



GETTING THE PERFECT X-RAY IMAGE FOR X-RAY FILM

Experience has shown that you must do all that is recommended in this process, which takes about thirty minutes. The best way to do it is to read the instructions carefully, then visualize every step of the way, so that you're clear on what you're doing and you will remember it. At the end of it all, you want to be able to say, "I'm, proud of the film that I have, and I'll be proud to send it for a second opinion."

For problems of what people usually refer to as films that are light, films that lack definition, or films that are dark, the reasons may vary, but the corrective process is the same.

You have to confirm that the darkroom is perfect, and you first do that by turning on all the outside lights adjacent to the darkroom, the office, especially the doctor's office, or any room that normally would not be used, or occasionally used. With those lights on, you go (do not delegate this job) into the darkroom, turn the safe light off, and plan to be in the darkroom for about ten minutes. That's what it takes for your eyes to adjust. At the end of ten minutes you either will see light and be able to see your hand on the end of your arm, or... you won't be able to see your hand. Once you've reached ten minutes, your eyes will have adjusted to the dark, and if the room is actually dark, it'll be kind of an eerie feeling, where you know your hand is on the end of your arm, but you can't see it. This is very important, and it's also important to continue to have the safe light off even for three or four days after you get what you feel is a perfect film.

Sources of light are false ceilings with light fixtures that leak light from other rooms, even a nail hole in the wall can cause problems.

Then, when you turn the safe light on, it could cause trouble with the film again, and that would be because the source light is either too close to the film, or the filter's got a crack in it, or it's incompatible with the film that you're using. Add high wattage bulbs to that list of causes.

Once you have that set, it's time to look at the processing machine or dip tank. There you need fresh chemistry. And I would guess that anything over a week should be changed because when you go to adjust the machine without fresh chemistry, you can get some inherent errors that you won't be able to explain later. So, change your chemistry like you normally would and make sure it's fresh... then go to the x-ray machine.

A problem with some automatic processors is that the upper tray through which the film must travel, is small and the chemistry can deplete it's potency within a week. Another way to say this is, if you have a one (1) day a week office, you may have to change the upper tray to solve the "light film" problem.

At the x-ray machine, to find out what would be a good setting for a film, I suggest you set the x-ray machine at 50 kVp. The mA at 10 and the time we want to set at four different stages.

So if you take a regular film and set it up so that you can block out three-quarters of it and do this four times, you'll end up with four squares of the film you're going to expose, you'll expose it at different times; and they would be approximately 1/4 of a second, which would be (015) 15/60; ½ second, that would be (030) 30/60. When you're finished with that film, you develop it in the new chemistry and take it to your view box. There, you want to get your finger behind the film to see which one of the squares is dark enough so that when you put your finger behind the film over a lighted view box, that you can just barely tell that your finger is moving. When you get that square, you know how much time it is. I'm going to take, for conversation example, that it was the (030) 30/60 time, then that would be a perfect time to set the machine for a D/P view. You should set it at 50 kVp, 10 mA, if (030) 30/60 was right, you'd set it for (030) 30/60. This might be longer than what you're used to taking, but it still will give you a good film, you'll get good definition, the toes would be nice and light and you'll get soft tissue effect. At this time try D/P exposures at 52 and 55 kVp for a comparison. Chose the best D/P then continue to make a lateral view.

For a lateral, all you have to do is increase the kVp about 7 to 10 kVp, it's best to have the patient stand on a piece of felt, about 1/4" or more, which will allow you to project the soft tissue below the metatarsals. Once you get those two views done, you can look at them and decide if you want a little darker or lighter, but you'll end up with an excellent film and this precludes having to know what kind of film you have, or what cassette and what screens. Correct your technique chart and post it. Notice that the technique calls for changing the kVp (penetrating power) not the time as the object part thickness changes.

In summary, remember you are certifying the darkroom "dark", the processing chemicals "fresh" and that you have two screens in each cassette before making exposures. This will make the X-CEL X-RAY machine perform as it was designed. Remember to make a new and detailed technique chart to post near the x-ray machine control. The chart should provide for small, medium and large patients as well as the views you will be using.

PATIENT VIEW	SMALL (100 LBS)			MEDIUM (200 LBS)			LARGE (250+ LBS)		
	TIME	mA	kVp	TIME	mA	kVp	TIME	mA	kVp
<i>Time, mA, kVp</i>									
A/P	030	10	50	030	10	55	030	10	60
LATERAL	030	10	60	030	10	65	030	10	70
OBLIQUE	030	10	60	030	10	65	030	10	70