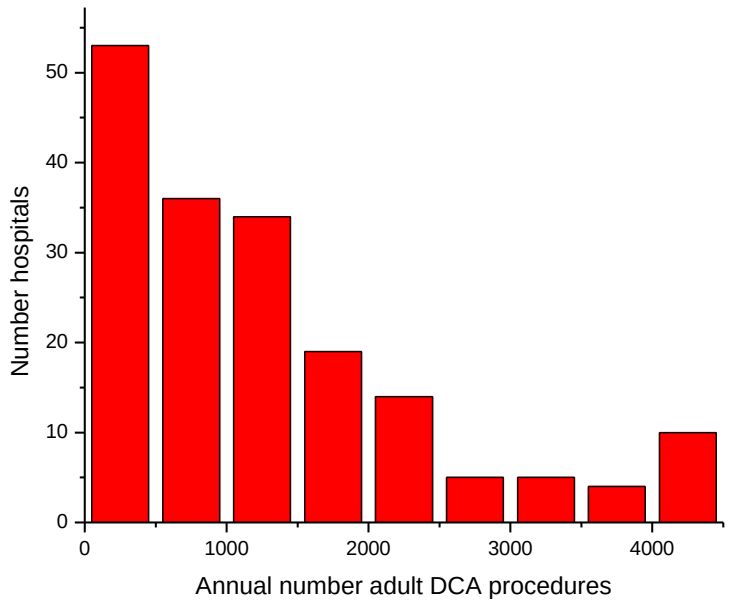
Table B – 29. Frequency distribution for range of annual number of adult DCA procedures performed at hospital.

Annual number adult DCA	Frequency	Percent	Cumulative percent
0-500	53	29.4	29.4
501-1000	36	20.0	49.4
1001-1500	34	18.9	68.3
1501-2000	19	10.6	78.9
2001-2500	14	7.8	86.7
2501-3000	5	2.8	89.5
3001-3500	5	2.8	92.3
3501-4000	4	2.2	94.5
4001 +	10	5.6	100.1

Reference: Facility Questionnaire (17a).
Number observations = 180. Missing data = 19 (not entered by the surveyors).

Data collected for number of adult diagnostic coronary angiography (DCA) procedures performed in a 12 month interval before the survey.

NUMBER OF ADULT DIAGNOSTIC CORONARY ARTERIOGRAMS (DCA) PERFORMED AT THE HOSPITAL ANNUALLY



Reference: Facility Questionnaire (17a).
Number observations = 180. Missing data = 19 (not entered by the surveyors).

Data collected for number of adult diagnostic coronary angiography (DCA) procedures performed in a 12 month interval before the survey.

Figure B - 16. Range of annual number of adult DCA procedures performed at hospital per number of hospitals.

NUMBER OF PEDIATRIC DIAGNOSTIC CORONARY ARTERIOGRAMS (DCA) PERFORMED AT THE HOSPITAL ANNUALLY

Table B – 30. Descriptive statistics for annual number of pediatric DCA procedures performed at hospital.

	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
Annual number pediatric DCA	4.3	155	28.6	0	0	0	0	305

Reference: Facility Questionnaire (17a).
Number observations = 155. Missing data = 44 (not entered by the surveyors).

Data collected for number of pediatric diagnostic coronary angiography (DCA) procedures performed in a 12 month interval before the survey.

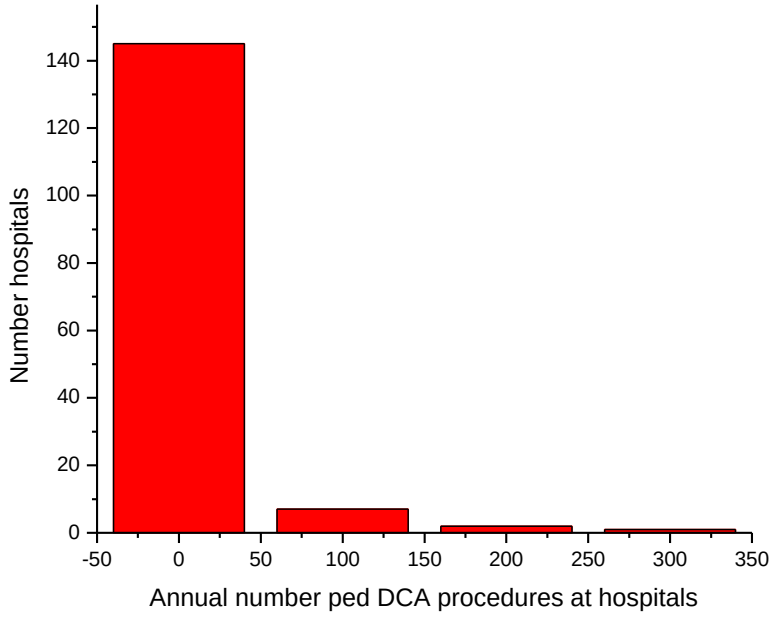
Table B – 31. Frequency distribution for range of annual number of pediatric DCA procedures performed at hospital.

Annual number pediatric DCA	Frequency	Percent	Cumulative percent
0	145	93.5	93.5
1-100	7	4.5	98.0
101-200	2	1.3	99.3
201 +	1	0.6	99.9

Reference: Facility Questionnaire (17a).
Number observations = 155. Missing data = 44 (not entered by the surveyors).

Data collected for number of pediatric diagnostic coronary angiography (DCA) procedures performed in a 12 month interval before the survey.

NUMBER OF PEDIATRIC DIAGNOSTIC CORONARY ARTERIOGRAMS (DCA) PERFORMED AT THE HOSPITAL ANNUALLY



Reference: Facility Questionnaire (17a).
Number observations = 155. Missing data = 44 (not entered by the surveyors).

Data collected for number of pediatric diagnostic coronary angiography (DCA) procedures performed in a 12 month interval before the survey.

Figure B - 17. Range of annual number of pediatric DCA procedures performed at hospital per number of hospitals.

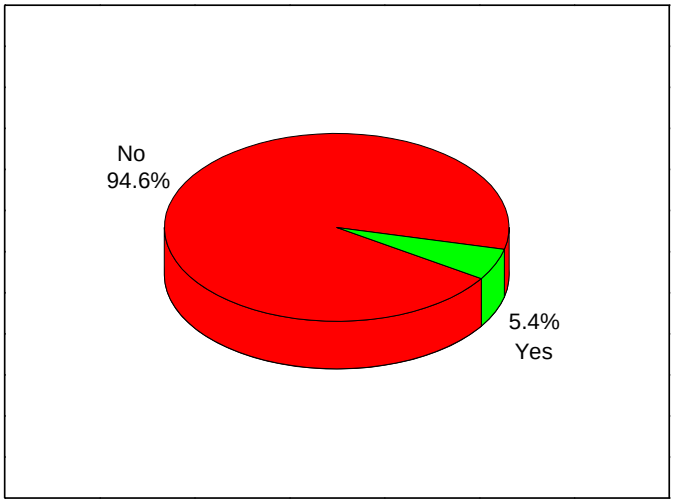
FACILITIES PERFORMING DIAGNOSTIC CORONARY ARTERIOGRAMS (DCA) PROCEDURES ON HOSPITAL ADULT OUTPATIENTS

Table B – 32. Frequency distribution of facilities performing DCA procedures on hospital adult outpatients.

Hospital performs DCA procedures on hospital adult outpatients	Frequency	Percent	Cumulative percent
No	105	94.6	94.6
Yes	6	5.4	100.0

Reference: Facility Questionnaire (17b).
Number observations = 111. Missing data = 88 (not entered by the surveyors).

Data collected on number of surveyed facilities that offered diagnostic coronary angiography (DCA) procedures at outpatient locations, in the 12 month interval before the survey. Data refers to DCA procedures offered to hospital patients.



Reference: Facility Questionnaire (17b).
Number observations = 111. Missing data = 88 (not entered by the surveyors).

Data collected on number of surveyed facilities that offered diagnostic coronary angiography (DCA) procedures at outpatient locations, in the 12 month interval before the survey. Data refers to DCA procedures offered to hospital patients.

Figure B – 18. Percent of facilities performing DCA procedures on hospital adult outpatients.

ANNUAL DIAGNOSTIC CORONARY ARTERIOGRAMS (DCA) PROCEDURES PERFORMED ON HOSPITAL PEDIATRIC OUTPATIENTS

Not enough data available.

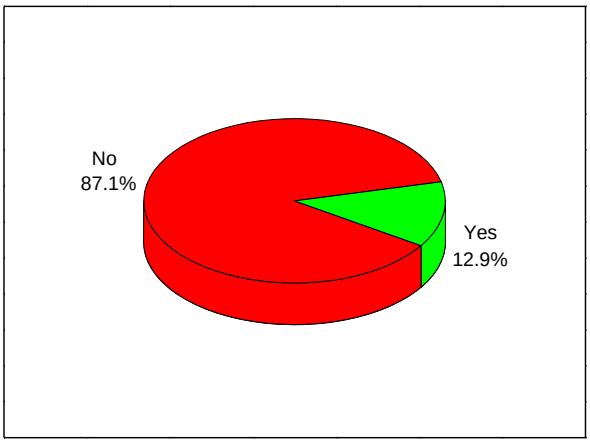
DIAGNOSTIC CORONARY ARTERIOGRAMS (DCA) PROCEDURES PERFORMED ON NON-HOSPITAL ADULT OUTPATIENTS

Table B – 33. Frequency distribution for DCA procedures performed on non-hospital adult outpatients.

Hospital performs DCA procedures on non-hospital adult outpatients	Frequency	Percent	Cumulative percent
No	54	87.1	87.1
Yes	8	12.9	100.0

Reference: Facility Questionnaire (18a).
Number observations = 62. Missing data = 137 (not entered by the surveyors).

Data collected on number of facilities offering adult diagnostic coronary angiography (DCA) procedures at non-hospital outpatient locations in the 12 month interval before the survey.



Reference: Facility Questionnaire (18a).
Number observations = 62. Missing data = 137 (not entered by the surveyors).

Data collected on number of facilities offering adult diagnostic coronary angiography (DCA) procedures at non-hospital outpatient locations in the 12 month interval before the survey.

Figure B – 19. Percent performing DCA procedures on non-hospital adult outpatients.

ANNUAL DIAGNOSTIC CORONARY ARTERIOGRAMS (DCA) PROCEDURES PERFORMED ON NON-HOSPITAL PEDIATRIC OUTPATIENTS

Not enough data available.

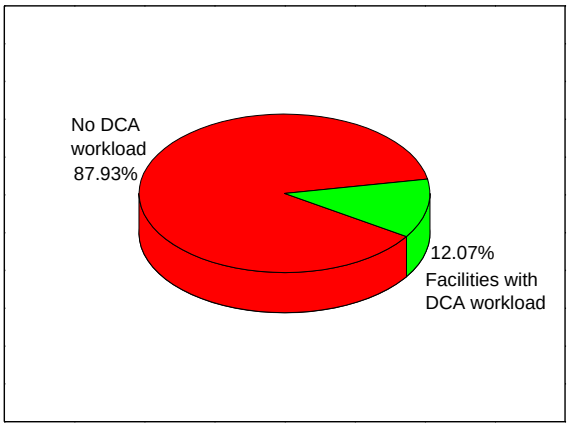
ANNUAL DIAGNOSTIC CORONARY ARTERIOGRAMS (DCA) PROCEDURES PERFORMED ON HOSPITAL ADULT INPATIENTS

Table B – 34. Frequency distribution for annual DCA procedures performed on hospital adult inpatients.

Facilities offering DCA procedures for hospital adult inpatients	Frequency	Percent	Cumulative percent
No	51	87.9	87.9
Yes	7	12.1	100.0

Reference: Facility Questionnaire (18b).
Number observations = 58. Missing data = 141 (not entered by the surveyors).

Data collected on number of adult diagnostic coronary angiography (DCA) procedures at hospital inpatient locations in the 12 month interval before the survey.



Reference: Facility Questionnaire (18b).
Number observations = 58. Missing data = 141 (not entered by the surveyors).

Data collected on number of adult diagnostic coronary angiography (DCA) procedures at hospital inpatient locations in the 12 month interval before the survey.

Figure B – 20. Percent of facilities offering DCA procedures for hospital adult inpatients.

ANNUAL DIAGNOSTIC CORONARY ARTERIOGRAMS (DCA) PROCEDURES PERFORMED ON HOSPITAL PEDIATRIC INPATIENTS

Not enough data available.

ANNUAL ADULT CARDIAC INVASIVE PROCEDURES PERFORMED AT HOSPITAL

Table B - 35. Descriptive statistics for number of annual adult cardiac invasive procedures performed at hospital.

Annual number adult cardiac invasive procedures	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	1824	178	1810	0	465	1220	2592	9943

Reference: Facility Questionnaire (19a).
Number observations = 178. Missing data = 21 (not entered by the surveyors).

Data collected on number of adult cardiac invasive cases procedures at the hospital in the 12 month interval preceding the survey.

Table B - 36. Frequency distribution for range of number of annual adult cardiac invasive procedures performed at hospital.

Annual number adult cardiac invasive procedures	Frequency	Percent	Cumulative percent
0-1000	77	43.3	43.3
1001-2000	41	23.0	66.3
2001-3000	25	14.0	80.3
3001-4000	12	6.7	87.0
4001-5000	12	6.7	93.7
5001-6000	6	3.4	97.1
6001 +	5	2.8	99.9

Reference: Facility Questionnaire (19a).
Number observations = 178. Missing data = 21 (not entered by the surveyors).

Data collected on number of adult cardiac invasive cases procedures at the hospital in the 12 month interval preceding the survey.

ANNUAL ADULT CARDIAC INVASIVE PROCEDURES PERFORMED AT HOSPITAL

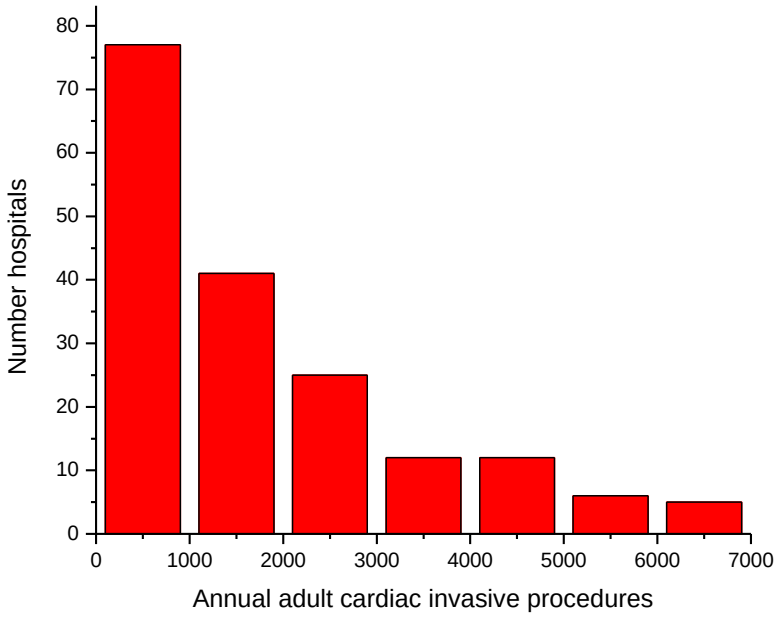


Figure B – 21. Range of number of annual adult cardiac invasive procedures performed at hospital per number of hospitals.

ANNUAL CARDIAC INVASIVE PROCEDURES PERFORMED ON PEDIATRIC PATIENT

Table B – 37. Descriptive statistics for number of annual pediatric cardiac invasive procedures performed at hospital.

	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
Annual number pediatric cardiac invasive procedures	17.6	128	79.5	0	0	0	0	500

Reference: Facility Questionnaire (19b).
Number observations = 128. Missing data = 71 (not entered by the surveyors).

Data collected on number of pediatric cardiac invasive cases procedures at the hospital in the 12 month interval preceding the survey.

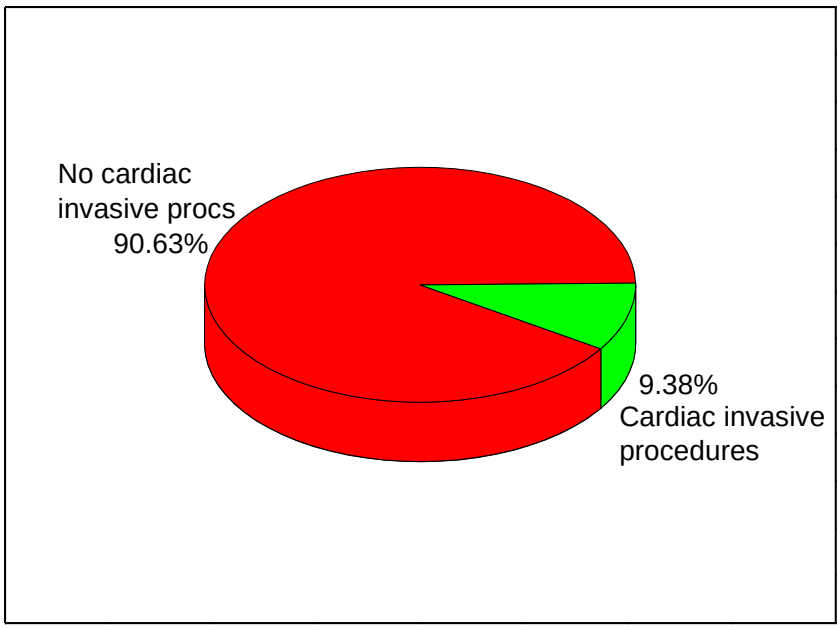
Table B – 38. Frequency distribution for number of annual pediatric cardiac invasive procedures performed at hospital.

Annual number pediatric cardiac invasive procedures	Frequency	Percent	Cumulative percent
0	116	90.6	90.6
1 +	12	9.4	100.0

Reference: Facility Questionnaire (19b).
Number observations = 128. Missing data = 71 (not entered by the surveyors).

Data collected on number of pediatric cardiac invasive cases procedures at the hospital in the 12 month interval preceding the survey.

ANNUAL CARDIAC INVASIVE PROCEDURES PERFORMED ON PEDIATRIC PATIENT



Reference: Facility Questionnaire (19b).
Number observations = 128. Missing data = 71 (not entered by the surveyors).

Data collected on number of pediatric cardiac invasive cases procedures at the hospital in the 12 month interval preceding the survey.

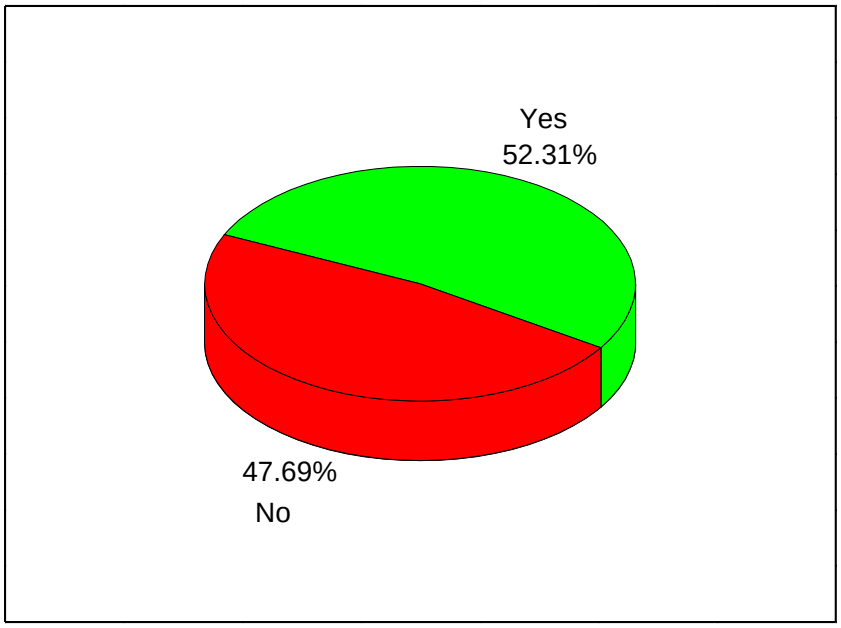
Figure B – 22. Percent performing pediatric cardiac invasive procedures at the hospital.

