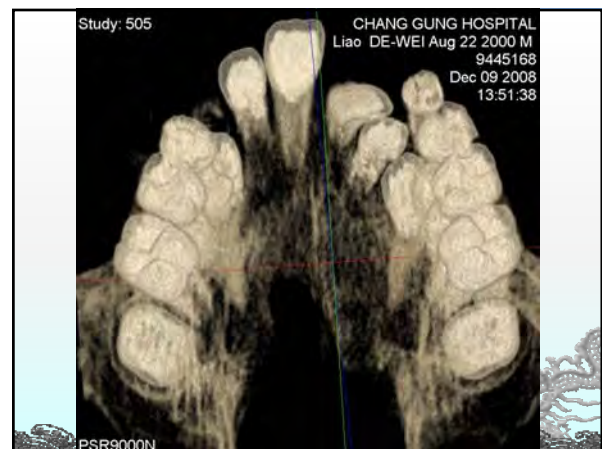
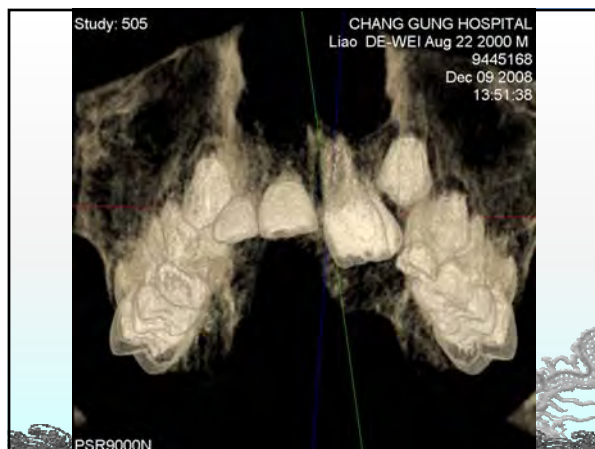
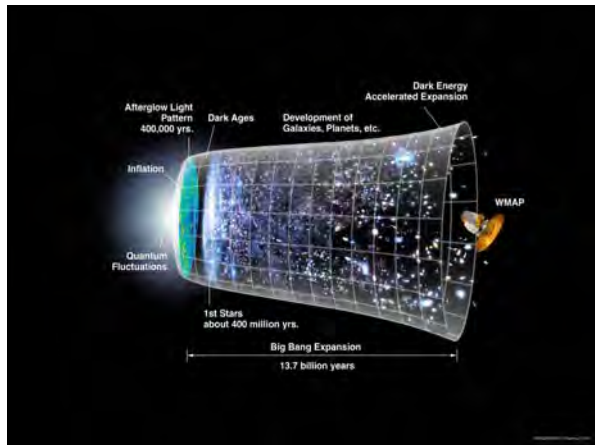
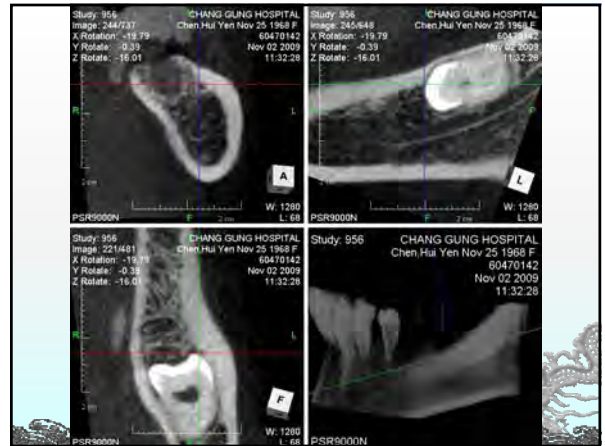
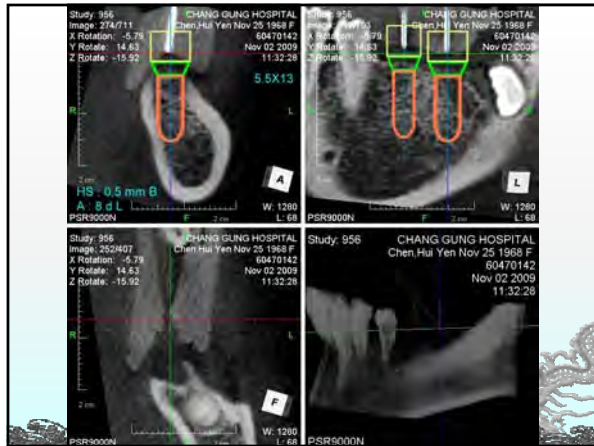
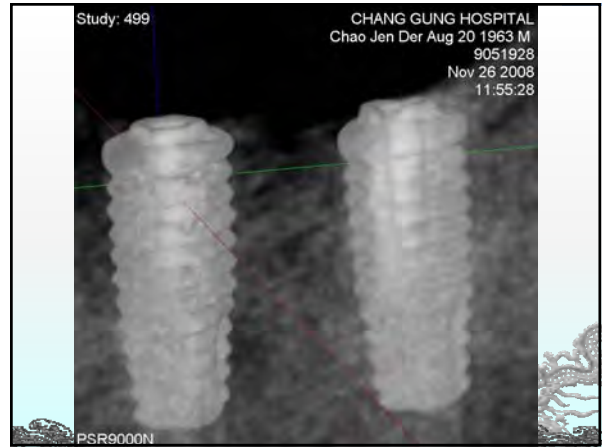
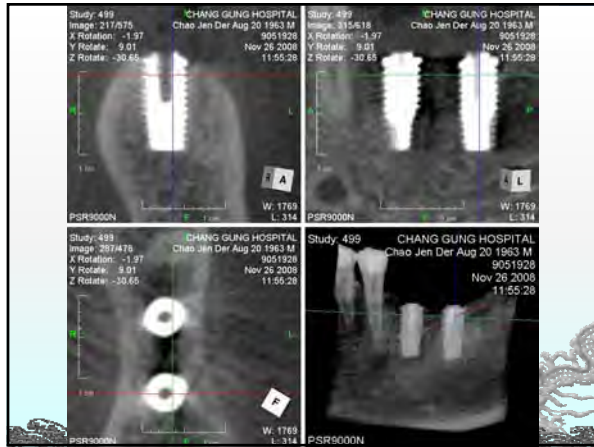
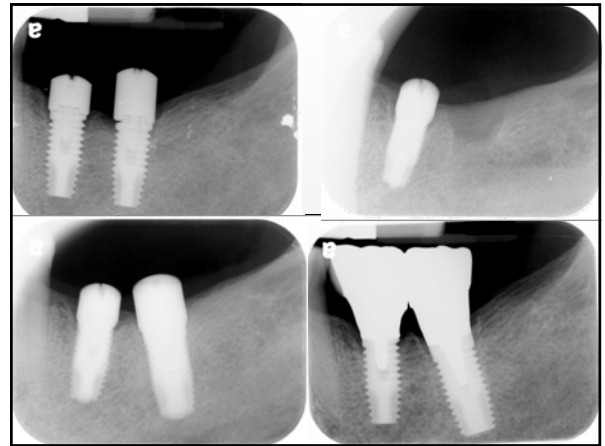


