

Frequency of Interventional Cardiology in Europe

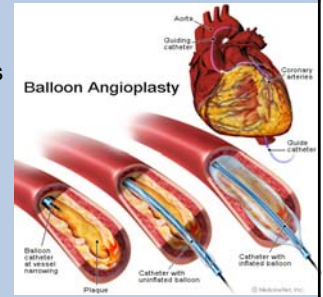
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Introduction

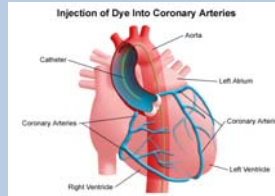
- Number of interventional cardiology procedures is unknown
- Population dose unknown
- Impact on collective dose unclear



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Objectives Estimate The Number Of

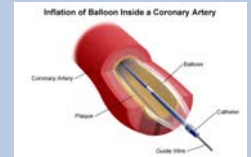
- Coronary angiograms
- Percutaneous transluminal coronary angioplasties (PTCA)
- Stent insertions
- Pacemaker insertions



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Data Sources

- Data on interventional cardiology available on British Heart Foundation website
- www.heartstats.org
- Covers period 1990-2003
- Data self reported by individuals/societies



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Rate of Increase In PTCA

Country	Increase (%)
France	5.37
Germany	5.52
Netherlands	3.78
Poland	8.71
UK	5.64

Mean increase 6.73%

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Incomplete Data

- Ratio of stents to PTCA is 0.72
- Ratio of coronary angiograms to PTCA is 3.6
- Ratio of pacemaker insertions to PTCA is 0.67



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NHS Coronary Angiograms 2007



Country	Estimated Number (per million)
France	6274
Germany	12290
Netherlands	5292
Poland	3173
UK	3272

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PTCA 2007



Country	Estimated Number (per million)
France	2442
Germany	3414
Netherlands	1470
Poland	1100
UK	909

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Stent 2007



Country	Estimated Number (per million)
France	2350
Germany	2492
Netherlands	1073
Poland	621
UK	764

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Pacemaker 2007



Country	Estimated Number (per million)
France	1249
Germany	2287
Netherlands	985
Poland	748
UK	525

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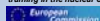


Summary 2007 Number /million population



- Coronary angiograms average 5346 range 713-12290
- PTCA average 1599 range 198-3921
- Stents average 1214 range 144-2862
- Pacemaker insertions 973 range 56-2627

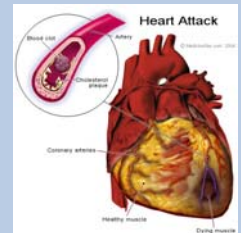
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2007 Total Procedures In Europe



- Coronary angiograms over 3,000,000
- PTCA over 910,000
- Stents over 690,000
- Pacemaker insertions 550,000



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Typical Doses From Literature Review

- Coronary angiogram 32 Gy cm^2
- PTCA 44 Gy cm^2
- Stent 46 Gy cm^2
- Pacemaker insertion 18 Gy cm^2

Typical Effective Dose Average Conversion factor 0.166 mSv/Gy cm^2

- Coronary angiogram 5.3 mSv
- PTCA 7.3mSv
- Stent 7.6mSv
- Pacemaker insertion 3.1mSv

Coronary Angiograms 2007

Country	Estimated Collective Effective Dose (man Sv)
France	1935
Germany	5125
Netherlands	450
Poland	600
UK	1000

PTCA 2007

Country	Estimated Collective Effective Dose (man Sv)
France	1035
Germany	1955
Netherlands	170
Poland	290
UK	380

Stents 2007

Country	Estimated Collective Effective Dose (man Sv)
France	1030
Germany	1555
Netherlands	130
Poland	165
UK	330

Pacemakers 2007

Country	Estimated Collective Effective Dose (man Sv)
France	220
Germany	545
Netherlands	50
Poland	80
UK	105

Country	Estimated Collective Effective Dose (man Sv)
France	4220
Germany	9180
Netherlands	795
Poland	1135
UK	1820

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- 29 countries studied with an estimated population of 570,000,000
- Collective dose 28,254 manSv/year
- Frequency increasing by 6.7% on average
- Population dose will continue to increase unless dose/procedure is reduced

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