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OPINION	:	No. 83-108
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of	:	<u>NOVEMBER 23, 1983</u>
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THE HONORABLE PATRICK J. NOLAN, MEMBER OF THE CALIFORNIA ASSEMBLY, has requested an opinion on the following matter:

May a registered nurse inject or infuse a patient with contrast/opaque materials for a diagnostic study and must the physician performing the study be present at that time?

CONCLUSION

A registered nurse may inject or infuse a patient with contrast/opaque materials to assist a physician performing a diagnostic study if the physician performing the study, or other medically suitable personnel with whom arrangements have been made, remains sufficiently close to the patient as to be able to respond to the foreseeable adverse reactions which might occur.

## ANALYSIS

This opinion discusses a particular role that registered nurses may partake in diagnostic procedures (radiological studies) which involve the use of contrast or opaque media. We have been asked whether a registered nurse may introduce those materials into a patient by injection or drip bottle infusion and whether the licensed physician performing the diagnostic study must be present in order for that to be done. We will conclude that when assisting a physician performing a diagnostic study a registered nurse may inject or infuse a patient with a contrast agent for the procedure and that while the physician who performs the study need not be immediately present at the time, the physician or another similarly responsible person (e.g., another physician) with whom arrangements have been made must be within sufficient proximity to the patient to permit response to be made to the foreseeable adverse reactions to the contrast which might occur.

The use of contrast media in various radiological studies enables valuable diagnostic information to be obtained from the opacification of various body systems that occurs following their introduction into the body. While each particular study—such as angiography (vascular studies), computerized assisted tomography (C.A.T. scans) and excretory urography (e.g., the intravenous pyleogram or I.V.P.)—may involve a different mechanism of contrast enhancement, generally speaking they all involve the introduction of a contrast medium containing iodine into the body either rapidly by injection (the push or bolus introduction) or slowly by infusion (the I.V. drip) followed by appropriate readings for diagnostic interpretation of the system of interest as the iodine-containing medium is carried to it by body fluid and then "picked up" by it.<sup>1</sup> (See, e.g., N. Jensen & S. Dorph, "Adverse Reactions To Urographic Contrast Medium: Rapid Versus Slow Injection Rate," *Brit. J. of Radiology*, vol. 53, No. 631 (July 1980) at 659-661.) The C.A.T. scan, for example, is an imaging system that is based on the fact that certain mechanism sensors are so sensitive that a dilute contrast medium can be used to detect small differences in tissue density that show in x-ray attenuation (negative shadows). In an intravenous pyleogram the medium is preferentially concentrated and excreted with a resultant opacification and delineation of the genito-urinary system. Needless to say each specific procedure requires a specific type of contrast agent, and the major manufacturers of iodine-based contrast materials publish information containing the specific agent to be used and its amount for each type of procedure or study. (See *Physician's Desk Reference*, *supra*, at 2012-2046;

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<sup>1</sup> An I.V. drip is also used to maintain a constant level of the contrast medium following its initial introduction.

cf. D. Gardeur, et al., "Pharmacokinetics of Contrast Media," *J. Comput. Assist. Tomogr.*, vol. 4, No. 2 (Apr. 1980) at 178-185.)<sup>2</sup>

The use of contrast media is not without risks as there are predictable adverse reactions to it. (See, e.g., W. Shehade & G. Toniolo, "Adverse Reactions To Contrast Media," *Diagnostic Radiology*, vol. 137, (Nov. 1981) at 299-302 (4.5 to 8.5%).) The most serious of them, which can produce death, include respiratory or cardiac arrest or circulatory collapse which occurs in the anaphylactic shock that results from the body's being unable to accommodate the iodine-based contrast. (*Ibid.*)<sup>3</sup> In their infrequent occurrence it becomes absolutely essential, lest death ensue, that resuscitative measures be commenced immediately and that an intravenous pathway be maintained. Reactions not necessarily leading to mortality but nonetheless severe enough to require subsequent hospitalization include a prolonged drop in blood pressure, myocardial infarction, ventricular fibrillation, convulsions, coma and paralysis. (*Id.*, at 300, fn. \*.) Moderate reactions that can be treated in a radiology department include facial or laryngeal edema, bronchial spasm, or a transitory or mild drop in blood pressure. (*Ibid.*) Less serious but more frequent reactions include hives, blushing of the skin, nausea and vomiting, slight difficulty in breathing and "lightheadedness." Though "minor" they are not to be taken lightly since they may herald the advent of the severe life-threatening or even fatal reactions. (*Ibid.*) Usually a reaction though, if it is to occur, will generally do so within two to three minutes following the introduction of the iodine-based contrast into the body.