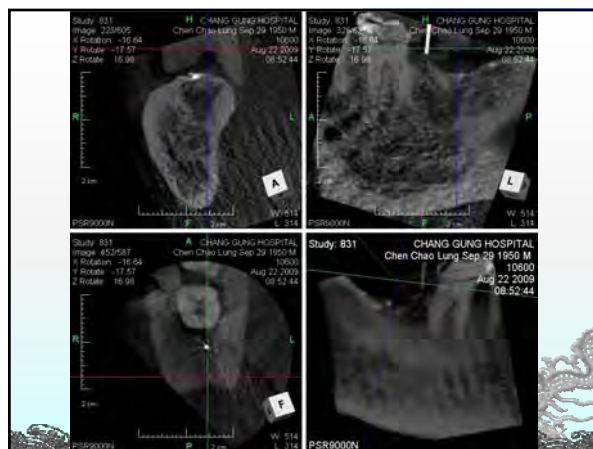
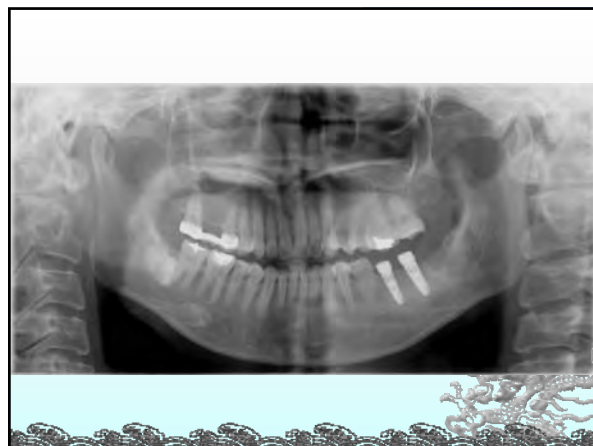
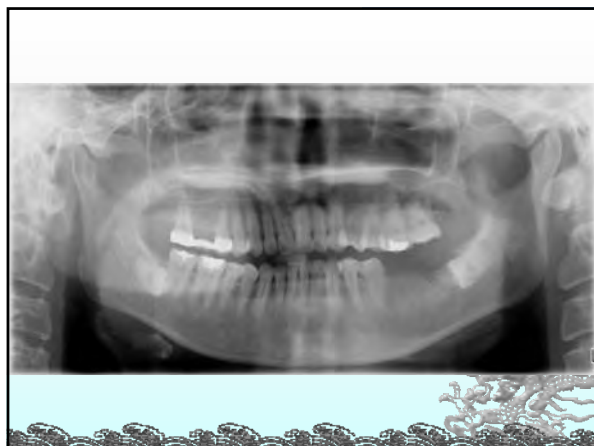
Dental Application of CBCT in Implant planning.