DEPARTMENT FLUOROSCOPY CREDENTIALING PROGRAM

Table B – 39. Frequency distribution for department credentialing program for fluoroscopy equipment operators.

Credentialing program	Frequency	Percent	Cumulative percent
Yes	102	52.3	52.3
No	93	47.7	100.0

Reference: Facility Questionnaire (21).
Number observations = 195. Missing data = 4 (not entered by the surveyors).



Reference: Facility Questionnaire (21).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

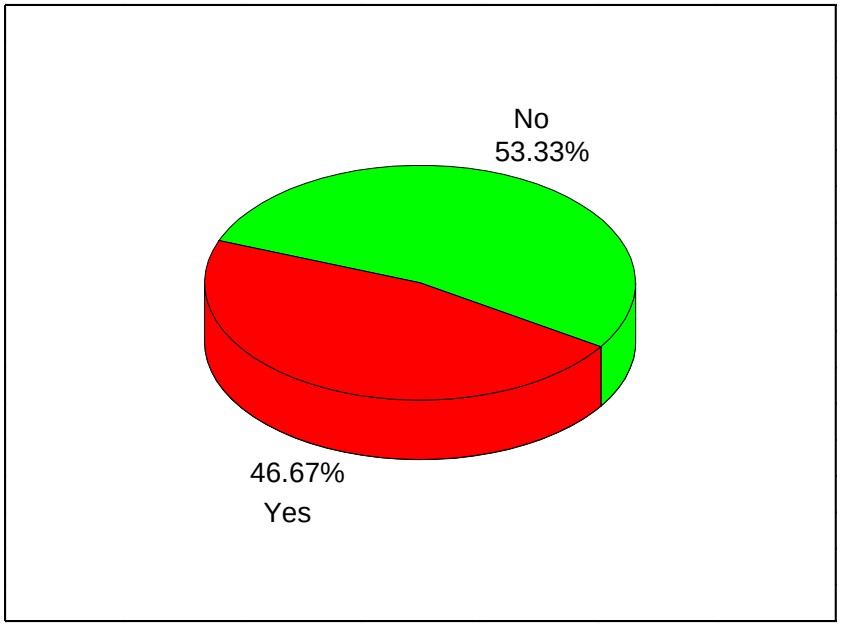
Figure B – 23. Percent of departments with credentialing program for fluoroscopy equipment operators.

BOARD CERTIFICATION REQUIREMENT

Table B – 40. Frequency distribution for fluoroscopy credentialing program that requires board certification.

Board certification required	Frequency	Percent	Cumulative percent
Yes	91	53.3	53.3
No	104	46.7	100.0

Reference: Facility Questionnaire (21a).
Number observations = 195. Missing data = 4 (not entered by the surveyors).



Reference: Facility Questionnaire (21a)
Number observations = 195. Missing data = 4 (not entered by the surveyors).

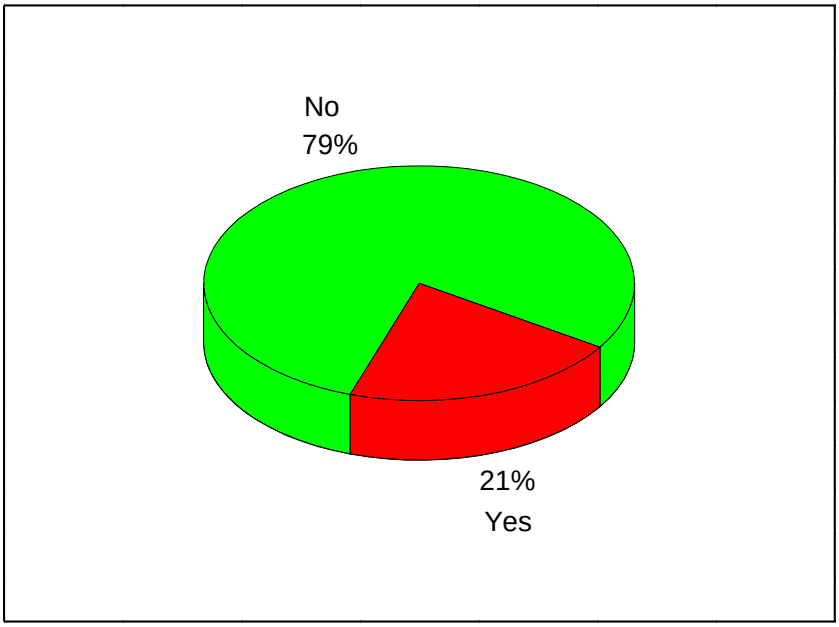
Figure B – 24. Percent of fluoroscopy credentialing programs that require board certification.

PROBATIONAL PERIOD OF SUPERVISION

Table B – 41. Frequency distribution for fluoroscopy privileging program that requires probationary period.

Probationary period required	Frequency	Percent	Cumulative percent
Yes	41	21.0	21.0
No	154	79.0	100.0

Reference: Facility Questionnaire (21b).
Number observations = 195. Missing data = 4 (not entered by the surveyors).



Reference: Facility Questionnaire (21b).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

Figure B – 25. Percent of fluoroscopy privileging programs that require probationary period.

ONE-TIME TRAINING FOR OBTAINING PRIVILEGES FOR FLUOROSCOPY

Table B – 42. Frequency distribution for fluoroscopy privileging program that requires a one-time training.

One-time training	Frequency	Percent	Cumulative percent
Yes	40	20.5	20.5
No	155	79.5	100.0

Reference: Facility Questionnaire (21c).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

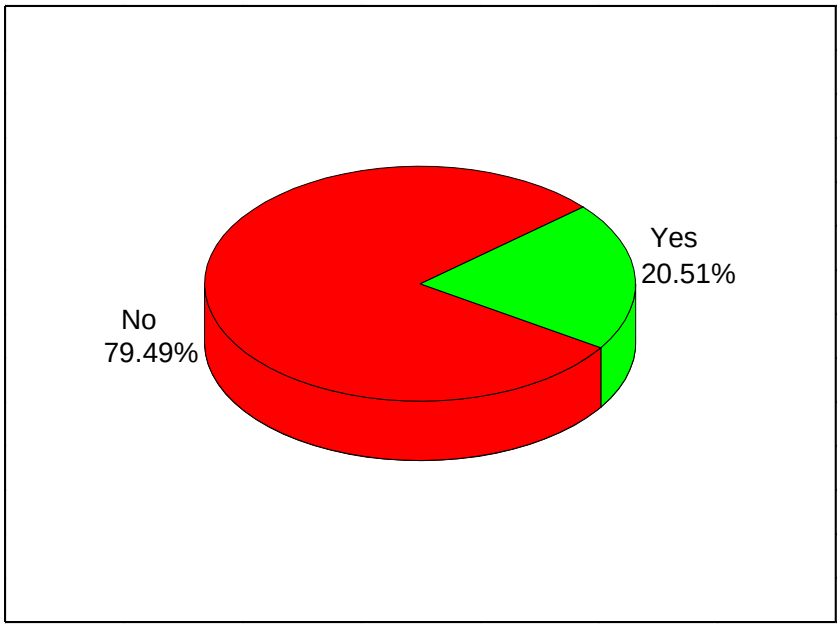


Figure B – 26. Percent of fluoroscopy privileging programs that require a one-time training.

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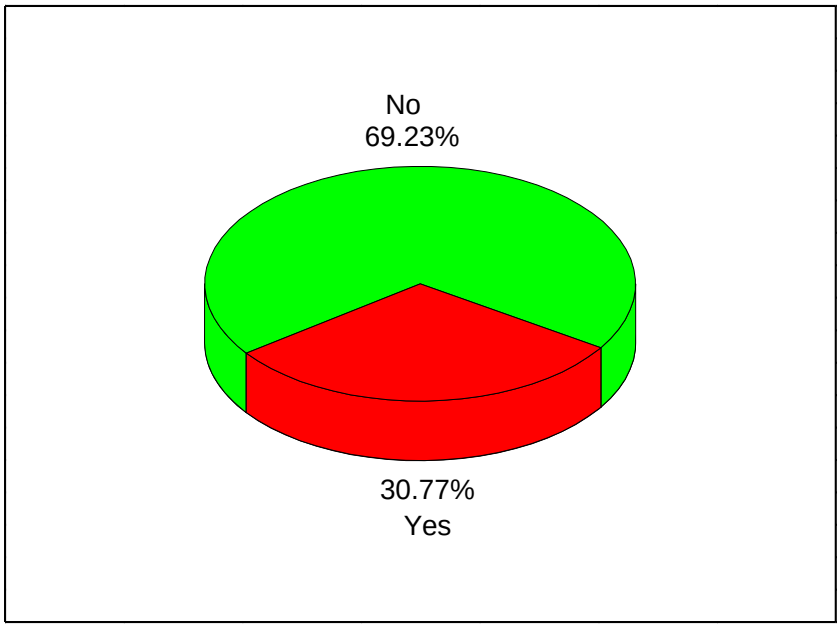
CONTINUING EDUCATION REQUIREMENT FOR MAINTAINING PRIVILEGES IN FLUOROSCOPY

Table B – 43. Frequency distribution for fluoroscopy privileging program that requires continuing education.

Continuing education required	Frequency	Percent	Cumulative percent
Yes	60	30.8	30.8
No	135	69.2	100.0

Reference: Facility Questionnaire (21d).
Number observations = 195. Missing data = 4 (not entered by the surveyors).



Reference: Facility Questionnaire (21d).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

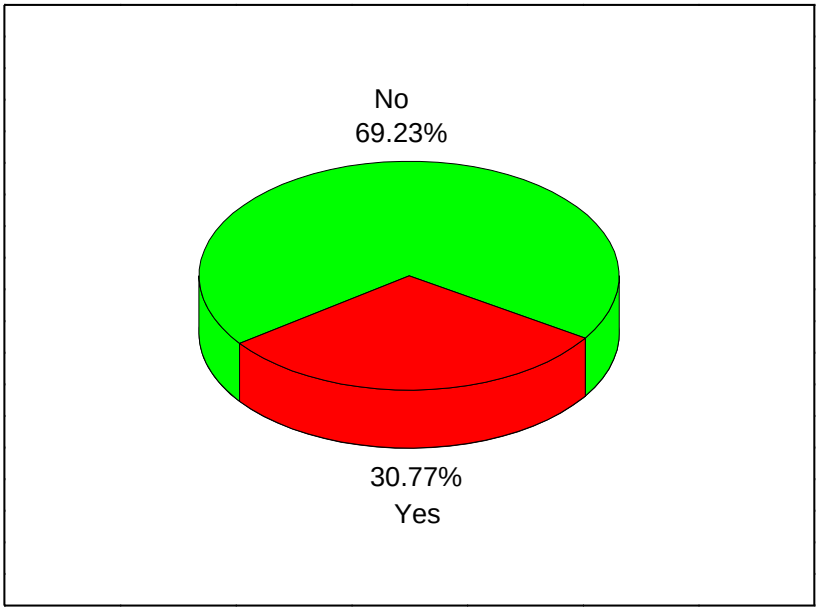
Figure B – 27. Percent of fluoroscopy privileging programs that require continuing education.

FLUOROSCOPY PRIVILEGING PROGRAM INCLUDES IN-HOUSE LECTURES

Table B – 44. Frequency distribution for fluoroscopy privileging program that encourages in-house lectures.

In-house lectures provided	Frequency	Percent	Cumulative percent
Yes	60	30.8	30.8
No	135	69.2	100.0

Reference: Facility Questionnaire (21e).
Number observations = 195. Missing data = 4 (not entered by the surveyors).



Reference: Facility Questionnaire (21e).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

Figure B - 28. Percent of fluoroscopy privileging programs that encourage in-house lectures.

TOTAL NUMBER OF FLUOROSCOPY SYSTEMS IN THE DEPARTMENT

Table B – 45. Descriptive statistics for total number of fluoroscopy systems in the department.

Number of fluoroscopy systems	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	2.86	180	1.88	1	1	2	4	10

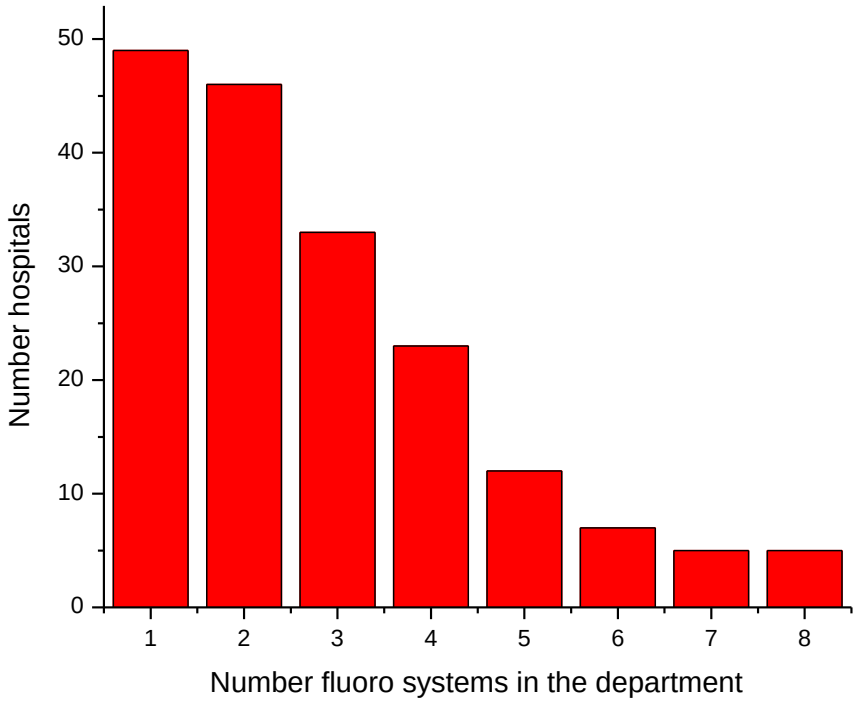
Reference: Facility Questionnaire (22a).
Number observations = 180. Missing data = 19 (not entered by the surveyors).

Table B – 46. Frequency distribution for total number of fluoroscopy systems in the department.

Number fluoroscopy systems	Frequency	Percent	Cumulative percent
1	49	27.2	27.2
2	46	25.6	52.8
3	33	18.3	71.1
4	23	12.8	83.9
5	12	6.7	90.6
6	7	3.9	94.5
7	5	2.8	97.3
8+	5	2.8	100.1

Reference: Facility Questionnaire (22a).
Number observations = 180. Missing data = 19 (not entered by the surveyors).

TOTAL NUMBER OF FLUOROSCOPY SYSTEMS IN THE DEPARTMENT



Reference: Facility Questionnaire (22a).
Number observations = 180. Missing data = 19 (not entered by the surveyors).

Figure B - 29. Total number of fluoroscopy systems in the department per number of hospitals.

TOTAL NUMBER OF FLUOROSCOPY SYSTEMS USED FOR CARDIAC PROCEDURES

Table B – 47. Descriptive statistics for number of fluoroscopy systems in the department used for cardiac procedures.

Number of systems used for cardiac procedures	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	1.65	167	1.70	0	0	1	2	7

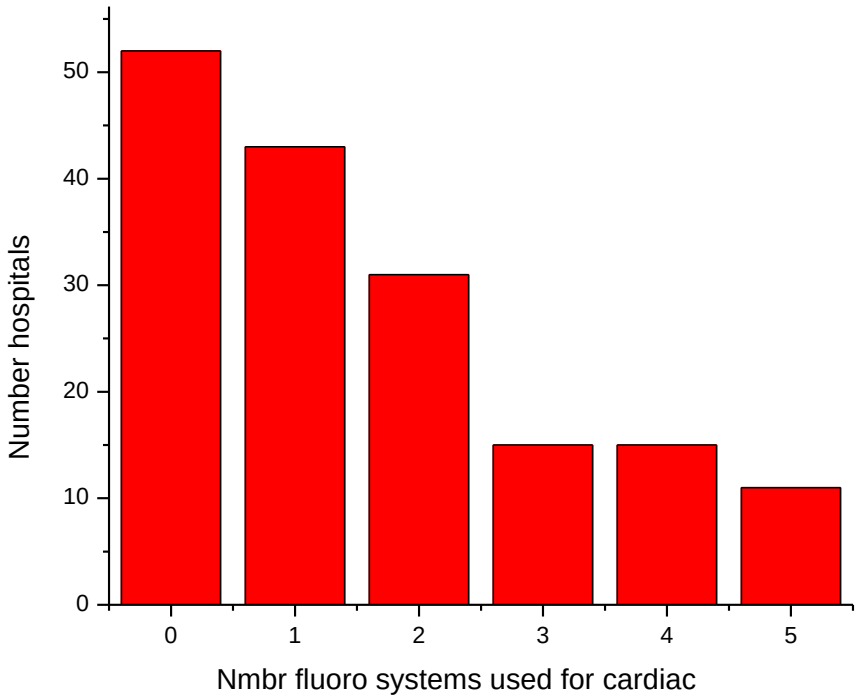
Reference: Facility Questionnaire (22b).
Number observations = 167. Missing data = 32 (not entered by the surveyors).

Table B – 48. Frequency distribution for number of fluoroscopy systems in the department used for cardiac procedures.

Number of systems used for cardiac procedures	Frequency	Percent	Cumulative percent
0	52	31.1	31.1
1	43	25.7	56.8
2	31	18.6	75.4
3	15	9.0	84.4
4	15	9.0	93.4
5 +	11	6.6	100.0

Reference: Facility Questionnaire (22b).
Number observations = 167. Missing data = 32 (not entered by the surveyors).

TOTAL NUMBER OF FLUOROSCOPY SYSTEMS USED FOR CARDIAC PROCEDURES



Reference: Facility Questionnaire (22b).
Number observations = 167. Missing data = 32 (not entered by the surveyors).

Figure B – 30. Number of fluoroscopy systems in the department used for cardiac procedures per number of hospitals.

TOTAL NUMBER OF FLUOROSCOPY SYSTEMS USED FOR NON-CARDIAC PROCEDURES

Table B – 49. Descriptive statistics for number of fluoroscopy systems in the department used for non-cardiac procedures.