In some diagnostic studies involving contrast media, such as the angiogram, the physician who performs it will invariably remain present with the patient throughout the procedure because of the nature of the examination. But in others, such as the I.V.P. and C.A.T. scan, while the physician will remain in the proximate area to tailor the examination and interpret its results, *the study itself* does not require a continuous presence with the patient, especially since the needed information is secured at periodic intervals. Needless to say, during a lengthy procedure of that kind, the physician's total attention is not monopolized on the case but is directed during part of the time to other matters. Our concern then in effect is with the *legal* demand for a physician's presence during the

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<sup>2</sup> Various contrast media are available—as Winthrop Laboratories' Hypaque (diatrizoate sodium) (Physician's Desk Reference (32nd ed. 1978) at 2036-2046) and Squibb's Diatrizoate Meglumine (*id.*, at 2016). They all contain differing concentrations of iodine.

<sup>3</sup> In a study done at the Mayo Clinic, the mortality rate in procedures utilizing a contrast agent was 1:75,000 (.00133%). Registered nurses were responsible for the injection of the contrast medium in more than 90 percent of the patients during the period of the study. (See *Am. J. of Roentgenology*, (Nov. 1982) at 919-922.) In other studies the incidence of mortality from intravascular contrast media was reported as 15:201,344 (.00745%) and 3:100,739 (.00298%). (137 *Diagnostic Radiology*, *supra*, at 300.)

initiation of such procedures, for we are asked whether another healing arts professional, the registered nurse, might administer the contrast materials instead and whether the physician performing the procedure (i.e., the radiologist) must be present for the nurse to do so.

The injection of contrast/opaque materials and/or their introduction by drip-bottle infusion into the human body involves the penetration of human tissue and therefore constitutes the practice of medicine under California law. (Bus. & Prof. Code, § 2051<sup>4</sup>; *People v. Fowler* (1938) 32 Cal.App.2d Supp. 737; 59 Ops.Cal.Atty.Gen. 112, 115 (1976); 50 Ops.Cal.Atty.Gen. 125, 127 (1967); 39 Ops.Cal.Atty.Gen. 228, 229 (1962).) Being such, it may not be undertaken by any person other than a licensed physician and surgeon unless he or she holds a valid certificate of other licensure which authorizes its performance. (§ 2052.)<sup>5</sup> (*Bowland v. Municipal Court* (1976) 18 Cal.3d 479; *Magit v. Board of Medical Examiners* (1961) 57 Cal.2d 74, 84; 64 Ops.Cal.Atty.Gen. 240, 242 (1981); 50 Ops.Cal.Atty.Gen., *supra*, at 127.) We must therefore determine whether and under what circumstances the Nursing Practice Act (Bus. & Prof. Code, div. 2, ch. 6, § 2700), which itself provides that it confers no authority to practice medicine except as otherwise authorized therein (§ 2726), might authorize registered nurses to introduce contrast materials into the human body for a diagnostic procedure which calls for it.<sup>6</sup>

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<sup>4</sup> All unidentified section references herein will be to the California Business and Professions Code. Section 2051 of that code defines the practice of medicine:

"The physician's and surgeon's certificate authorizes the holder to use drugs or devices in or upon human beings and to sever or penetrate the tissues of human beings and to use any and all other methods in the treatment of diseases, injuries, deformities, and other physical and mental conditions."