高雄長庚醫院牙科

黃志成







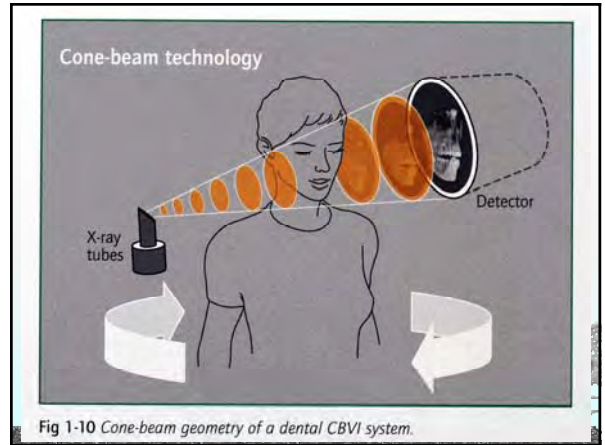
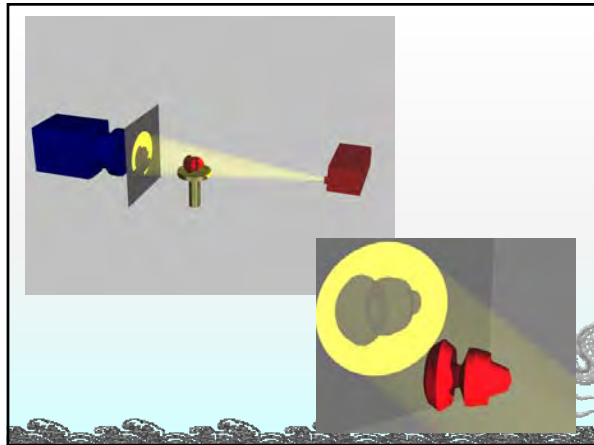
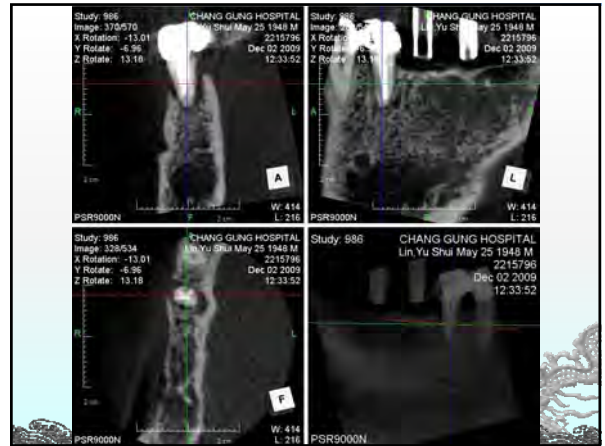
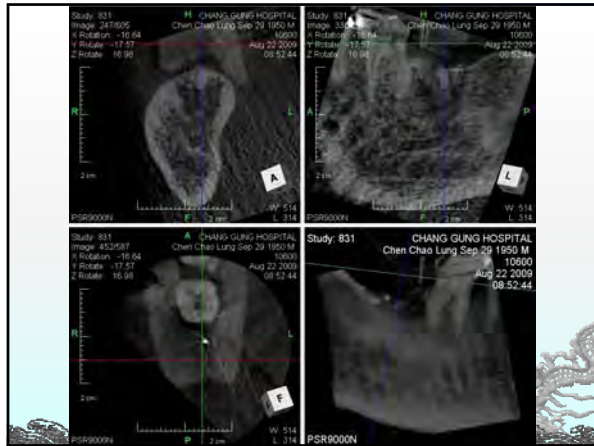