Number of systems used for non-cardiac procedures	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	0.36	156	0.75	0	0	0	0	4

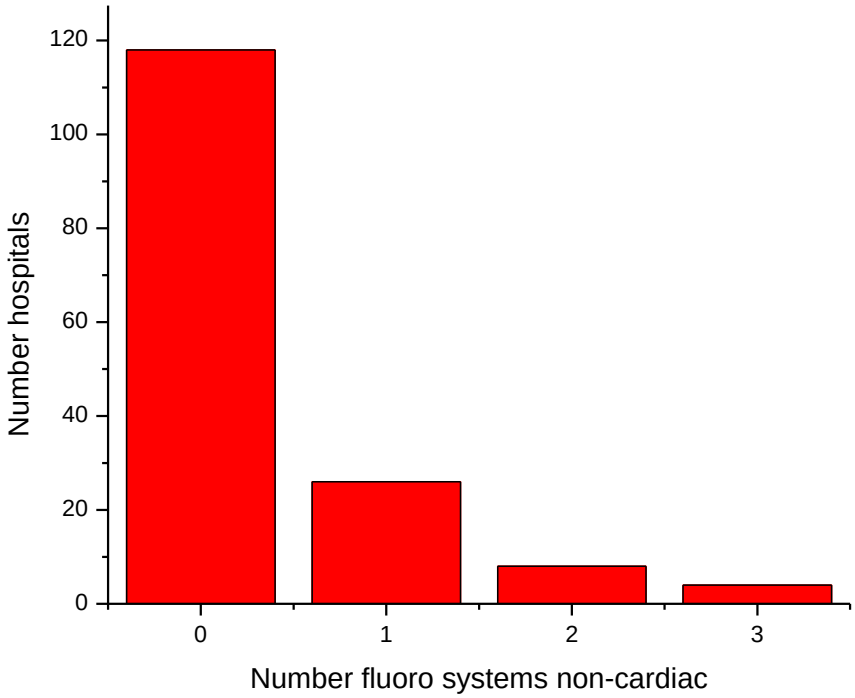
Reference: Facility Questionnaire (22c).
Number observations = 156. Missing data = 43 (not entered by the surveyors).

Table B – 50. Frequency distribution for number of fluoroscopy systems in the department used for non-cardiac procedures.

Number of systems used for non- cardiac procedures	Frequency	Percent	Cumulative percent
0	118	75.6	75.6
1	26	16.7	92.3
2	8	5.1	97.4
3 +	4	2.6	100.0

Reference: Facility Questionnaire (22c).
Number observations = 156. Missing data = 43 (not entered by the surveyors).

TOTAL NUMBER OF FLUOROSCOPY SYSTEMS USED FOR NON-CARDIAC PROCEDURES



Reference: Facility Questionnaire (22c).
Number observations = 156. Missing data = 43 (not entered by the surveyors).

Figure B – 31. Number of fluoroscopy systems in the department used for non-cardiac procedures per number of hospitals.

TOTAL NUMBER OF FLUOROSCOPY SYSTEMS USED FOR INVASIVE PROCEDURES

Table B – 51. Descriptive statistics for number of fluoroscopy systems in the department used for cardiac and non-cardiac invasive procedures.

Number of systems used for invasive procedures	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	1.82	170	1.63	0	1	1	3	10

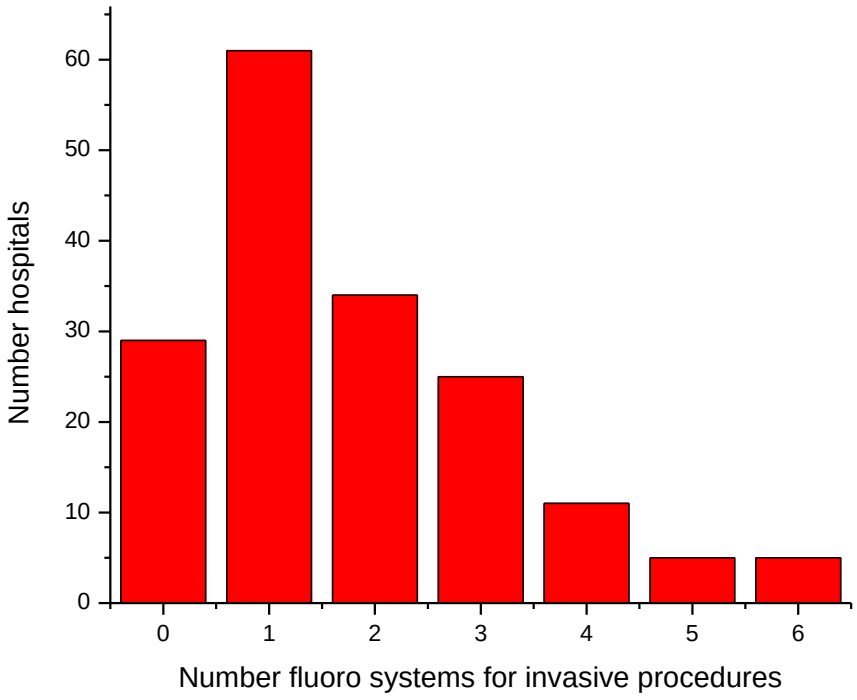
Reference: Facility Questionnaire (22d).
Number observations = 170. Missing data = 29 (not entered by the surveyors).

Table B – 52. Frequency distribution for number of fluoroscopy systems in the department used for cardiac and non-cardiac invasive procedures.

Number of systems used for invasive procedures	Frequency	Percent	Cumulative percent
0	29	17.1	17.1
1	61	35.9	53.0
2	34	20.0	73.0
3	25	14.7	87.7
4	11	6.5	94.2
5	5	2.9	97.1
6 +	5	2.9	100.0

Reference: Facility Questionnaire (22d).
Number observations = 170. Missing data = 29 (not entered by the surveyors).

TOTAL NUMBER OF FLUOROSCOPY SYSTEMS USED FOR INVASIVE PROCEDURES



Reference: Facility Questionnaire (22d).
Number observations = 170. Missing data = 29 (not entered by the surveyors).

Figure B – 32. Number of fluoroscopy systems in the department used for cardiac and non-cardiac invasive procedures per number of hospitals.

NUMBER OF DIGITAL-RECEPTOR FLUOROSCOPY SYSTEMS USED FOR CARDIAC PROCEDURES

Table B – 53. Descriptive statistics for number of flat-panel (digital) image receptor fluoroscopy units used for cardiac procedures.

	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
Number of digital-receptor systems used for cardiac procedures	1.91	166	1.67	0	1	1.5	3	9

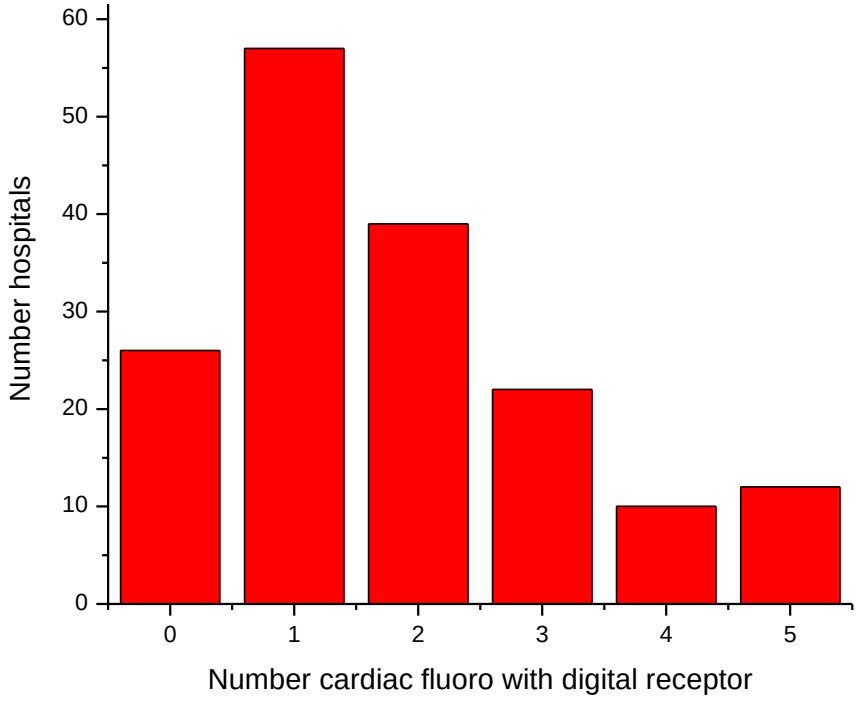
Reference: Facility Questionnaire (23a).
Number observations = 166. Missing data = 33 (not entered by the surveyors).

Table B – 54. Frequency distribution for number of flat-panel (digital) image receptor fluoroscopy units used for cardiac procedures.

Number of digital-receptor systems used for cardiac procedures	Frequency	Percent	Cumulative percent
0	26	15.7	15.7
1	57	34.3	50.0
2	39	23.5	73.5
3	22	13.3	86.8
4	10	6.0	92.8
5 +	12	7.2	100.0

Reference: Facility Questionnaire (23a).
Number observations = 166. Missing data = 33 (not entered by the surveyors).

NUMBER OF DIGITAL-RECEPTOR FLUOROSCOPY SYSTEMS USED FOR CARDIAC PROCEDURES



Reference: Facility Questionnaire (23a).
Number observations = 166. Missing data = 33 (not entered by the surveyors).

Figure B – 33. Number of flat-panel (digital) image receptor fluoroscopy units used for cardiac procedures per number of hospitals.

NUMBER OF CARDIAC FLUOROSCOPY UNITS WITH COMPUTED TOMOGRAPHY (CT) MODE OF OPERATION

Table B – 55. Descriptive statistics for number of fluoroscopy systems used for cardiac procedures with a CT mode of operation.

Systems with CT mode	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	0.11	121	0.36	0	0	0	0	2

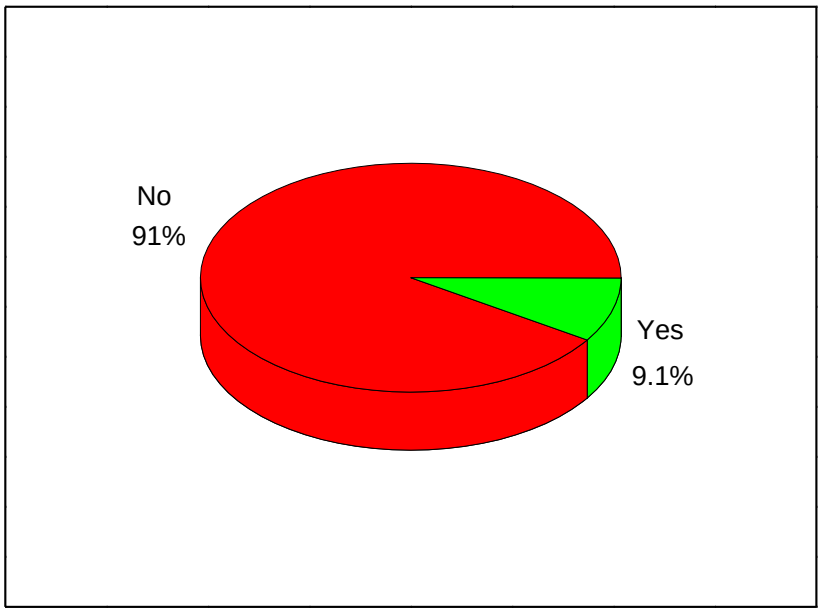
Reference: Facility Questionnaire (23b).
Number observations = 121. Missing data = 78 (not entered by the surveyors).

Table B – 56. Frequency distribution for number of fluoroscopy systems used for cardiac procedures with a CT mode of operation.

Systems with CT mode	Frequency	Percent	Cumulative percent
No	110	90.9	90.9
Yes	11	9.1	100.0

Reference: Facility Questionnaire (23b).
Number observations = 121. Missing data = 78 (not entered by the surveyors).

NUMBER OF CARDIAC FLUOROSCOPY UNITS WITH CT MODE OF OPERATION



Reference: Facility Questionnaire (23b).
Number observations = 121. Missing data = 78 (not entered by the surveyors).

Figure B – 34. Percent of fluoroscopy systems used for cardiac procedures with a CT mode of operation.

NUMBER OF CARDIAC FLUOROSCOPY UNITS IN DEPARTMENT WITH DOSE-AREA PRODUCT (DAP)/ AIR KERMA-AREA PRODUCT (KAP) DISPLAY

Table B – 57. Descriptive statistics for number of fluoroscopy units used for cardiac procedures with DAP/KAP display.

Systems with DAP/KAP	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	2.13	134	1.78	0	1	2	3	9

Reference: Facility Questionnaire (23c).
Number observations = 134. Missing data = 65 (not entered by the surveyors).

DAP Dose-area product
KAP Air kerma-area product

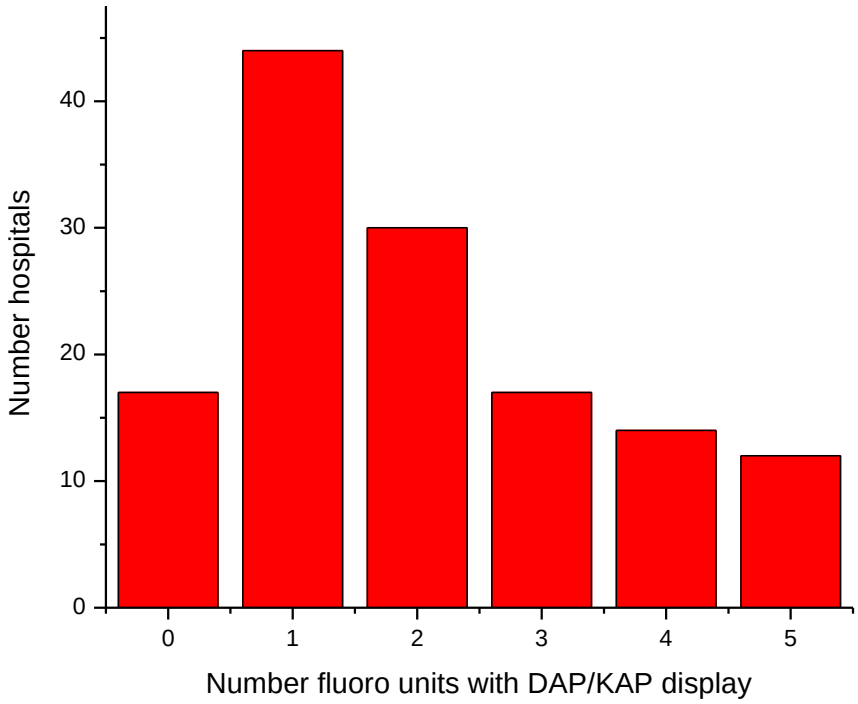
Table B – 58. Frequency distribution for number of fluoroscopy units used for cardiac procedures with DAP/KAP display.

Number systems with DAP/KAP display	Frequency	Percent	Cumulative percent
0	17	12.7	12.7
1	44	32.8	45.5
2	30	22.4	67.9
3	17	12.7	80.6
4	14	10.4	91.0
5 +	12	9.0	100.0

Reference: Facility Questionnaire (23c).
Number observations = 134. Missing data = 65 (not entered by the surveyors).

DAP Dose-area product
KAP Air kerma-area product

NUMBER OF CARDIAC FLUOROSCOPY UNITS IN DEPARTMENT WITH DAP/KAP DISPLAY



Reference: Facility Questionnaire (23c).
Number observations = 134. Missing data = 65 (not entered by the surveyors).

DAP Dose-area product
KAP Air kerma-area product

Figure B – 35. Number of fluoroscopy units used for cardiac procedures with DAP/KAP display per number of hospitals.

NUMBER OF CARDIAC FLUOROSCOPY UNITS IN DEPARTMENT WITH AIR KERMA (AK) DISPLAY

Table B – 59. Descriptive statistics for number of fluoroscopy units used for cardiac procedures with air kerma display.

Systems with AK display	Mean	N	Std Dev	Min	Q25	Median	Q75	Max
	1.71	125	1.65	0	0	1	3	9

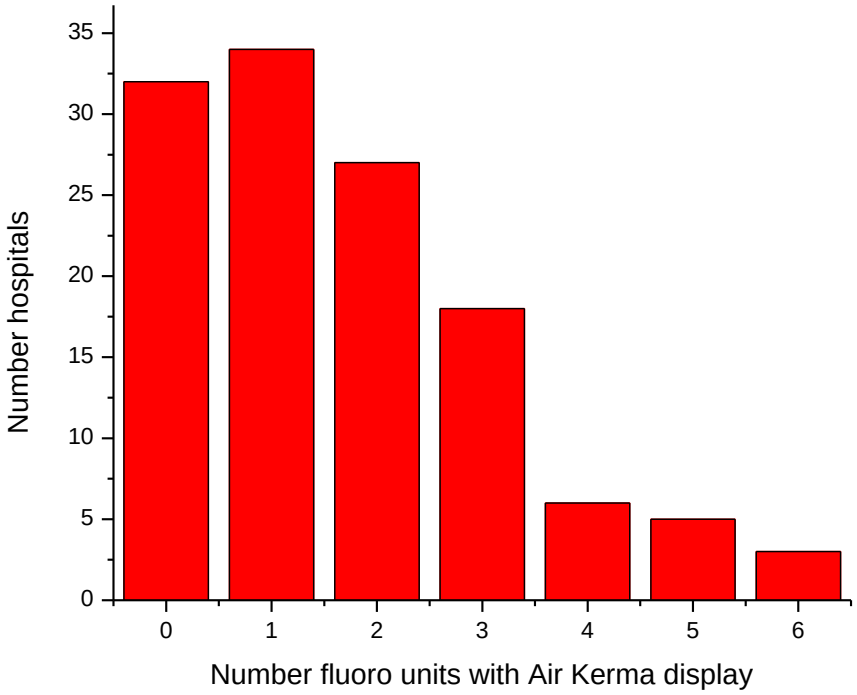
Reference: Facility Questionnaire (23d).
Number observations = 125. Missing data = 74 (not entered by the surveyors).

Table B – 60. Frequency distribution for number of fluoroscopy units used for cardiac procedures with air kerma display.

Number systems with AK display	Frequency	Percent	Cumulative percent
0	32	25.6	25.6
1	34	27.2	52.8
2	27	21.6	74.4
3	18	14.4	88.8
4	6	4.8	93.6
5	5	4.0	97.6
6+	3	2.4	100.0

Reference: Facility Questionnaire (23d).
Number observations = 125. Missing data = 74 (not entered by the surveyors).

NUMBER OF CARDIAC FLUOROSCOPY UNITS IN DEPARTMENT WITH AIR KERMA DISPLAY



Reference: Facility Questionnaire (23d).
Number observations = 125. Missing data = 74 (not entered by the surveyors).

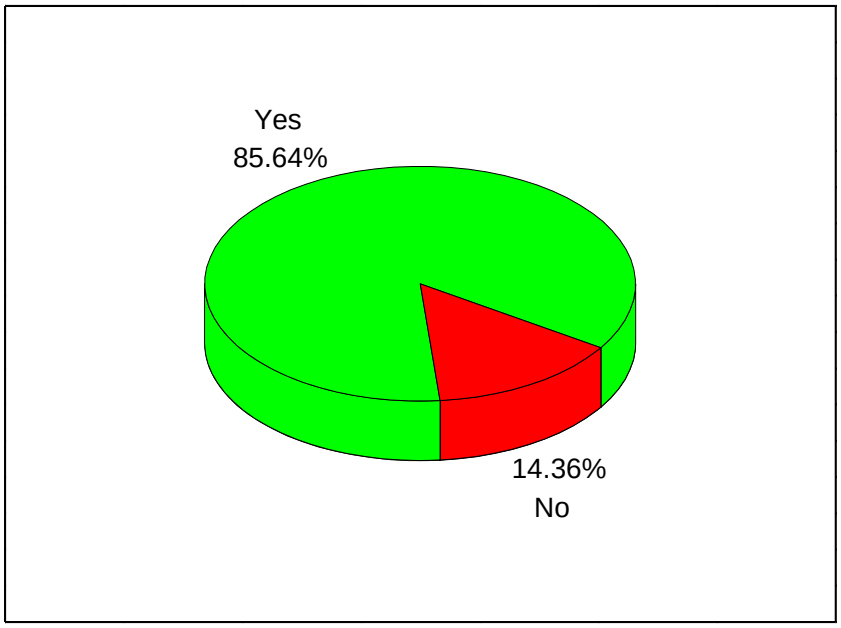
Figure B – 36. Number of fluoroscopy units used for cardiac procedures with air kerma display per number of hospitals.