<sup>5</sup> Section 2052 states:

"Any person who practices or attempts to practice, or who advertises or holds himself or herself out as practicing, any system or mode of treating the sick or afflicted in this state, or who diagnoses, treats, operates for, or prescribes for any ailment, blemish, deformity, disease, disfigurement, disorder, injury, or other physical or mental condition of any person, without having at the time of so doing a valid, unrevoked, or unsuspended certificate as provided in this chapter, *or without being authorized to perform such act pursuant to a certificate obtained in accordance with some other provision of law, is guilty of a misdemeanor.*" (Emphasis added.)

<sup>6</sup> For purposes of this opinion, we do not distinguish between the injection of contrast/opaque materials and the administration of a drip bottle containing such materials. Both procedures involve the same legal and medical inquiries. Thus, both procedures will be referred to as "the introduction or the administration of contrast agents or materials."

In addition we have assumed that it is the physician performing the procedure who orders the specific medium to be used in it. A registered nurse could not select the contrast medium. (64

Unfortunately the answer is not that easily found. The Nursing Practice Act does not contain a neat litany of activities permitted registered nurses. Rather, based on the recognition that "nursing is a dynamic field, the practice of which is continually evolving to include more sophisticated patient care activities" (§ 2725), it sets forth a broad characterization of activities, to accommodate that evolution, to recognize "the existence of overlapping functions between physicians and registered nurses" and "permit additional sharing of functions between them" and to acknowledge and ratify those "functions and procedures which have common acceptance and usage" (§ 2725). Section 2725 provides:

"In amending this section . . . , the Legislature recognizes that nursing is a dynamic field, the practice of which is continually evolving to include more sophisticated patient care activities. It is the intent of the Legislature in amending this section . . . to provide clear legal authority for functions and procedures which have common acceptance and usage. It is the legislative intent also to recognize the existence of overlapping functions between physicians and registered nurses and to permit additional sharing of functions within organized health care systems which provide for collaboration between physicians and registered nurses. . . .

"The practice of nursing within the meaning of this chapter means those functions, including basic health care, which help people cope with difficulties in daily living which are associated with their actual or potential health or illness problems *or the treatment* thereof which require a substantial amount of scientific knowledge or technical skill, and includes all of the following:

"(a) Direct and indirect patient care services that insure the safety, comfort, personal hygiene, and protection of patients; and the performance of disease prevention and restorative measures.

"(b) Direct and indirect patient care services, including, but not limited to, *the administration of medications and therapeutic agents, necessary to implement a treatment*, disease prevention or rehabilitative regimen ordered by and within the scope of licensure of a physician . . . .

"(c) The performance of skin tests, immunization techniques, and the withdrawal of human blood from veins and arteries.

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Ops.Cal.Atty.Gen. 240, 241, 244, 246-247, 256 (1981); 57 Ops.Cal.Atty.Gen. 93, 96-99 & 96, fn. 1 (1974.)

"(d) Observation of signs and symptoms of illness, reactions to treatment, general behavior, or general physical condition, and (1) determination of whether such signs, symptoms, reactions, behavior, or general appearance exhibit abnormal characteristics; and (2) *implementation, based on observed abnormalities, of appropriate reporting, or referral, or standardized procedures, or changes in treatment regimen in accordance with standardized procedures, or the initiation of emergency procedures.*" (Emphases added.)

(Stats. 1974, ch. 355, p. 686, § 1; as amended by Stats. 1978, ch. 1161, p. 3639, § 172 and Stats. 1980, ch. 406, p. 793, § 1.)

The section thus defines the "practice of nursing" and then sets forth four specific areas of activity as being "included" within its scope. For our purposes, though, neither the broad definition nor the specific examples provide the answer.