Fig 1-10 Cone-beam geometry of a dental CBVI system.

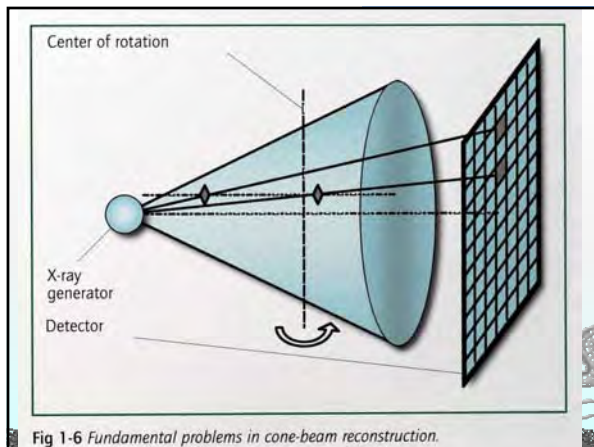
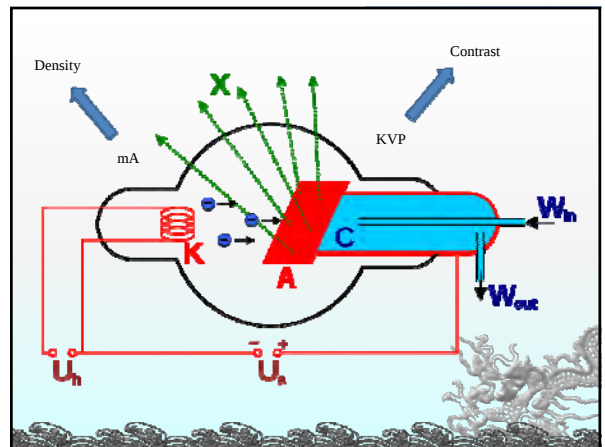
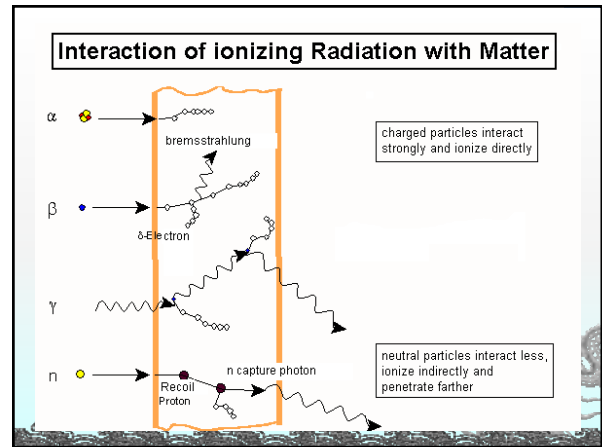
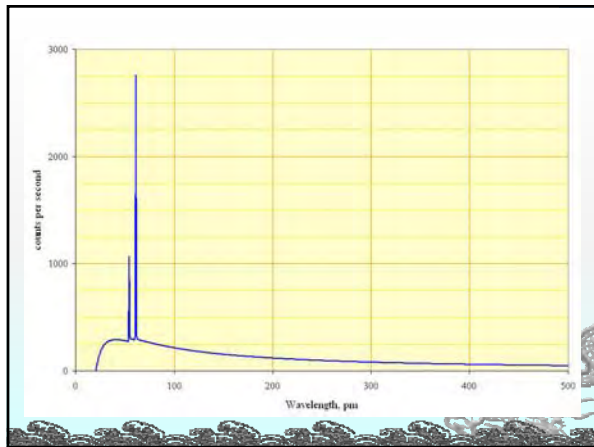
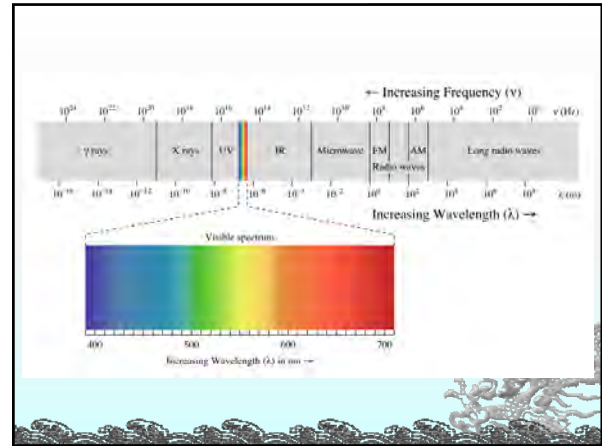
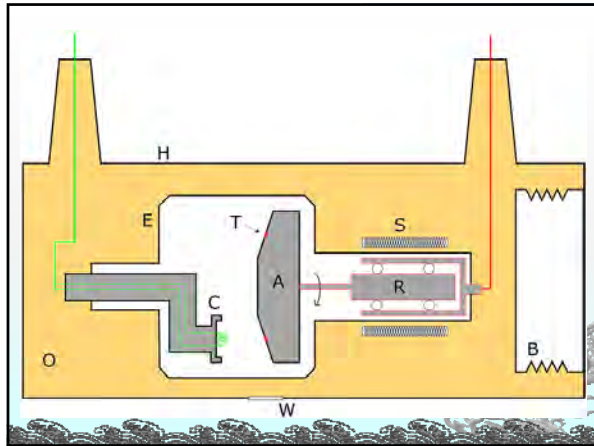