VALUES OF FLUOROSCOPY TIME RECORDED AND KEPT ON RECORD

Table B – 61. Frequency distribution for facilities recording values of cumulative fluoroscopy time.

Cumulative fluoroscopy time kept on record	Frequency	Percent	Cumulative percent
No	28	14.4	14.4
Yes	167	85.6	100.0

Reference: Facility Questionnaire (24a).
Number observations = 195. Missing data = 4 (not entered by the surveyors).



Reference: Facility Questionnaire (24a).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

Figure B – 37. Percent recording values of cumulative fluoroscopy time.

RECORD OF FLUOROSCOPY TIME USED FOR PATIENT FOLLOW-UP

Not enough data available.

RECORD OF FLUOROSCOPY TIME USED FOR INTERNAL REPORTING

Not enough data available.

RECORD OF FLUOROSCOPY TIME USED FOR REPORTING WITH OUTSIDE AGENCY

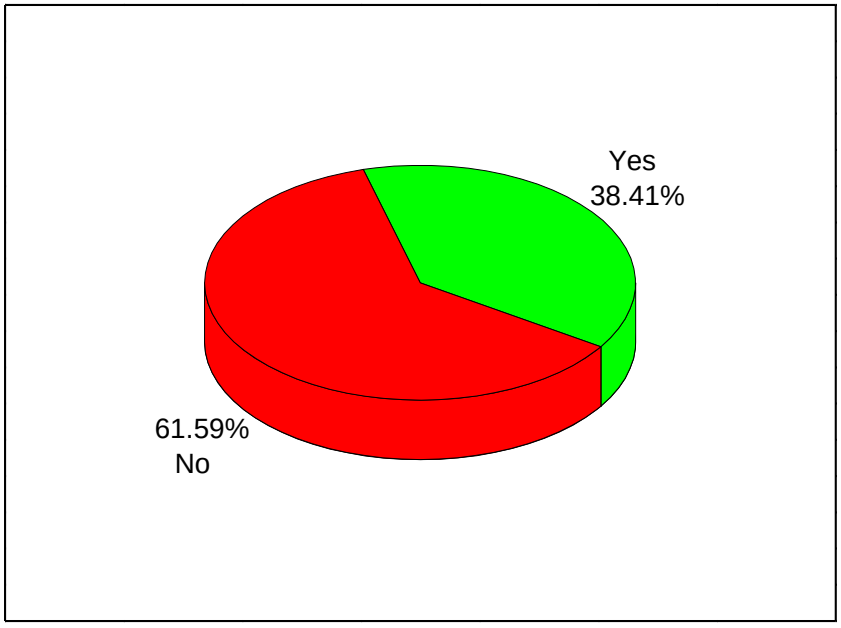
Not enough data available.

VALUES OF AIR KERMA-AREA PRODUCT (KAP) RECORDED AND KEPT ON RECORD

Table B – 62. Frequency distribution for facilities recording values of cumulative KAP.

Cumulative KAP recorded and kept	Frequency	Percent	Cumulative percent
No	93	61.6	61.6
Yes	58	38.4	100.0

Reference: Facility Questionnaire (24b).
Number observations = 151. Missing data = 48 (not entered by the surveyors).



Reference: Facility Questionnaire (24b).
Number observations = 151. Missing data = 48 (not entered by the surveyors).

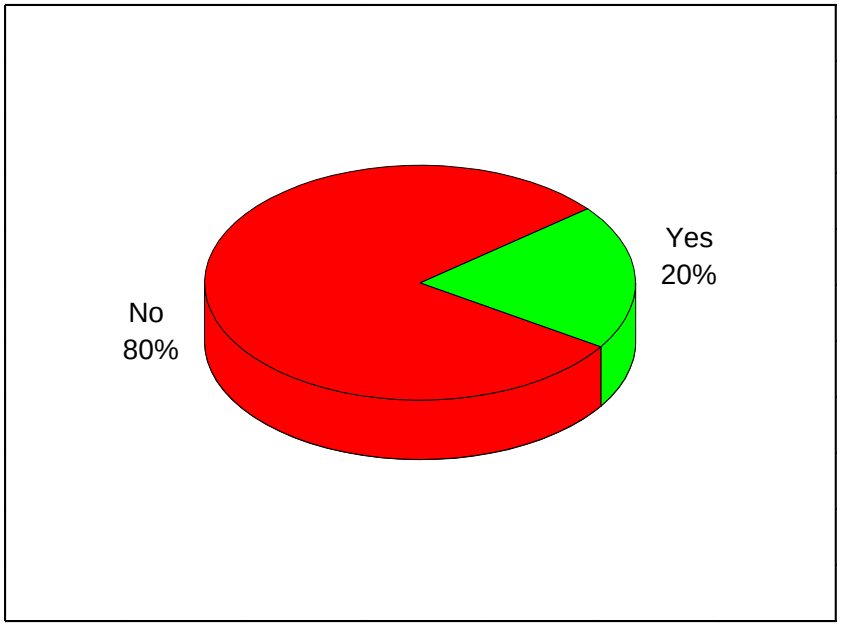
Figure B – 38. Percent recording and keeping values of cumulative KAP.

VALUES OF AIR KERMA-AREA PRODUCT (KAP) RECORDED AND KEPT ON RECORD FOR PATIENT FOLLOW-UP

Table B – 63. Frequency distribution for recording values of cumulative KAP for patient follow-up.

KAP recorded for patient follow-up	Frequency	Percent	Cumulative percent
No	12	80.0	80.0
Yes	3	20.0	100.0

Reference: Facility Questionnaire (24b).
Number observations = 15. Missing data = 184 (not entered by the surveyors).



Reference: Facility Questionnaire (24b).
Number observations = 15. Missing data = 184 (not entered by the surveyors).

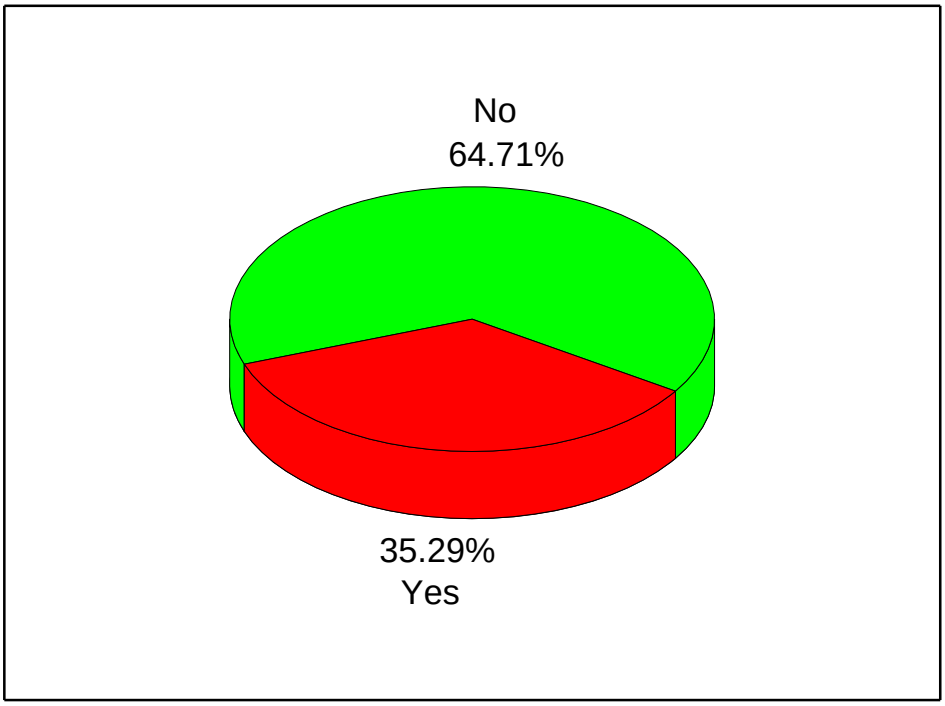
Figure B – 39. Percent recording values of cumulative KAP for patient follow-up.

VALUES OF AIR KERMA-AREA PRODUCT (KAP) RECORDED AND KEPT ON RECORD FOR INTERNAL REPORTING

Table B – 64. Frequency distribution for recording values of KAP for internal reporting.

KAP recorded for internal report	Frequency	Percent	Cumulative percent
No	11	64.7	64.7
Yes	6	35.3	100.0

Reference: Facility Questionnaire (24b).
Number observations = 17. Missing data = 182 (not entered by the surveyors).



Reference: Facility Questionnaire (24b).
Number observations = 17. Missing data = 182 (not entered by the surveyors).

Figure B - 40. Percent recording values of KAP for internal reporting.

VALUES OF AIR KERMA-AREA PRODUCT (KAP) RECORDED AND KEPT ON RECORD FOR OUTSIDE AGENCY REPORTING

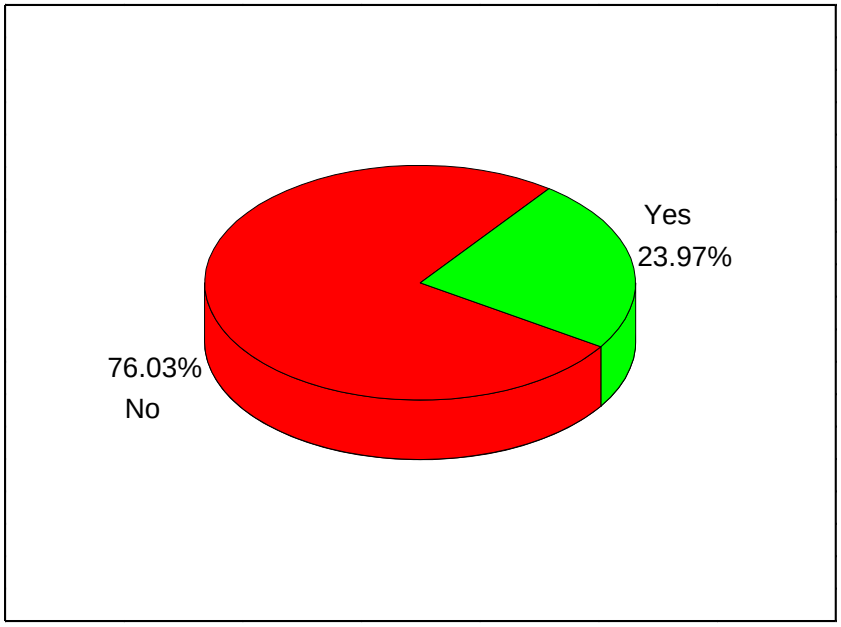
Not enough data available.

VALUES OF AIR KERMA RECORDED AND KEPT ON RECORD

Table B – 65. Frequency distribution for recording values of air kerma.

Values of air kerma recorded	Frequency	Percent	Cumulative percent
No	111	76.0	76.0
Yes	35	24.0	100.0

Reference: Facility Questionnaire (24c).
Number observations = 146. Missing data = 53 (not entered by the surveyors).



Reference: Facility Questionnaire (24c).
Number observations = 146. Missing data = 53 (not entered by the surveyors).

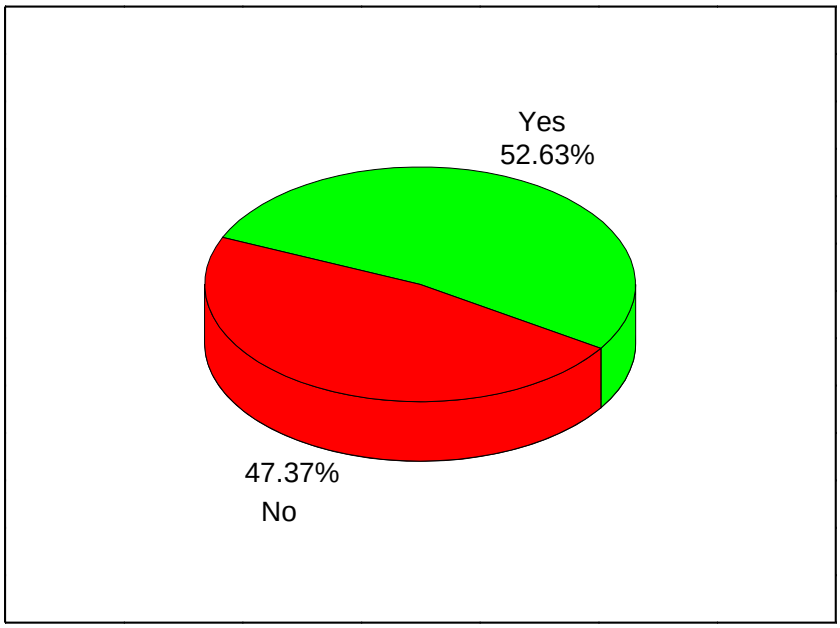
Figure B – 41. Percent recording values of air kerma.

VALUES OF AIR KERMA RECORDED AND KEPT ON RECORD FOR PATIENT FOLLOW-UP

Table B – 66. Frequency distribution for recording values of cumulative air kerma for patient follow-up.

Air kerma recorded for patient follow-up	Frequency	Percent	Cumulative percent
No	9	47.4	47.4
Yes	10	52.6	100.0

Reference: Facility Questionnaire (24c).
Number observations = 19. Missing data = 180 (not entered by the surveyors).



Reference: Facility Questionnaire (24c).
Number observations = 19. Missing data = 180 (not entered by the surveyors).

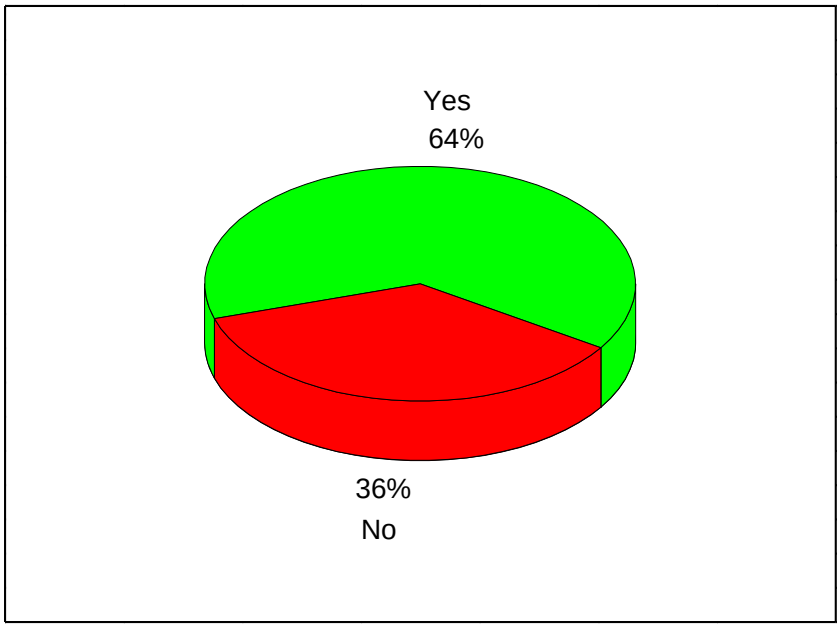
Figure B – 42. Percent recording values of cumulative air kerma for patient follow-up.

VALUES OF AIR KERMA RECORDED AND KEPT ON RECORD FOR INTERNAL REPORTING

Table B – 67. Frequency distribution for recording values of cumulative air kerma for internal reporting.

Air kerma recorded for internal report	Frequency	Percent	Cumulative percent
No	9	36.0	36.0
Yes	16	64.0	100.0

Reference: Facility Questionnaire (24c).
Number observations = 25. Missing data = 174 (not entered by the surveyors).



Reference: Facility Questionnaire (24c).
Number observations = 25. Missing data = 174 (not entered by the surveyors).

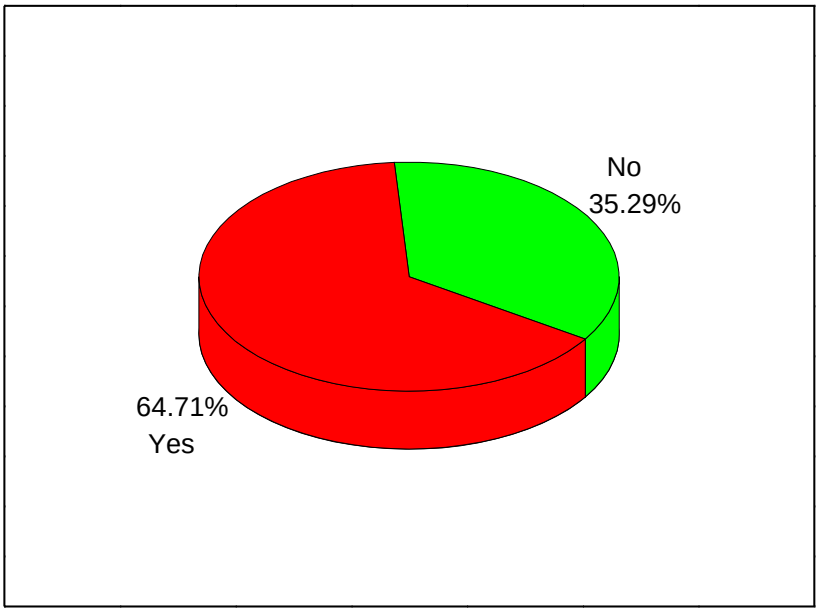
Figure B – 43. Percent recording values of cumulative air kerma for internal reporting.

VALUES OF AIR KERMA RECORDED AND KEPT ON RECORD FOR REPORTING TO OUTSIDE AGENCY

Table B – 68. Frequency distribution for recording values of cumulative air kerma for reporting to outside agency.

Air kerma recorded and kept for reporting to outside agency	Frequency	Percent	Cumulative percent
No	11	64.7	64.7
Yes	6	35.3	100.0

Reference: Facility Questionnaire (24c).
Number observations = 17. Missing data = 182 (not entered by the surveyors).



Reference: Facility Questionnaire (24c).
Number observations = 17. Missing data = 182 (not entered by the surveyors).

Figure B – 44. Percent recording values of cumulative air kerma for reporting to outside agency.

OTHER VALUES RECORDED AND KEPT ON RECORD

Not enough data available.

OTHER VALUES RECORDED AND KEPT ON RECORD FOR PATIENT FOLLOW-UP

Not enough data available.

OTHER VALUES RECORDED AND KEPT ON RECORD FOR INTERNAL REPORTING

Not enough data available.

OTHER VALUES RECORDED AND KEPT ON RECORD FOR OUTSIDE AGENCY REPORTING

Not enough data available.