Regarding the definition, section 2725 brings within the "practice of nursing" those functions which (1) help people cope with difficulties in daily living which (2) are associated with health or illness problems or the treatment thereof and (3) require a substantial amount of scientific knowledge or technical skill. As such, the definition read broadly would authorize a registered nurse to perform *any* function that involves technical skill or scientific knowledge that either helps people with their illnesses or the treatment thereof, and thus make the practice of nursing virtually coextensive with the practice of medicine. Clearly that is a result the Legislature never intended to create (§ 2726; cf. *Magit v. Board of Medical Examiners, supra*, 57 Cal.2d at 89; 64 Ops.Cal.Atty.Gen., *supra*, at 252, fn. 17) and we must look elsewhere for guidance in determining whether and under what circumstances the Legislature meant for nurses to be able to administer contrast media for diagnostic studies.

Such guidance is not found in the four expressly stated areas of activity permitted the registered nurse (§ 2725, subs. (a)-(d)) because, as is now shown, none of them applies to the situation at hand. We can quickly skim over the first and third categories of activity. The first, found in subdivision (a) involving direct and indirect patient care services and the performance of disease prevention measures, suffers the same infirmity as the general definition in being too broad for meaningful application, while the restricted specificity of the third, found in subdivision (c) involving the performance of skin tests and withdrawal of blood, does not accommodate the administration of contrast agents for a diagnostic study. Nor is the authority of the nurse to act under standardized procedures (subd. (d)) involved since our situation concerns a nurse administering a contrast agent to an *individual* patient for a *particular* procedure on the *particularized patient order* of a physician, a situation which is not covered by the mechanism of

standardized procedures. (64 Ops.Cal.Atty.Gen., *supra*, at 251, & 251 fns. 16 & 17.) Its particularization aside, the activity, involving as it does the initiation of a *diagnostic study*, does not fit the statutory conception of when standardized procedures come into play. Subdivision (d) states that standardized procedures are implemented following "observation of signs and symptoms of illness, reactions to treatment, general behavior or general physical condition." None of those observed occurrences, however, is involved when a nurse initially introduces a contrast agent to commence a diagnostic study.

We are therefore left with the second of the stated areas of activity permitted the registered nurse, to wit, that involving the "administration of medication and therapeutic agents necessary to implement a treatment . . . regimen ordered by and within the scope of licensure of . . . a physician." (§ 2725, subd. (b).) On first blush it would seem to apply to the situation at hand, and thus warrants further scrutiny.

Although contrast agents have been conceived of within the art as merely being a part of a physician's diagnostic armamentarium and not as "medications and therapeutic agents," it is the meaning of that phrase as used in section 2725, subdivision (b), that must be considered. (*Re Application of Monrovia Evening Post* (1926) 199 Cal. 263, 266; *People v. Western Airlines, Inc.* (1954) 42 Cal.2d 621, 636; *Great Lakes Properties, Inc. v. El Segundo* (1977) 19 Cal.3d 152, 155, 156.) Contrast agents are surely "drugs" as the term is specifically defined elsewhere under California law (§ 4031)<sup>7</sup> and although the Nursing Practice Act does not itself define the term, we recently considered the definition to be applicable to it, and we also determined that the term "drug" was synonymous with the term "medication" for its purposes. (64 Ops.Cal.Atty.Gen., *supra*, at 242, fn. 5.) Given that application and synonymity, section 2725, subdivision (b), would authorize a registered nurse to *administer* (i.e., to introduce into the body by injection or infusion)<sup>8</sup> a contrast medium *when necessary to implement a treatment regimen* ordered by

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<sup>7</sup> Section 4031 (of the Pharmacy Law) defines the term "drug" to mean:

"(1) *articles recognized in the official United States Pharmacopoeia, official Homeopathic Pharmacopoeia of the United States, or official National Formulary, or any supplement of any of them; (2) articles intended for use in the diagnosis, cure, mitigation, treatment or prevention of disease in man or other animals; (3) articles (other than food) intended to affect the structure or any function of the body of man . . . .*" (Emphases added.)

(See also Health & Saf. Code, §§ 11014, 26010; Pen. Code, § 383; Veh. Code, § 312.)