Fig 1-6 Fundamental problems in cone-beam reconstruction.





Exposure to radiation causes damage to living tissue, resulting in skin burns, radiation sickness and death at high doses and cancer, tumors and genetic damage at low doses.





Clinical indication	Imaging method	Effective dose (μSv)
Primary diagnosis of impacted teeth	Panoramic	5-45 (digital) ^{1,1}
		16-54 (film) ^{1,2}
	Occlusal film	7 (digital) ¹
Diagnosis of complex wisdom teeth	Panoramic	5-45
	Frontal cephalic	1.6-3.4 (digital) ³
Implant planning	Panoramic	5-45
	Transversal slices	3-12 ⁴
	3D computed tomography	150-1270 ^{4,10}
	3D cone-beam volumetric imaging	29-330 ^{4,10}

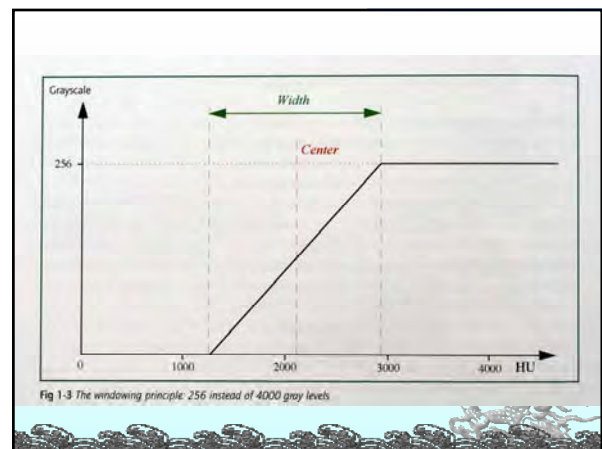
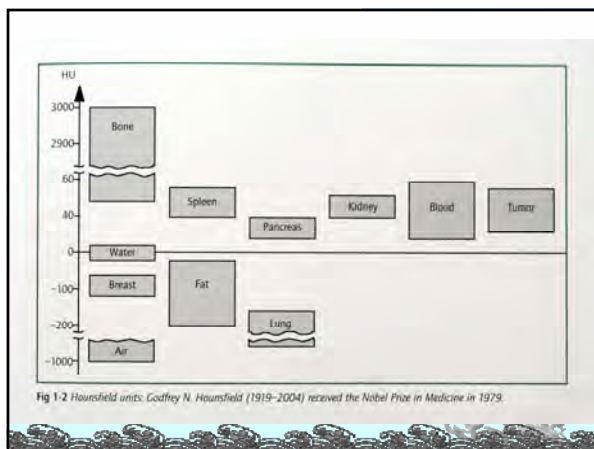
Table 1-1 Overview of the different radiation dosages in dental x-ray diagnostic procedures.