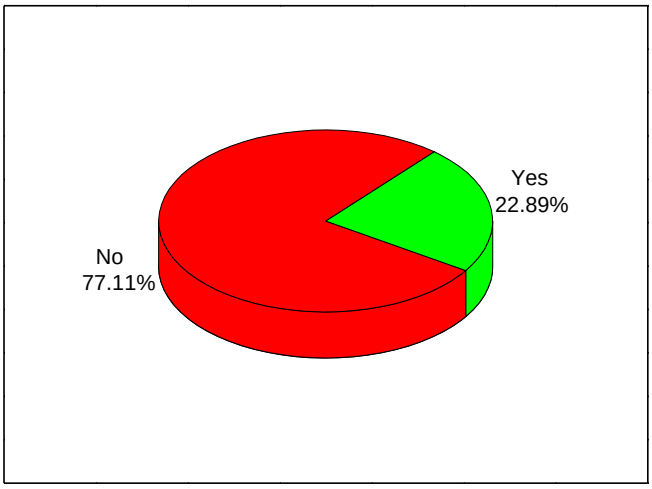
PROCEDURES IN PLACE TO MINIMIZE DOSE FOR EXTENSIVE IMAGING (ADULT PATIENTS)

Table B – 69. Frequency distribution for having procedures in place to minimize dose for extensive imaging of adult patients.

Procedures to minimize dose for extensive imaging of adult patients	Frequency	Percent	Cumulative percent
No	128	77.1	77.1
Yes	38	22.9	100.0

Reference: Facility Questionnaire (25a).
Number observations = 166. Missing data = 33 (not entered by the surveyors).

Question refers to dose-reduction procedures for adult patients undergoing a procedure requiring extensive imaging.



Reference: Facility Questionnaire (25a).
Number observations = 166. Missing data = 33 (not entered by the surveyors).

Question refers to dose-reduction procedures for adult patients undergoing a procedure requiring extensive imaging.

Figure B – 45. Percent having procedures in place to minimize dose for extensive imaging of adult patients.

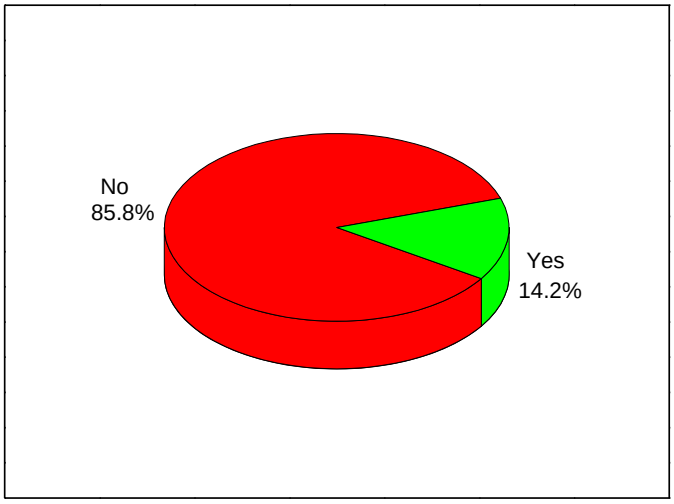
PROCEDURES IN PLACE TO MINIMIZE DOSE FOR ADULT PATIENTS WITH PREVIOUS TREATMENT

Table B – 70. Frequency distribution for having procedures in place to minimize radiation dose for adult patients with previous treatment.

Procedures to minimize dose for adult patients with previous treatment	Frequency	Percent	Cumulative percent
No	139	85.8	85.8
Yes	23	14.2	100.0

Reference: Facility Quest (25b).
Number observations = 162. Missing data = 37 (not entered by the surveyors).

Question refers to dose-reduction procedures for adult patients who have had a previous interventional fluoroscopic treatment session within the past six months.



Reference: Facility Quest (25b).
Number observations = 162. Missing data = 37 (not entered by the surveyors).

Question refers to dose-reduction procedures for adult patients who have had a previous interventional fluoroscopic treatment session within the past six months.

Figure B – 46. Percent having procedures in place to minimize radiation dose for adult patients with previous treatment.

PROCEDURES IN PLACE TO MINIMIZE DOSE FOR PEDIATRIC PATIENTS

Not enough data available.

DEPARTMENT PROVIDES INFORMATION ON POSSIBLE RADIATION INJURY

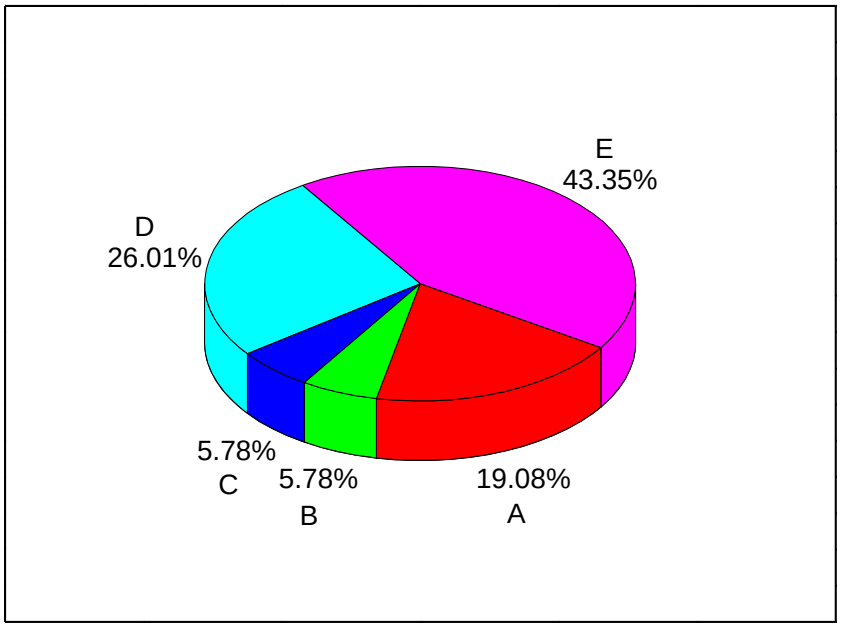
Table B – 71. Frequency distribution for providing information on the possible radiation injury.

Information on possible radiation injury provided	Frequency	Percent	Cumulative percent
A	33	19.1	19.1
B	10	5.8	24.9
C	10	5.8	30.6
D	45	26.0	56.7
E	75	43.3	100.0

Reference: Facility Questionnaire (27).
Number observations = 173. Missing data = 26 (not entered by the surveyors).

A = Only prior to the exam
B = Only following the exam
C = Prior to and following the exam
D = Varies or not sure
E = Never

DEPARTMENT PROVIDES INFORMATION ON POSSIBLE RADIATION INJURY



Reference: Facility Questionnaire (27).
Number observations = 173. Missing data = 26 (not entered by the surveyors).

A = Only prior to the exam
B = Only following the exam
C = Prior to and following the exam
D = Varies or not sure
E = Never

Figure B – 47. Percent providing information on possible radiation injury.

NUMBER OF PATIENTS WITH CONFIRMED RADIATION INJURY DURING PAST THREE YEARS

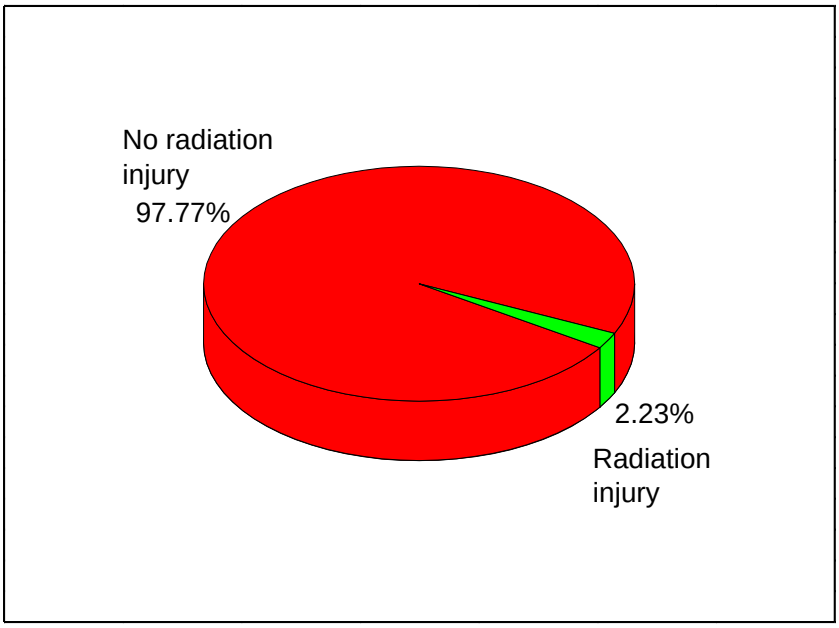
Table B – 72. Frequency distribution for number of patients with a confirmed radiation injury during past 36 months.

Patients with confirmed radiation injury	Frequency	Percent	Cumulative percent
A	175	97.8	97.8
B	2	1.1	98.9
C	1	0.6	99.5
D	1	0.6	100.1

Reference: Facility Questionnaire (28).
Number observations = 179. Missing data = 20 (not entered by the surveyors).

No radiation injury: A = Zero
Radiation injury (B, C, D and E combined):
B = 1
D = 5-10
E = more than 10

NUMBER OF PATIENTS WITH CONFIRMED RADIATION INJURY DURING PAST THREE YEARS



Reference: Facility Questionnaire (28).
Number observations = 179. Missing data = 20 (not entered by the surveyors).

No radiation injury: A = Zero
Radiation injury (B, C, D and E combined):
B = 1
D = 5-10
E = more than 10

Figure B – 48. Percent of patients with a confirmed radiation injury during past 36 months.

POST-EXAM PATIENT MONITORING FOR RADIATION INJURY

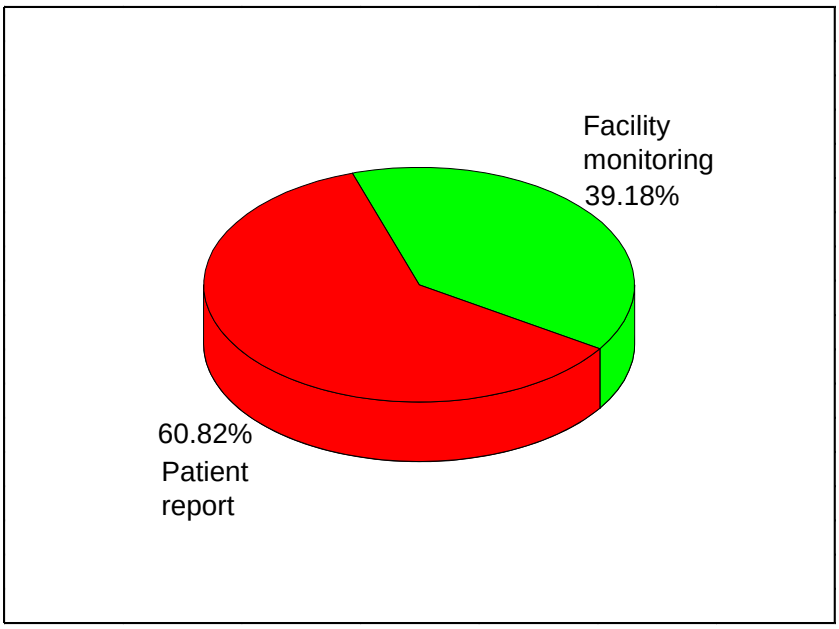
Table B – 73. Frequency distribution for facility's standard protocol for post-exam patient monitoring regarding potential for radiation injury.

Patient monitoring for radiation injury	Frequency	Percent	Cumulative percent
A	104	60.8	60.8
B	13	7.6	68.4
C	42	24.6	93.0
D	12	7.0	100.0

Reference: Facility Questionnaire (29).
Number observations = 171. Missing data = 28 (not entered by the surveyors).

A = Rely on patient to report any condition.
B = Facility follows-up with all patients at specified time intervals.
C = Facility dose threshold value to determine if follow-up is necessary.
D = Other.

POST-EXAM PATIENT MONITORING FOR RADIATION INJURY



Reference: Facility Questionnaire (29).
Number observations = 171. Missing data = 28 (not entered by the surveyors).

A = Rely on patient to report any condition.
B = Facility follows-up with all patients at specified time intervals.
C = Facility dose threshold value to determine if follow-up is necessary.
D = Other.

Facility monitoring frequency on the figure is cases B, C and D combined.

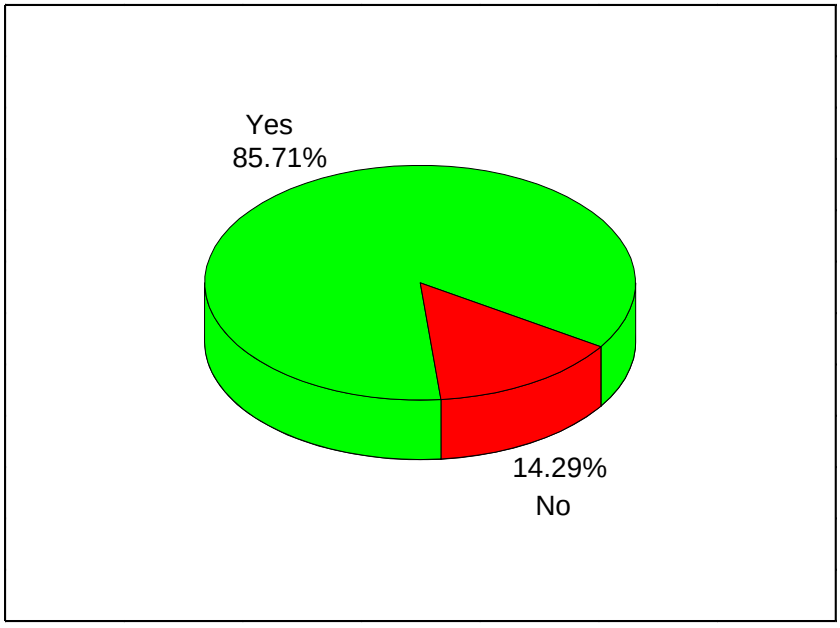
Figure B – 49. Facility's standard protocols for post-exam patient monitoring regarding potential for radiation injury by percent.

DOSE ESTIMATION PERFORMED FOLLOWING RADIATION INJURY

Table B – 74. Frequency distribution for performing radiation dose estimation as part of diagnosis of a possible radiation injury.

Dose estimation following injury	Frequency	Percent	Cumulative percent
N	20	14.3	14.3
Y	120	85.7	100.0

Reference: Facility Questionnaire (30).
Number observations = 140. Missing data = 59 (not entered by the surveyors).



Reference: Facility Questionnaire (30).
Number observations = 140. Missing data = 59 (not entered by the surveyors).

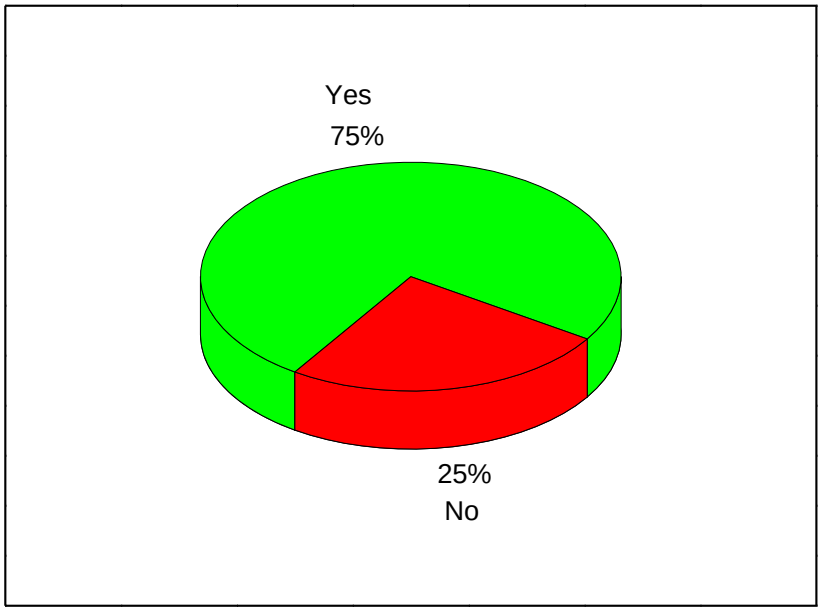
Figure B – 50. Percent performing radiation dose estimation as part of diagnosis of a possible radiation injury.

TREATING PHYSICIAN INVOLVED IN POST-EXAM PATIENT CARE REGARDING RADIATION INJURY

Table B – 75. Frequency distribution for involving treating physician in post-exam patient care following possible radiation injury.

Treating physician involved	Frequency	Percent	Cumulative percent
N	49	25.1	25.1
Y	146	74.9	100.0

Reference: Facility Questionnaire (31a).
Number observations = 195. Missing data = 4 (not entered by the surveyors).



Reference: Facility Questionnaire (31a).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

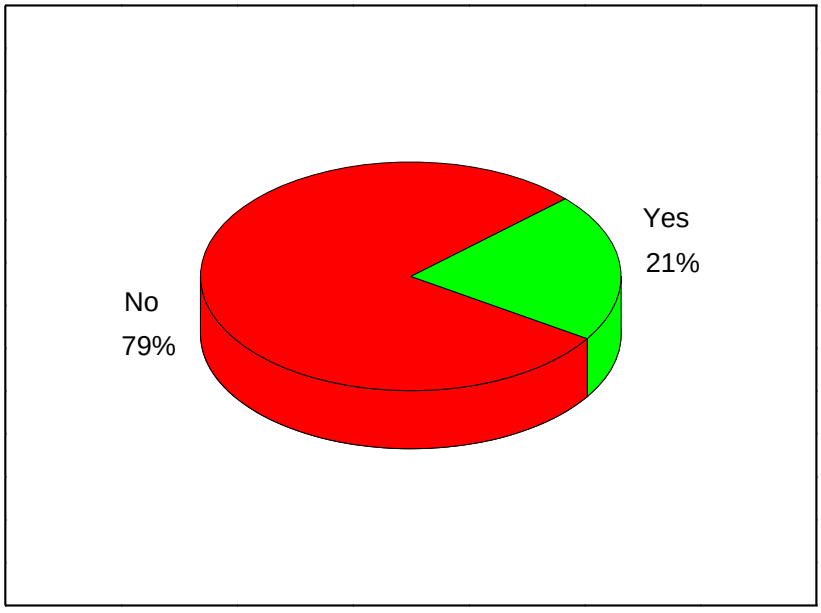
Figure B – 51. Percent involving treating physician in post-exam patient care following possible radiation injury.

NURSE OR PHYSICIAN ASSISTANT INVOLVED IN POST-EXAM PATIENT CARE REGARDING RADIATION INJURY

Table B – 76. Frequency distribution for involving a nurse or physician assistant in post-exam patient care following possible radiation injury.

Nurse or physician assistant involved	Frequency	Percent	Cumulative percent
N	154	79.0	79.0
Y	41	21.0	100.0

Reference: Facility Questionnaire (31b).
Number observations = 195. Missing data = 4 (not entered by the surveyors).



Reference: Facility Questionnaire (31b).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

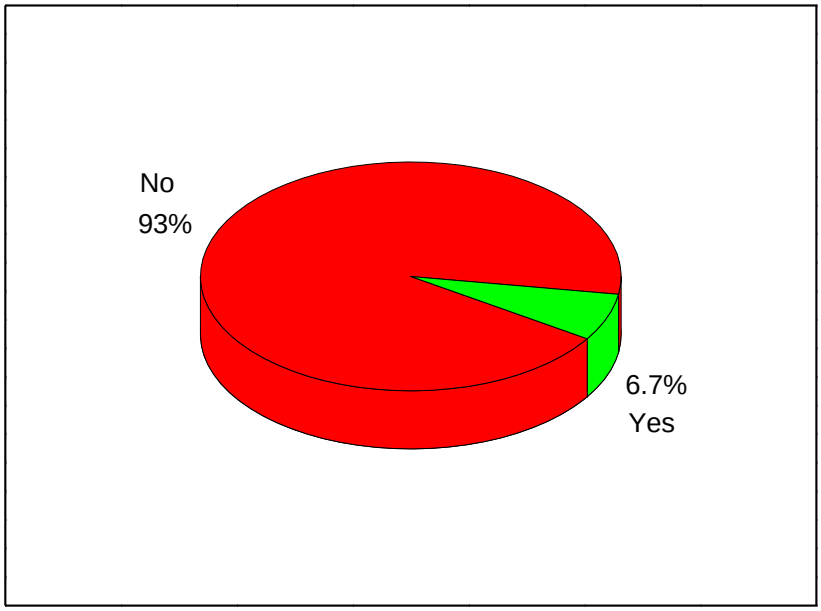
Figure B – 52. Percent involving a nurse or physician assistant in post-exam patient care following possible radiation injury.