<sup>8</sup> The Nursing Practice Act does not define the word "administer." We have, however, previously considered the definition of the word found in the Pharmacy Law to be applicable to it. (64 Ops.Cal.Atty.Gen., *supra*, at 242, fn. 5(c).) There, section 4213 defines the term to mean "the furnishing . . . to [a physician's] patient of such amount of drugs or medicine . . . as are [sic] necessary to [his] immediate needs . . . ." There is no significant difference between a drug being

a physician. But therein lies the rub, for we do not believe a diagnostic study can be considered a part of a "treatment regimen" as that term is used in section 2755, subdivision (b).

In its broadest sense the term "treatment" can be used to embrace *all* efforts that are directed to address a patient's condition. (Stedman's Medical Dict. (5th (Lawyers) ed. 1982) at 1477.) As such, a "treatment regimen", which would be a systematic plan directing those efforts (Webster's Third New Internat. Dict. (1971 ed. "regimen") at 1911), would perforce include diagnosis, it being "difficult to conceive of anyone trying to restore to a normal condition a person who is abnormal without a prior investigation and determination . . . of the character of the abnormality." (*People v. Willis* (1923) 62 Cal.App. 717, 719-720; cf. § 2242.) But we do not believe the Legislature intended that all-inclusive meaning to apply to subdivision (b).

In a former opinion we noted that "the practice of medicine is composed of at least three constituent parts: diagnosis, prescription and treatment" (45 Ops.Cal.Atty.Gen. 116, 117 (1965) (physical therapists) citing *People v. T. Wah Hing* (1926) 79 Cal.App. 286 and *People v. Jordan* (1916) 172 Cal. 391, 399; cf. § 2052) and concluded therein that the authority of a healing arts licentiate other than a physician to act in the "treatment" area would not be authority to diagnose. (*Id.*, at 118.) We presume the Legislature was aware of that opinion and that it agreed with it (*California Correctional Officers' Assn. v. Board of Administration* (1978) 76 Cal.App.3d 786, 794; cf. *People v. Hallner* (1954) 43 Cal.2d 715, 719; *People v. Fox* (1977) 73 Cal.App.3d 178, 181) and that when it subsequently referred in subdivision (b) to a "treatment regimen" that is "ordered by and *within the scope of licensure of a physician*" (emphasis added) it had that compartmentalized limitation on authority in mind. (In fact section 2052 of the Medical Practice Act, which defines (albeit indirectly) a physician's scope of licensure, also particularizes (but in quadripartite division) its various aspects and, as we did, distinguishes diagnosis from treatment. (See, fn. 5, *ante*; diagnosis, treatment, operation, prescription.)) Moreover, subdivision (b), speaks not only of a regimen involving treatment, but also of ones involving disease prevention and rehabilitation. If the term "treatment regimen" were to be broadly construed it would subsume the other types of regimens specifically mentioned therein and thus render them statutory surplusage. Such a construction is to be avoided. (*Wells v. Marine City Properties, Inc.* (1981) 29 Cal.3d 781, 788.) We therefore believe that the term "treatment regimen" was used in a more restrictive sense than its broad

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furnished for a patient's immediate needs and its being directly applied for those needs. (64 Ops.Cal.Atty.Gen., *supra*, at 245, fn. 12.) (Cf. Health & Saf. Code, § 11002, also held to be applicable to the Nursing Practice Act: "the direct *application* of a *controlled substance*, whether by *injection* . . . or any other means, to the body of a patient for his immediate needs . . . .") (Emphases added.)

meaning might import and that as used in subdivision (b) it does not embrace a diagnostic undertaking which precedes treatment such as the radiological study we have here. The fact then that a registered nurse might be vested with certain authority vis-a-vis the *treatment* of a patient by subdivision (b) does not mean that the nurse would thereby be vested with similar authority with respect to our particularized diagnosis of the patient's condition. (45 Ops.Cal.Atty.Gen., *supra*, at 118.) We therefore find subdivision (b) of section 2725 also irrelevant to the situation at hand.