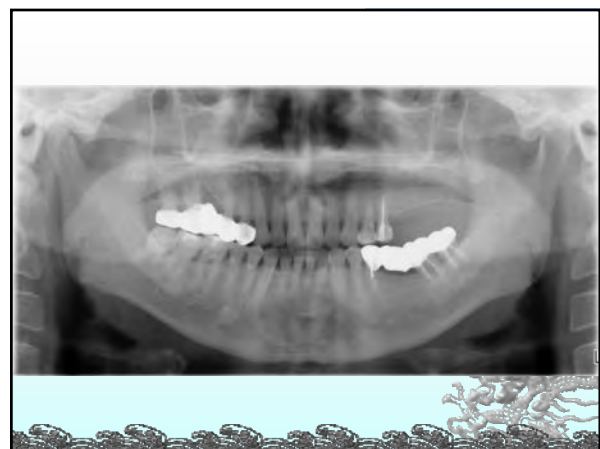
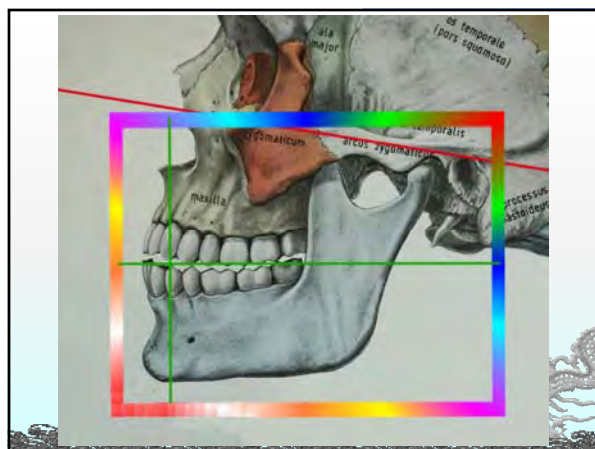
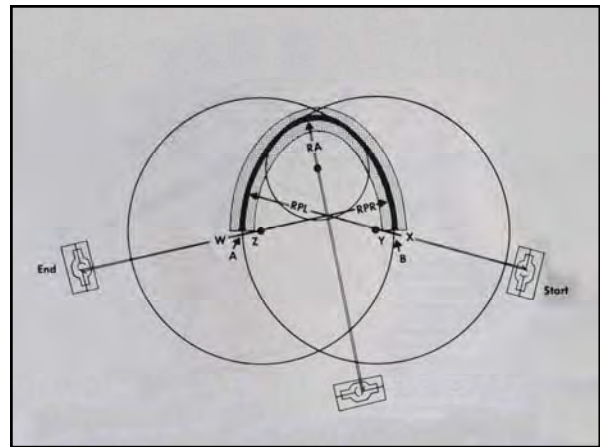
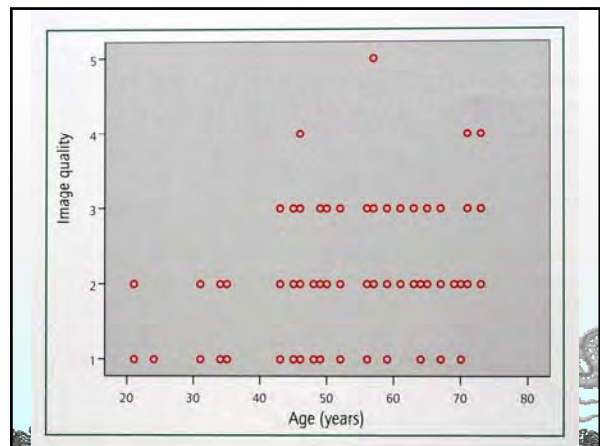
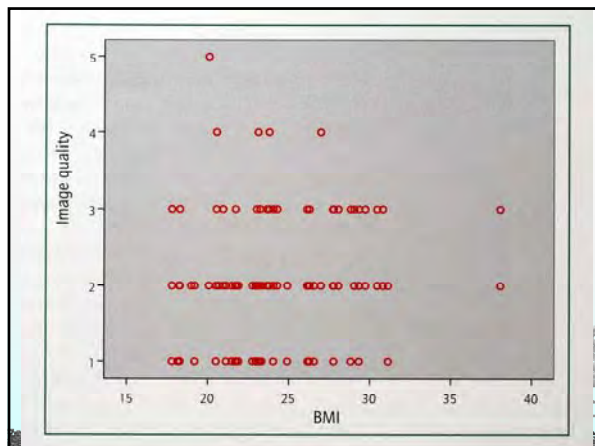
有必要才照
照出有診斷價值的影像
穿鉛衣
環境及人員安全