DERMATOLOGIST INVOLVED IN POST-EXAM PATIENT CARE REGRADING RADIATION INJURY

Table B – 77. Frequency distribution for involving a dermatologist in post-exam patient care following possible radiation injury.

Dermatologist involved	Frequency	Percent	Cumulative percent
N	182	93.3	93.3
Y	13	6.7	100.0

Reference: Facility Questionnaire (31c).
Number observations = 195. Missing data = 4 (not entered by the surveyors).



Reference: Facility Questionnaire (31c).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

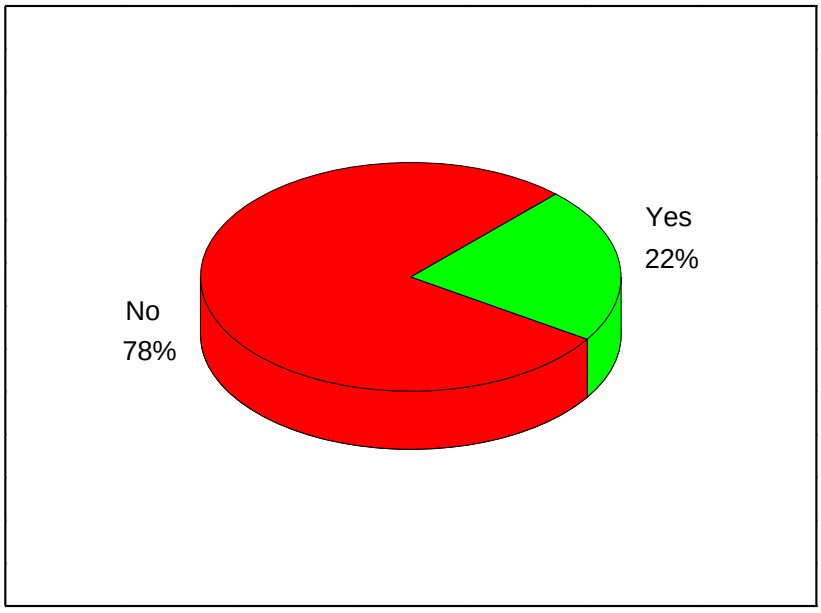
Figure B – 53. Percent involving a dermatologist in post-exam patient care following possible radiation injury.

PHYSICIAN MEDICAL DIRECTOR INVOLVED IN POST-EXAM PATIENT CARE REGARDING RADIATION INJURY

Table B – 78. Frequency distribution for involving the physician medical director involved in post-exam patient care following possible radiation injury.

Physician medical director involved	Frequency	Percent	Cumulative percent
N	152	78.0	78.0
Y	43	22.0	100.0

Reference: Facility Questionnaire (31d).
Number observations = 195. Missing data = 4 (not entered by the surveyors).



Reference: Facility Questionnaire (31d).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

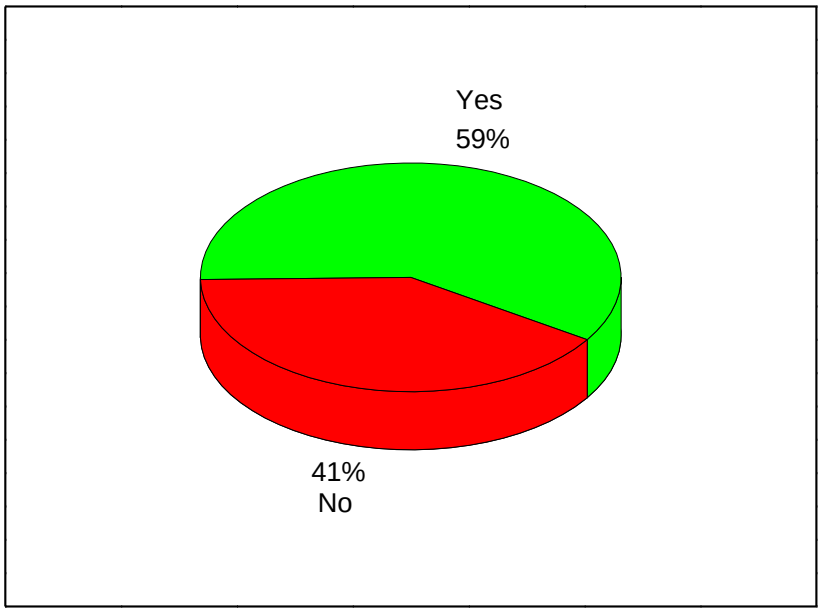
Figure B – 54. Percent involving the physician medical director in post-exam patient care following possible radiation injury.

RADIATION SAFETY OFFICER (RSO) INVOLVED IN POST-EXAM PATIENT CARE REGARDING RADIATION INJURY

Table B – 79. Frequency distribution for involving the RSO in post-exam patient care following possible radiation injury.

RSO involved	Frequency	Percent	Cumulative percent
N	79	40.5	40.5
Y	116	59.5	100.0

Reference: Facility Questionnaire (31e).
Number observations = 195. Missing data = 4 (not entered by the surveyors).



Reference: Facility Questionnaire (31e).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

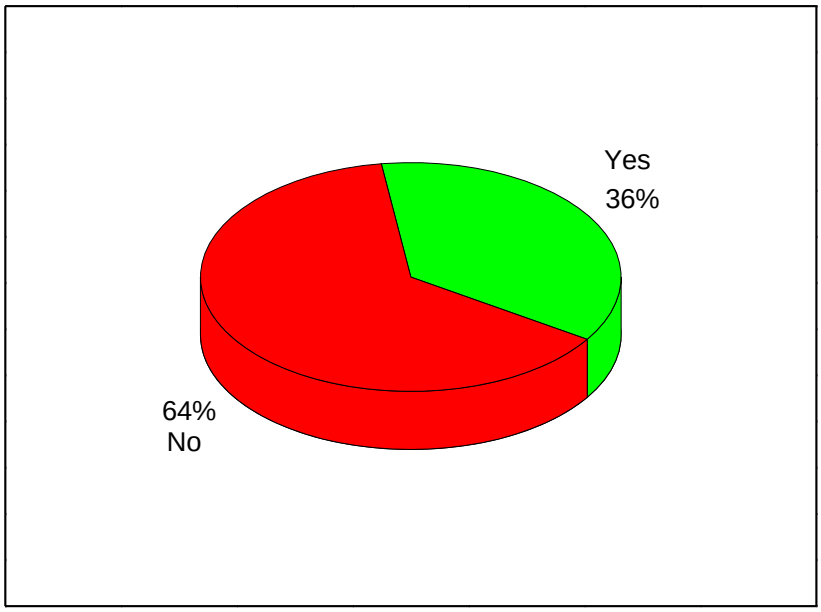
Figure B – 55. Percent involving the RSO in post-exam patient care following possible radiation injury.

PATIENT'S PRIMARY PHYSICIAN INVOLVED IN POST-EXAM PATIENT CARE REGARDING RADIATION INJURY

Table B – 80. Frequency distribution for involving the patient's primary physician in post-exam patient care following possible radiation injury.

Primary physician involved	Frequency	Percent	Cumulative percent
N	124	63.6	63.6
Y	71	36.4	100.0

Reference: Facility Questionnaire (31f).
Number observations = 195. Missing data = 4 (not entered by the surveyors).



Reference: Facility Questionnaire (31f).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

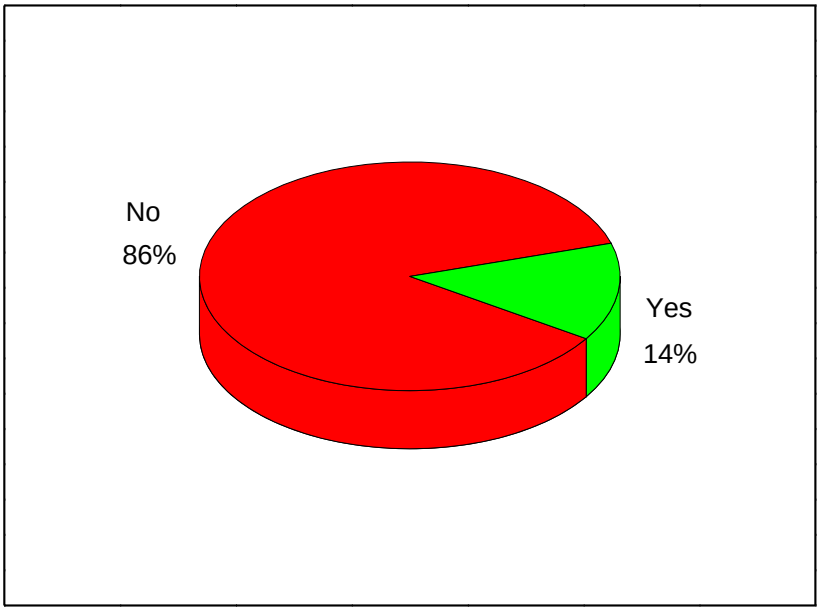
Figure B – 56. Percent involving the patient's primary physician in post-exam patient care following possible radiation injury.

OTHER PERSONNEL INVOLVED IN POST-EXAM PATIENT CARE REGARDING RADIATION INJURY

Table B – 81. Frequency distribution for involving other personnel in post-exam patient care following possible radiation injury.

Other personnel involved	Frequency	Percent	Cumulative percent
N	168	86.2	86.2
Y	27	13.8	100.0

Reference: Facility Questionnaire (31g).
Number observations = 195. Missing data = 4 (not entered by the surveyors).



Reference: Facility Questionnaire (31g).
Number observations = 195. Missing data = 4 (not entered by the surveyors).

Figure B – 57. Percent involving other personnel in post-exam patient care following possible radiation injury.

FACILITY RESPONSE TO 2006 JOINT COMMISSION (JC) SENTINEL EVENT REGARDING CUMULATIVE DOSES EXCEEDING 15 Gy

In 2006, the Joint Commission (JC) added as a reviewable sentinel event the occurrence of fluoroscopy cumulative dose exceeding 1500 rad (15 Gy) to a single field.

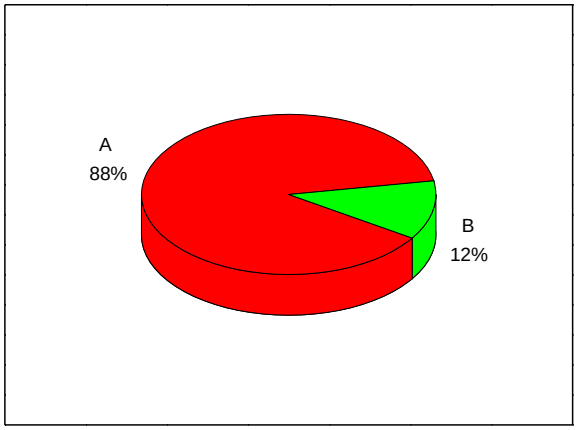
In the table and chart following, response choices are:

- A = "We believe our current processes/x-ray equipment allows us to meet Joint Commission (JC) expectations."
- B = "We have made changes within our department in order to better meet JC expectations."

Table B – 82. Frequency distribution for facility response to Joint Commission's sentinel event of 2006.

Sentinel response	Frequency	Percent	Cumulative percent
A	126	88.1	88.1
B	17	11.9	100.0

Reference: Facility Questionnaire (32).
Number observations = 143. Missing data = 56 (not entered by the surveyors).



Reference: Facility Questionnaire (32).
Number observations = 143. Missing data = 56 (not entered by the surveyors).

Figure B – 58. Type of facility responses to Joint Commission's sentinel event of 2006 by percent.

HOW OFTEN PREVENTIVE MAINTENANCE IS PERFORMED ON FLUOROSCOPIC EQUIPMENT

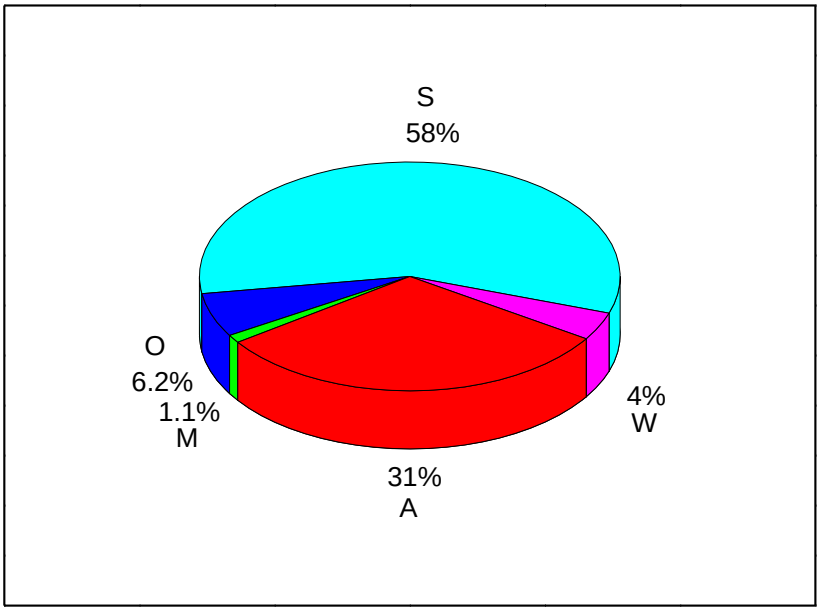
Table B – 83. Frequency distribution for how often routine preventive maintenance is performed on the fluoroscopic equipment.

Preventive maintenance	Frequency	Percent	Cumulative percent
A	55	31.1	31.1
M	2	1.1	32.2
O	11	6.2	38.4
S	102	57.6	96.0
W	7	4.0	100.0

Reference: Facility Questionnaire (33).
Number observations = 177. Missing data = 22 (not entered by the surveyors).

A = Annually
M = Monthly
O = Other
S = Semi-annually
W = When needed
N = Never

HOW OFTEN PREVENTIVE MAINTENANCE IS PERFORMED ON FLUOROSCOPIC EQUIPMENT



Reference: Facility Questionnaire (33).
Number observations = 177. Missing data = 22 (not entered by the surveyors).

A = Annually
M = Monthly
O = Other
S = Semi-annually
W = When needed
N = Never

Figure B – 59. How often routine preventive maintenance is performed on the fluoroscopic equipment by percent.

HOW OFTEN DOSE-DISPLAY EQUIPMENT IS CALIBRATED

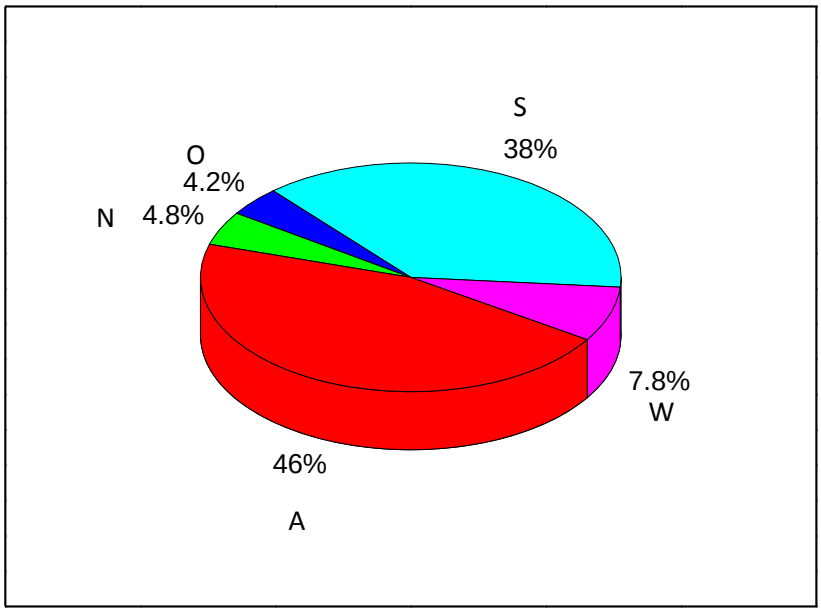
Table B – 84. Frequency distribution for how often dose-display equipment is calibrated.

Dose-display equipment calibrated	Frequency	Percent	Cumulative percent
A	76	45.5	45.5
N	8	4.8	50.3
O	7	4.2	54.5
S	63	37.7	92.2
W	13	7.8	100.0

Reference: Facility Questionnaire (34).
Number observations = 167. Missing data = 32 (not entered by the surveyors).

A = Annually
M = Monthly
O = Other
S = Semi-annually
W = When needed
N = Never

HOW OFTEN DOSE-DISPLAY EQUIPMENT IS CALIBRATED



Reference: Facility Questionnaire (34).
Number observations = 167. Missing data = 32 (not entered by the surveyors).

A = Annually
M = Monthly
O = Other
S = Semi-annually
W = When needed
N = Never

Figure B – 60. How often dose-display equipment is calibrated by percent.

HOW OFTEN A MEDICAL PHYSICS SURVEY IS PERFORMED ON THE FLUOROSCOPY UNIT THAT WAS EVALUATED AS PART OF THE NEXT SURVEY

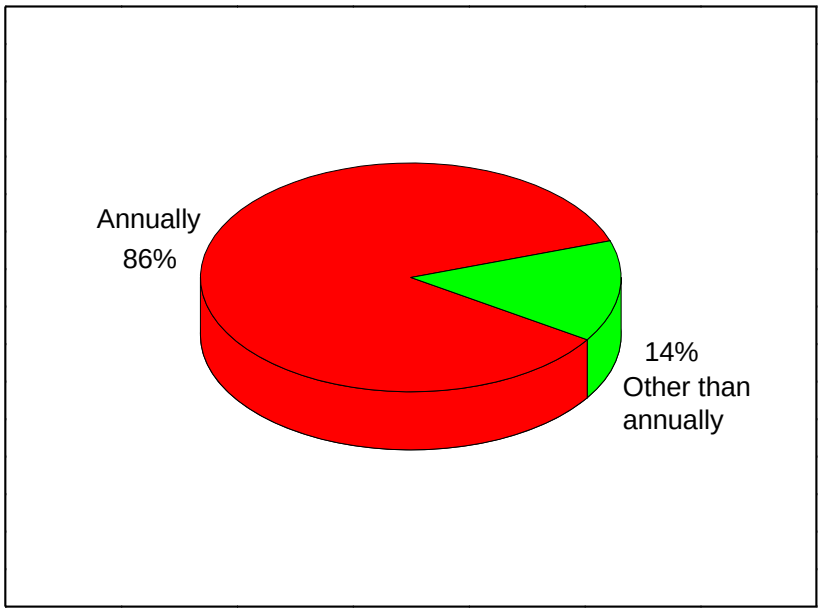
Table B – 85. Frequency distribution for how often a medical physicist survey is performed on the fluoroscopy equipment that was evaluated as part of the NEXT survey.

Medical physics survey	Frequency	Percent	Cumulative percent
A	155	85.6	85.6
M	1	0.6	86.2
N	1	0.6	86.8
O	2	1.1	87.9
S	18	9.9	97.8
W	4	2.2	100.0

Reference: Facility Questionnaire (35).
Number observation = 181. Missing data = 18 (not entered by the surveyors).

A = Annually
M = Monthly
O = Other
S = Semi-annually
W = When needed
N = Never

HOW OFTEN A MEDICAL PHYSICS SURVEY IS PERFORMED ON THE FLUOROSCOPY UNIT THAT WAS EVALUATED AS PART OF THE NEXT SURVEY



Reference: Facility Questionnaire (35).
Number observation = 181. Missing data = 18 (not entered by the surveyors).

A = Annually
M = Monthly
O = Other
S = Semi-annually
W = When needed
N = Never

Figure B – 61. Frequency of performing a medical physicist survey on the fluoroscopy equipment that was evaluated as part of the NEXT survey by percent.

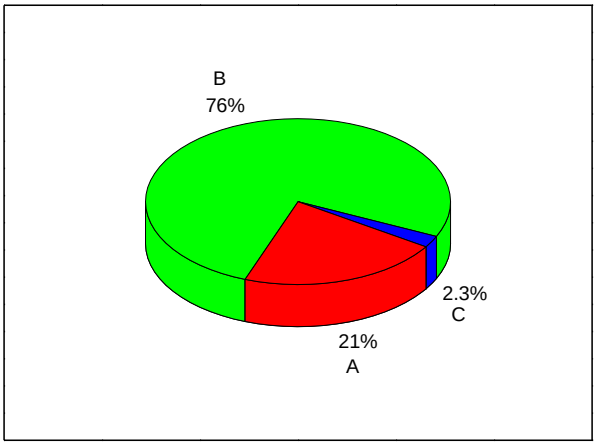
WHO PERFORMS MEDICAL PHYSICS SURVEYS ON FLUOROSCOPY EQUIPMENT

Table B – 86. Frequency distribution for who performs the medical physics surveys on the fluoroscopy equipment.

Medical physics survey	Frequency	Percent	Cumulative percent
A	38	21.5	21.5
B	135	76.3	97.8
C	4	2.2	100.0

Reference: Facility Questionnaire (36).
Number observations = 177. Missing data = 22 (not entered by the surveyors).

A = In-house medical physics staff
B = Contracted medical physics services
C = Other



Reference: Facility Questionnaire (36).
Number observations = 177. Missing data = 22 (not entered by the surveyors).

A = In-house medical physics staff
B = Contracted medical physics services
C = Other

Figure B – 62. Who performs the medical physics surveys on the fluoroscopy equipment by percent.

APPENDIX C - DATA FROM CLINICAL PROCEDURE FORMS

CLINICAL DATA ON CARDIAC CATHETERIZATION PROCEDURES

The surveyed facilities were asked to return clinical data on cardiac catheterization procedures from patients treated within a one-week interval.

Data on total fluoroscopy time, number of digital acquisitions/cine runs, air kerma-area product (KAP) and air kerma (AK) were collected for the following clinical procedures:

- cardiac catheterization diagnostic only (for example, coronary artery angiography);
- coronary intervention (for example, coronary artery angioplasty and stent insertion);
- combined diagnostic coronary angiogram and coronary artery intervention;
- other cardiac-intervention only procedures [for example, atrial septal defects (ASD), patent foramen ovale (PFO), valvuloplasties];
- other non-cardiac only procedure; and
- combined cardiac and non-cardiac procedure.

However, after data filtering as part of the final analysis, only the first three procedures listed above provided enough observations for a significant statistical analysis.

These are, as keyed to the tables in Appendix C:

- A = Diagnostic catheterization
- B = Coronary intervention procedures
- C = Combined

SUMMARY OF CLINICAL DATA

Table C – 1. Descriptive statistics and summary of clinical data [time, dose-area product (DAP), air kerma (AK) and cine runs)] sorted by procedure type A, B and C.

NEXT 2008 CLINICAL DATA		**MEAN**	**N**	**STD DEV**		**QUANTILES**						
						Q5	**Q10**	**Q25**	**Q50**	**Q75**	**Q90**	**Q95**
A	Time (min)	4.69	1528	5.75		1.0	1.2	1.8	2.9	5.5	10.2	13.9
	DAP (Gy*cm2)	73.04	1185	169.65		6	14	29	49	83	129	174
	AK (mGy)	1051.0	900	2101.5		193	280.5	450.5	728.5	1173	1861	2345
	# Cine Runs	10.42	1461	3.99		6	7	8	10	12	15	17
B	Time (min)	13.65	153	10.44		2.1	3.6	6.0	10.8	17.7	27.2	35.25
	DAP (Gy*cm2)	142.65	133	150.13		22	32	59	115	192	271	327
	AK (mGy)	2219.25	106	1517.12		534	693	970	1881	3119	4398	4853
	# Cine Runs	19.65	142	10.22		6	8	13	17.5	25	34	39
C	Time (min)	14.15	569	9.77		3.6	5.0	7.3	11.5	18.1	27.1	33.2
	DAP (Gy*cm2)	155.52	471	241.61		12	24	67	114	185	301	368
	AK (mGy)	2405.63	333	1675.05		619	802	1212	1994	2963	4887	5964
	# Cine Runs	23.53	556	10.71		11	13	16	21	28.5	37	43

Procedure type:
A = Diagnostic catheterization
B = Coronary intervention procedures
C = Combined

Time (in minutes) is the total fluoroscopy time. DAP stands for dose-area product; the unit is Gy·cm^2. AK stands for air kerma; the unit is mGy. #Cine runs are the total number of cine runs obtained during the procedure.
Note: Some manufacturers of fluoroscopy equipment might use a different location of the reference point for reading of AK value.

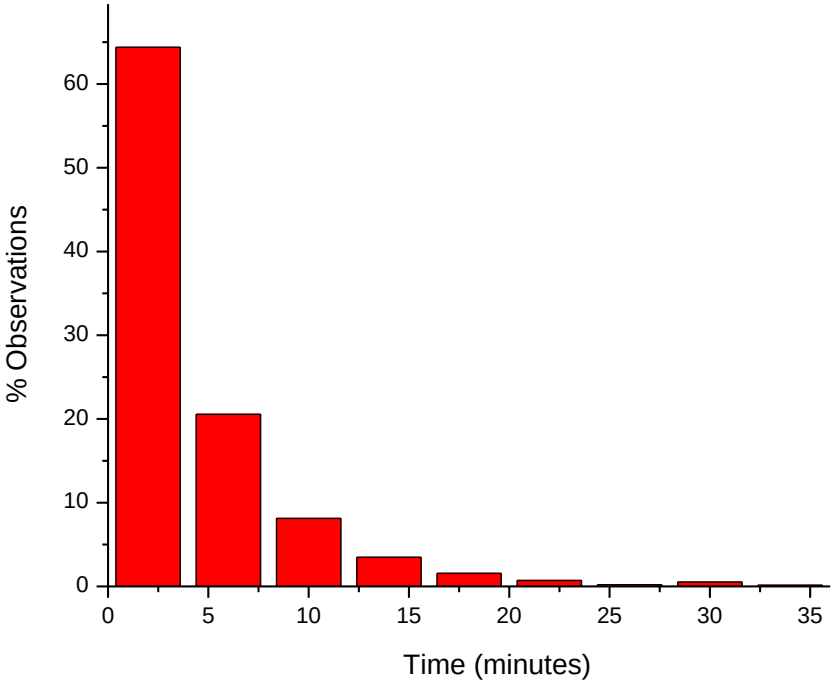
CLINICAL DATA: TOTAL FLUOROSCOPY TIME

Table C – 2. Distribution of range of total fluoroscopy time for procedures A, B and C.

Fluoroscopy Time (min)	Procedure					
	Procedure A Diagnostic (n=1623)		Procedure B PCI (n=159)		Procedure C Combined (n=621)	
Range	%	Cumulative %	%	Cumulative %	%	Cumulative %
0-4	65.0	65.0	10.1	10.1	5.3	5.3
4-8	20.5	85.5	20.1	30.2	23.7	29.0
8-12	7.9	93.4	24.5	54.7	24.0	53.0
12-16	3.4	96.8	17.0	71.7	16.6	69.6
16-20	1.5	98.3	6.9	78.6	8.9	78.5
20-24	0.7	99.0	5.0	83.6	8.1	86.6
24-28	0.2	99.2	6.3	89.9	4.2	90.8
28-32	0.4	99.6	1.9	91.8	3.4	94.2
32-36	0.2	99.8	3.1	94.9	2.1	96.3
36-40	0.1	99.9	1.3	96.2	1.4	97.7
40-44	0	99.9	0.6	96.8	0.8	98.5
44-48	0	99.9	0.6	97.4	0.6	99.1
48-52	0	99.9	1.3	98.7	0.3	99.4
52-56	0.1	100.0	0.6	99.3	0.3	99.7
56-60	0	100.0	0	99.3	0	99.7
60 +	0	100.0	0.6	99.9	0.3	100.0

Procedure type: A = Diagnostic catheterization; B = Coronary intervention procedures; C = Combined

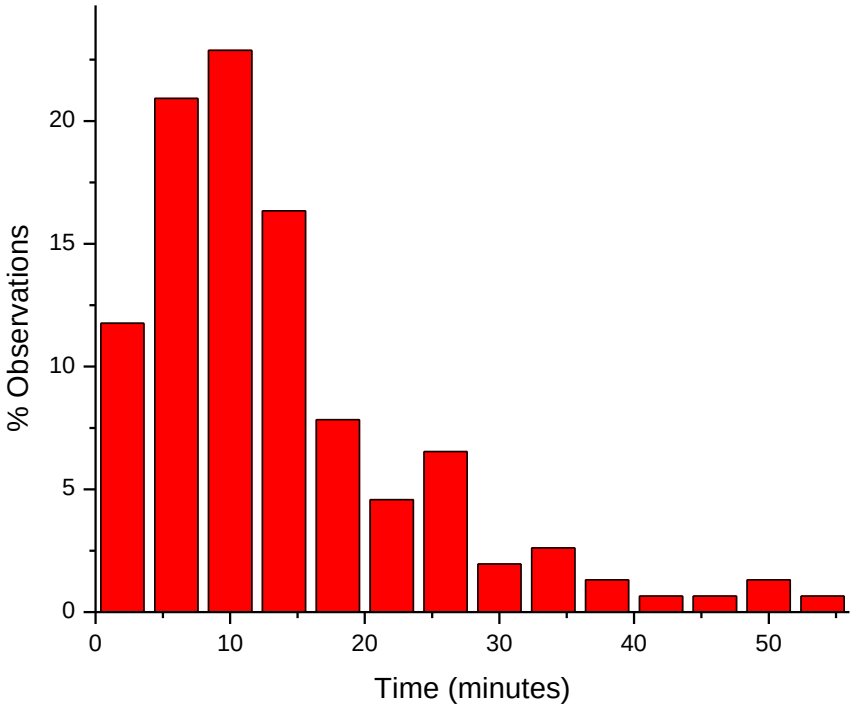
CLINICAL DATA: TOTAL FLUOROSCOPY TIME



The total fluoroscopy time is the total length of time that fluoroscopy is in use. It does not include cineradiography time.
Procedure A = Diagnostic catheterization

Figure C – 1. Distribution of total fluoroscopy time for cardiac catheterization diagnostic procedures (Procedure A) by percent of observations.

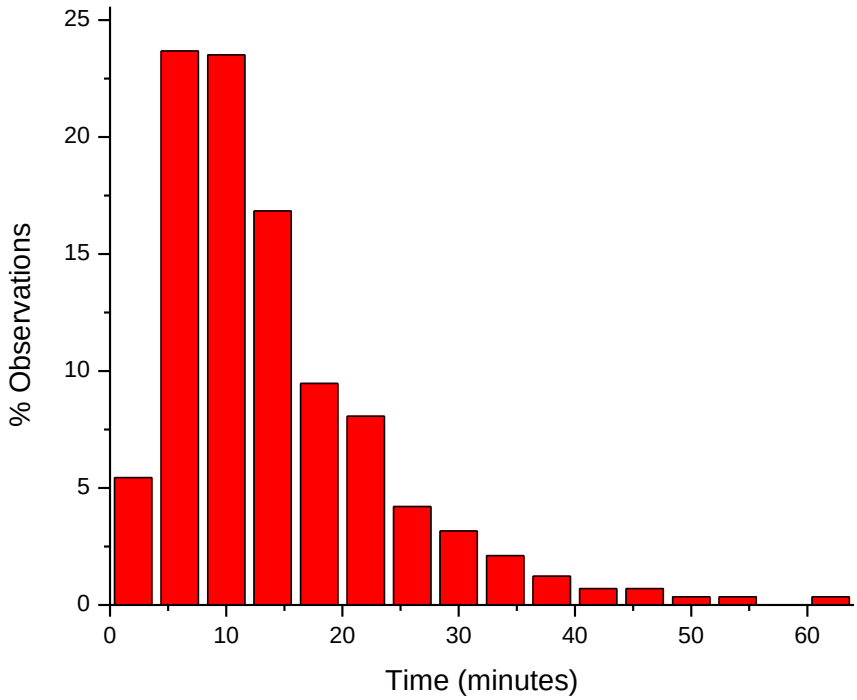
CLINICAL DATA: TOTAL FLUOROSCOPY TIME



The total fluoroscopy time is the total length of time that fluoroscopy is in use. It does not include cineradiography time.
Procedure B = Coronary intervention procedures

Figure C – 2. Distribution of total fluoroscopy time for coronary intervention procedures (Procedure B) by percent of observations.

CLINICAL DATA: TOTAL FLUOROSCOPY TIME



The total fluoroscopy time is the total length of time that fluoroscopy is in use. It does not include cineradiography time.
Procedure C = Combined

Figure C – 3. Distribution of total fluoroscopy time for combined cardiac diagnostic and coronary intervention procedures (Procedure C) by percent of observations.

CLINICAL DATA: NUMBER OF DIGITAL ACQUISITIONS / CINE RUNS

Table C – 3. Number of digital acquisitions (cine runs) for procedures A, B and C.

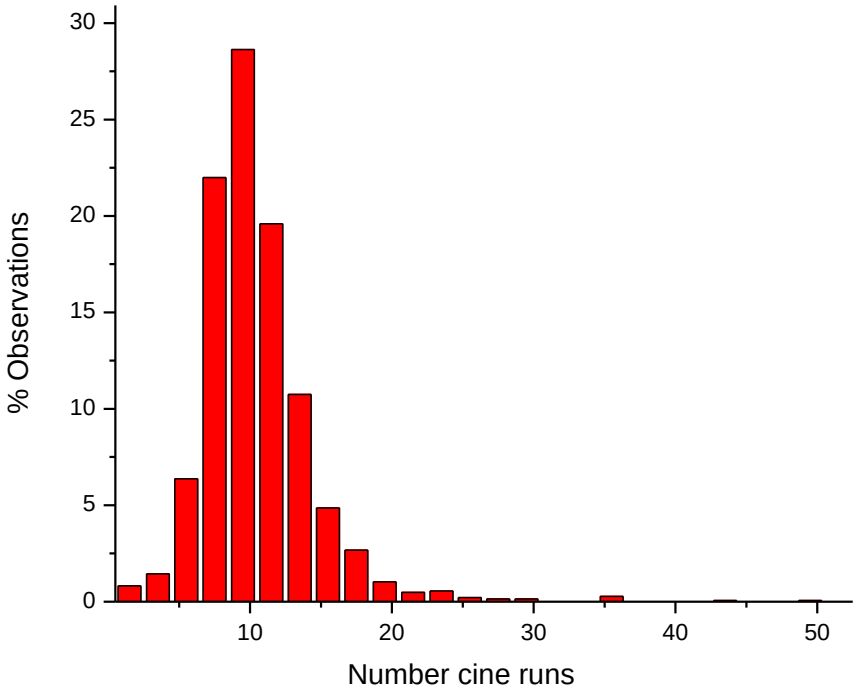
Number cine runs	Procedure					
	Procedure A Diagnostic (n=1561)		Procedure B PCI (n=147)		Procedure C Combined(n=605)	
Range	%	Cumulative %	%	Cumulative %	%	Cumulative %
0-3	1.8	1.8	0	0	0.3	0.3
4-6	7.1	8.9	2.7	2.7	0.2	0.5
7-9	36.5	45.4	10.2	12.9	1.0	1.5
10-12	33.3	78.7	7.5	20.4	7.4	8.9
13-15	14.0	92.7	14.3	34.7	10.7	19.6
16-18	4.5	97.2	15.0	49.7	17.2	36.8
19-21	1.3	98.5	8.2	57.9	12.9	49.7
22-24	0.7	99.2	10.9	68.8	13.1	62.8
25-27	0.3	99.5	9.5	78.3	9.6	72.4
28-30	0.2	99.7	7.5	85.8	6.4	78.8
31-33	0	99.7	2.7	88.5	4.5	83.3
34-36	0.1	99.8	2.7	91.2	5.6	88.9
37-39	0	99.8	4.1	95.3	2.8	91.7
40-42	0	99.8	3.4	98.7	2.8	94.5
43-45	0.1	99.9	0	98.7	1.5	96.0
46-48	0	99.9	0	98.7	1.0	97.0

Table C – 3. Number of digital acquisitions (cine runs) for procedures A, B and C. – Continued

Number cine runs	Procedure					
	Procedure A Diagnostic (n=1561)		Procedure B PCI (n=147)		Procedure C Combined(n=605)	
Range	%	Cumulative %	%	Cumulative %	%	Cumulative %
49-51	0.1	100.0	0	98.7	0.7	98.4
52-54	0	100.0	0	98.7	0.3	98.7
55-57	0	100.0	0	98.7	0.3	99.0
58-60	0	100.0	1.4	100.1	0.8	99.8
61 +	0	100.0	0	100.1	0.8	100.6

Procedure type: A = Diagnostic catheterization; B = Coronary intervention procedures; C = Combined

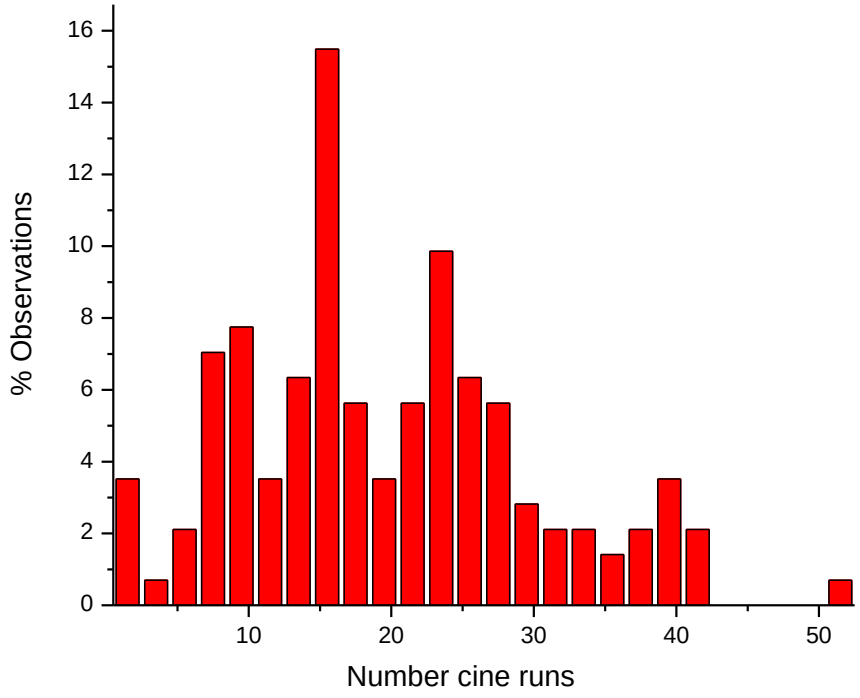
CLINICAL DATA: NUMBER OF DIGITAL ACQUISITIONS / CINE RUNS



Procedure A = Diagnostic catheterization

Figure C – 4. Number of cine runs for cardiac catheterization diagnostic procedures (Procedure A) by percent of observations.