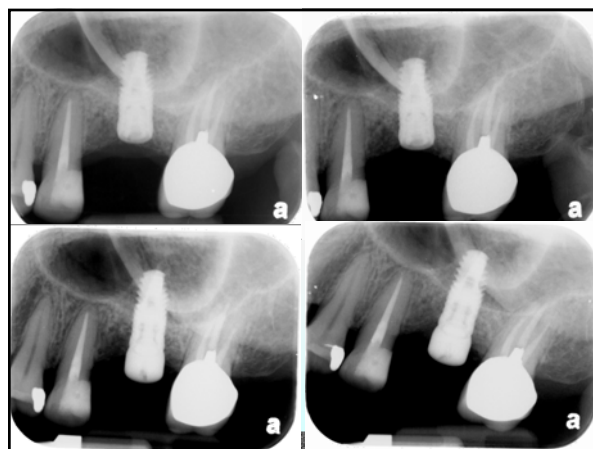
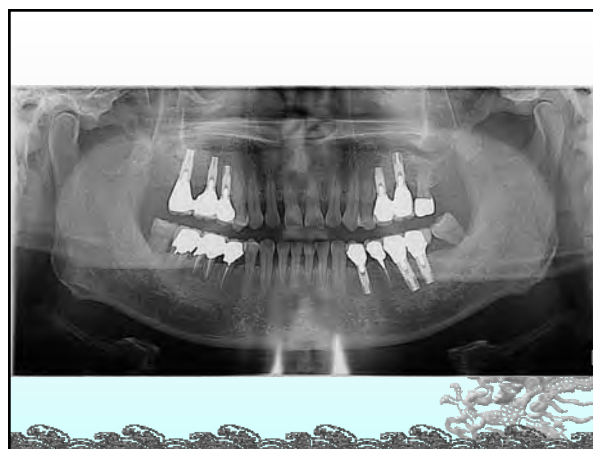
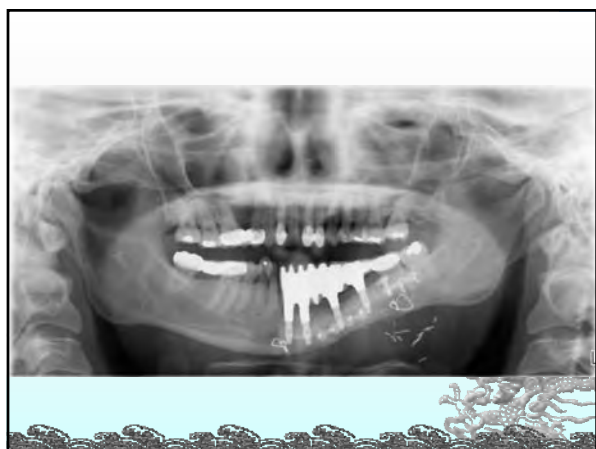
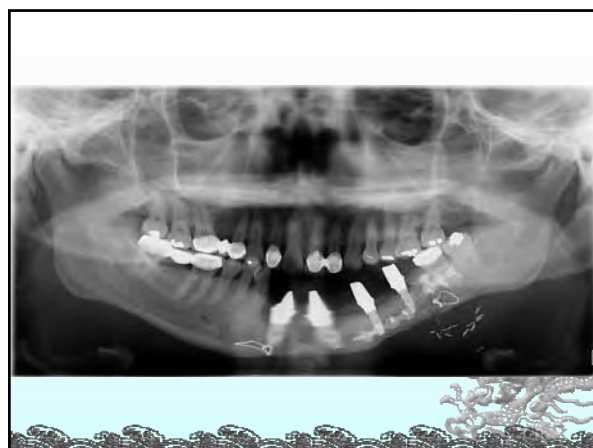
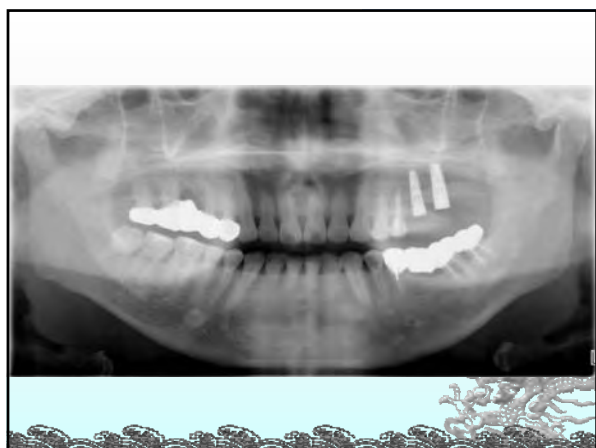
$\sum [Q_i (\int S_i \times N \times dm)]$

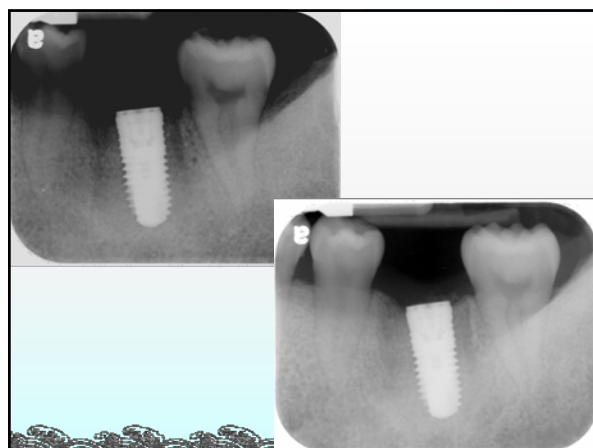
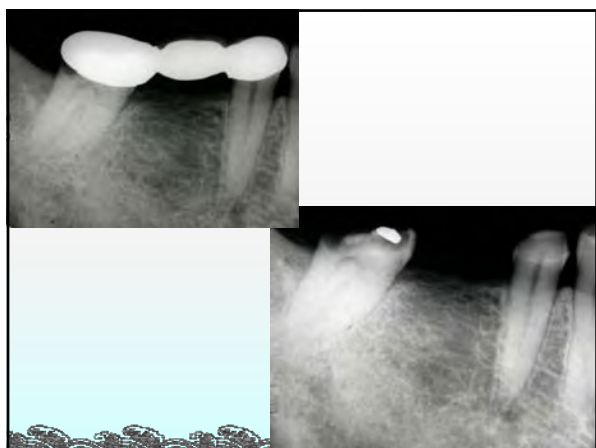
Photons, all energies : Q = 1
Electrons and muons, all energies : Q = 1
Neutrons,
energy < 10 keV : Q = 5
10 keV < energy < 100 keV : Q = 10
100 keV < energy < 2 MeV : Q = 20
2 MeV < energy < 20 MeV : Q = 10
energy > 20 MeV : Q = 5
Protons, energy > 2 MeV : Q = 5
Alpha particles and other atomic nuclei : Q = 20

Gonads: N = 0.2
Bone marrow, colon, lung, breast, stomach: N = 0.12
Bladder, brain, salivary glands, kidney, liver, muscles,
oesophagus, pancreas, small intestine, spleen, thyroid, uterus: N = 0.05
Bone surface, skin: N = 0.01









稍微曝光不足的數位照片可由軟體調整到令人滿意的結果。

而曝光過度的數位照片卻會喪失亮部細節，永遠無法調整到令人滿意的結果。