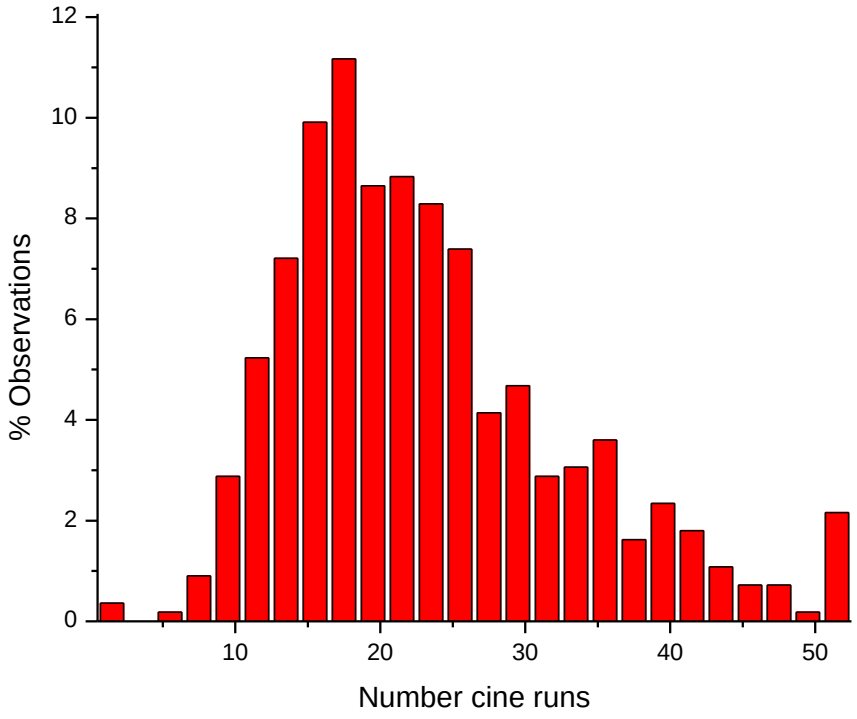
CLINICAL DATA: NUMBER OF DIGITAL ACQUISITIONS / CINE RUNS



Procedure B = Coronary intervention procedures

Figure C – 5. Number of cine runs for coronary intervention procedures (Procedure B) by percent of observations.

CLINICAL DATA: NUMBER OF DIGITAL ACQUISITIONS / CINE RUNS



Procedure C = Combined

Figure C – 6. Distribution of number cine runs for combined cardiac diagnostic and coronary intervention procedures (Procedure C) by percent of observations.

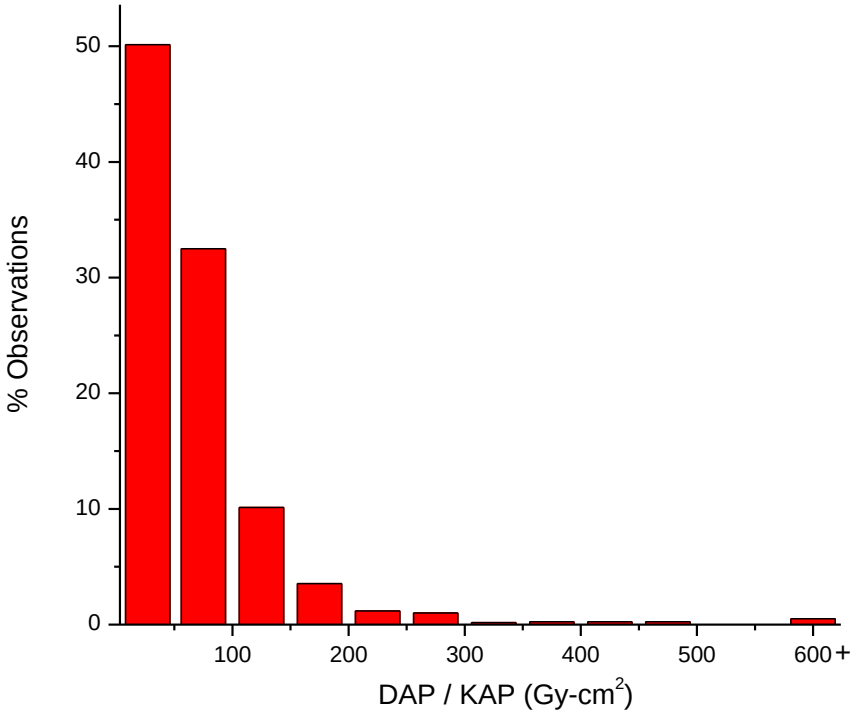
CLINICAL DATA: AIR KERMA-AREA PRODUCT (KAP) VALUES

Table C – 4. KAP values for Procedures A, B and C.

KAP (Gy*cm2)	Procedure					
	Procedure A Diagnostic(n=1326)		Procedure B PCI (n=144)		Procedure C Combined (n=528)	
Range	%	Cumulative %	%	Cumulative %	%	Cumulative %
0-49	51.2	51.2	17.4	17.4	15.3	15.3
50-99	32.2	83.4	25.7	43.1	24.2	39.5
100-149	9.9	93.3	22.9	66.0	22.7	62.2
150-199	3.5	96.8	11.8	77.8	12.9	75.1
200-249	1.3	98.1	9.0	86.8	8.3	83.4
250-299	0.9	99.0	4.2	91.0	5.3	88.7
300-349	0.2	99.2	4.9	95.9	4.2	92.9
350-399	0.2	99.4	2.1	98.0	2.5	95.4
400-449	0.2	99.6	0.7	98.7	1.5	96.9
450-499	0.3	99.9	0.7	99.4	0.6	97.5
500-549	0	99.9	0	99.4	0.6	98.1
550-599	0	99.9	0	99.4	0.4	98.5
600-649	0	99.9	0	99.4	0.4	98.9
649-699	0.1	100.0	0	99.4	0.4	99.3
700+	0.2	100.2	0.7	100.1	0.8	100.1

Procedure type: A = Diagnostic catheterization; B = Coronary intervention procedures; C = Combined

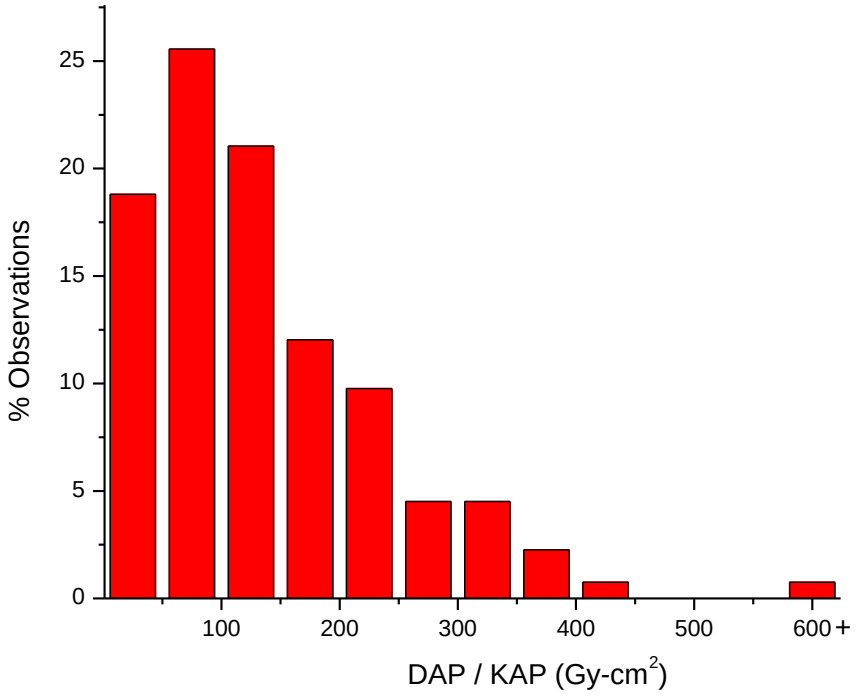
CLINICAL DATA: AIR KERMA-AREA PRODUCT (KAP) VALUES



Procedure A = Diagnostic catheterization

Figure C – 7. KAP distribution for cardiac catheterization diagnostic procedures (Procedure A) by percent of observations.

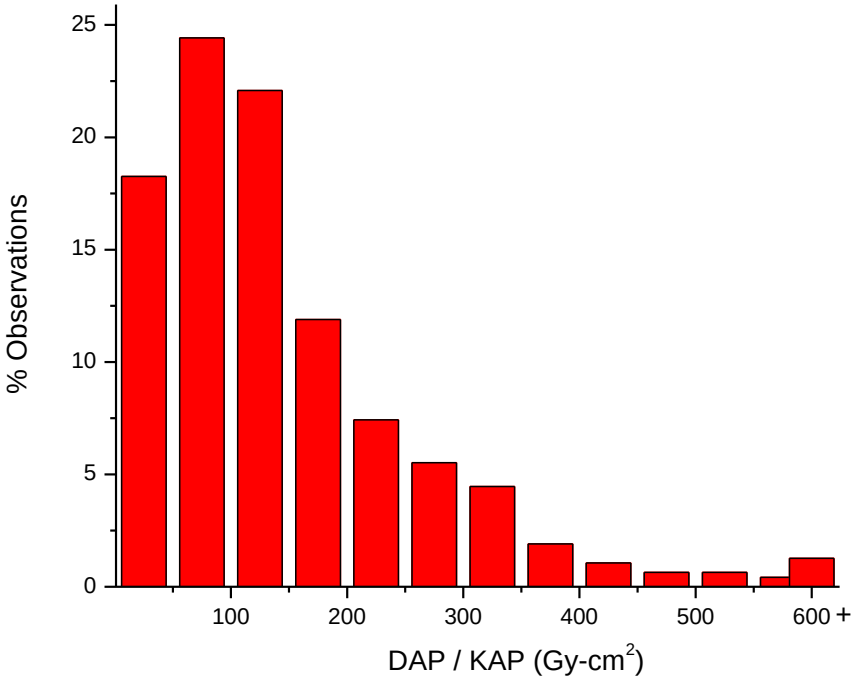
CLINICAL DATA: AIR KERMA-AREA PRODUCT (KAP) VALUES



Procedure type: B = Coronary intervention procedures

Figure C – 8. KAP distribution for coronary intervention procedures (Procedure B) by percent of observations.

CLINICAL DATA: AIR KERMA-AREA PRODUCT (KAP) VALUES



Procedure C = Combined

Figure C – 9. Distribution of KAP values for combined cardiac diagnostic and coronary intervention procedures (Procedure C) by percent of observations.

CLINICAL DATA: AIR KERMA VALUES

Table C – 5. Air kerma values for procedures A, B and C.

Air kerma (Gy)	Procedure					
	Procedure A Diagnostic (n=1038)		Procedure B PCI (n=117)		Procedure C Combined (n=390)	
Range	%	Cumulative %	%	Cumulative %	%	Cumulative %
0-0.5	29.8	29.8	5.1	5.1	3.1	3.1
0.5-1.0	36.7	66.5	20.5	25.6	15.1	18.2
1.0-1.5	17.6	84.1	12.0	37.6	15.6	33.8
1.5-2.0	6.6	90.7	17.9	55.5	17.2	51.0
2.0-2.5	4.2	94.9	12.0	67.5	13.8	64.8
2.5-3.0	1.6	96.5	6.0	73.5	10.3	75.1
3.0-3.5	0.7	97.2	6.8	80.3	6.4	81.5
3.5-4.0	0.4	97.6	5.1	85.4	3.6	85.1
4.0-4.5	0.5	98.1	4.3	89.7	2.8	87.9
4.5-5.0	0.2	98.3	3.4	93.1	2.3	90.2
5.0-5.5	0.2	98.5	1.7	94.8	1.5	91.7
5.5-6.0	0.2	98.7	0	94.8	2.3	94.0
6.0-6.5	0.2	98.9	0.9	95.7	2.8	96.8
6.5-7.0	0.1	99.0	0.9	96.6	0.5	97.3
7.0-7.5	0	99.0	1.7	98.3	0.3	97.6
7.5-8.0	0.1	99.1	0	98.3	0.5	98.1
8.0-8.5	0.1	99.1	0	98.3	0.3	98.4

Table C – 5. Air kerma values for procedures A, B and C. – Continued

Air kerma (Gy)	Procedure					
	Procedure A Diagnostic (n=1038)		Procedure B PCI (n=117)		Procedure C Combined (n=390)	
Range	%	Cumulative %	%	Cumulative %	%	Cumulative %
8.5-9.0	0	99.1	0	98.3	0.3	98.7
9.0-9.5	0	99.1	0	98.3	0.3	99.0
9.5-10.0	0	99.1	0	98.3	0	99.0
10 +	0.8	99.9	1.7	100.0	1.0	100.0

Procedure type: A = Diagnostic catheterization; B = Coronary intervention procedures; C = Combined

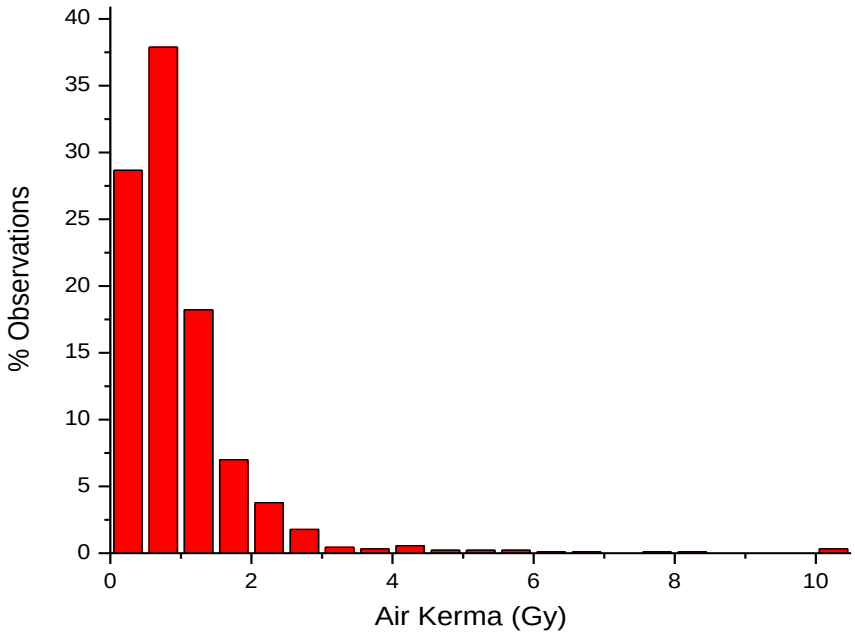


Figure C - 10. Air kerma distribution for cardiac catheterization diagnostic procedures (Procedure A) by percent of observations.

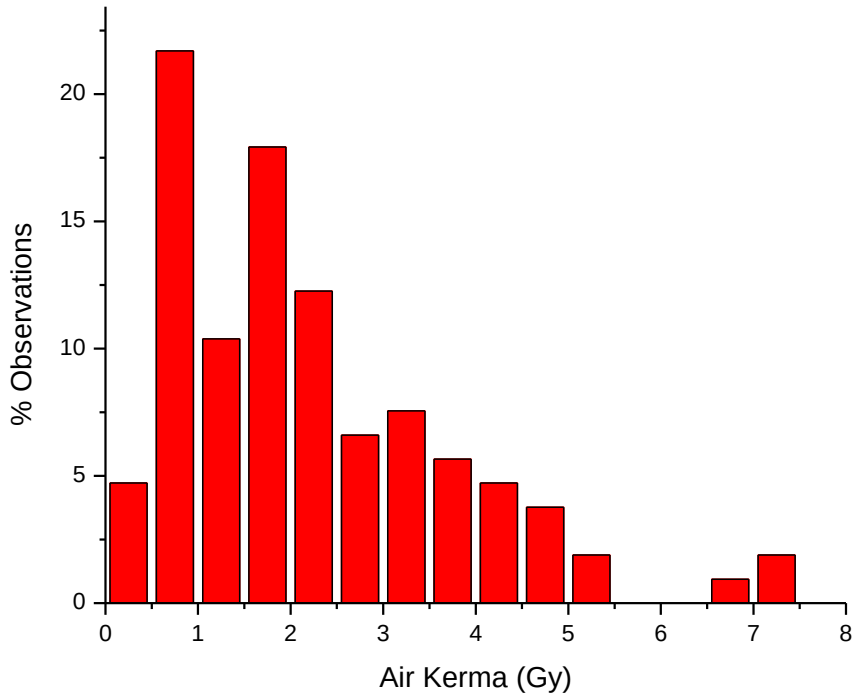
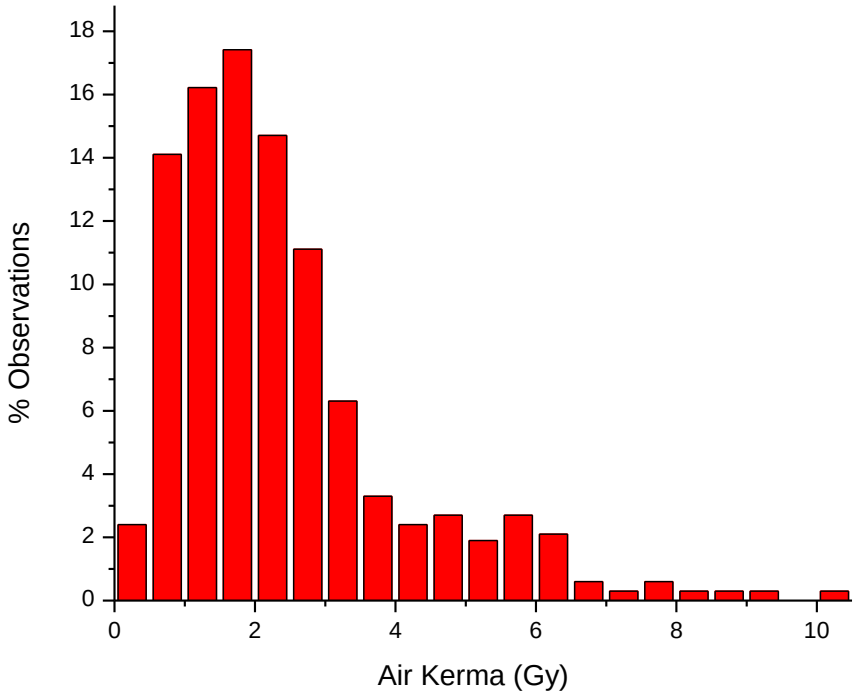


Figure C – 11. Air kerma distribution for coronary intervention procedures (Procedure B) by percent of observations.

CLINICAL DATA: AIR KERMA VALUES



Procedure C = Combined

Figure C – 12. Distribution of air kerma values for combined cardiac diagnostic and coronary intervention procedures (Procedure C) by percent of observations.