That result however does not end the matter. The word "include" is not one of limitation but one of example and the specifications of authorized activity found in section 2725 are not to be read as a limited listing of permissible practices but are to be considered within the wider context of the practice of nursing of which they are merely illustrative. (Cf. *People v. Western Airlines, Inc.* (1954) 42 Cal.2d 621, 629; *People v. Horner* (1970) 9 Cal.3d 23, 27.) The Legislature has made this much clear in the preamble to the section where it declares an intent (i) to provide "clear legal authority *for functions and procedures which have common acceptance and usage*" (emphasis added) and (ii) to recognize "the existence of overlapping functions between physicians and registered nurses." As we now proceed to explain, it is in those notions of accepted custom and usage and overlap of functions alluded to in the declaration of legislative intent that the authority for a registered nurse to administer contrast agents for a diagnostic procedure can be found. (Cf. *Friends of Mammoth, et al. v. Board of Supervisors* (1972) 8 Cal.3d 247, 256.)

The Nursing Practice Act has never contained a nice list of authorized functions and activities permitted a registered nurse. (See Stats. 1905, ch. 405, p. 533; Stats. 1913, ch. 319, p. 613; Stats. 1915, ch. 22, p. 21; *id.*, ch. 386, p. 603; Stats. 1917, ch. 51, p. 44; Stats. 1921, ch. 582, p. 980; Stats. 1925, ch. 139, p. 290; Stats. 1927, ch. 587, p. 1017; Stats. 1931, ch. 941, p. 1946; Stats. 1935, ch. 587, p. 1677; Stats. 1939, ch. 807, p. 2346.) In fact, until sections 2725 and 2726 were added in 1939, the Nursing Practice Act did not even contain a guiding section defining the practice of nursing, nor, indeed, any authorizing definition of or restriction upon nursing functions. (*Magit v. Board of Medical Examiners, supra*, 57 Cal.2d at 83.) Still, even though they were not specifically authorized by statute to do so, it was nevertheless commonly understood to be part of accepted nursing practice for registered nurses to be able to perform various medical functions and activities when assisting a physician in his or her practice of medicine. (*Chalmers-Francis v. Nelson* (1936) 6 Cal.2d 402, 404; 64 Ops.Cal.Atty.Gen., *supra*, at 244; 63 Ops.Cal.Atty.Gen. 723, 734 (1980); cf. *Magit v. Board of Medical Examiners, supra*; cf. 45 Ops.Cal.Atty.Gen. 116, 117 (1965).) And that understanding remained unchanged even after 1939 when the current Act was adopted with its caveat that it conferred "no authority [upon nurses] to practice medicine or surgery or to undertake the prevention, *treatment* or cure of disease . . ." (Emphasis added; see former § 2526; Stats. 1939, ch. 807, p. 2349, § 2, quoted at fn. 9, *post.*) Thus:

"Opinions of the California Supreme Court and of this office . . . consistently [continued to take] the position that a registered nurse [might] perform *certain functions* under the direction and supervision of a physician which, *but for such supervision*, would constitute the practice of medicine. E.g., *Magit v. Board of Medical Examiners*, 57 Cal.2d 74, 83-84 (1961); . . . 56 Ops.Cal.Atty.Gen. 1 (1972) . . . The cited opinions and section 2725 [made] clear that although registered nurses are not competent to themselves practice medicine, they are possessed of special skills which enable them *to assist* physicians in their practice of medicine in a fashion that unlicensed persons could not." (57 Ops.Cal.Atty.Gen., *supra*, at 97-98.)

The predicate of the post-1939 opinions was as before: that it was recognized and established practice and procedure for nursing functions to embrace the performance of various medical activities to assist a physician when appropriately directed in a particular case. (See, e.g., *Magit v. Board of Medical Examiners*, *supra*, 57 Cal.2d at 83, 84, & 83, fn. 5.) The reasoning of the seminal case, *Magit*, is particularly instructive:

"At the time of the *Chalmers-Francis* case the statutes provided for the licensing of nurses but did not define or restrict their functions. In *the absence of a statutory definition the court looked to the existing custom and practice concerning the administration of anesthetics by nurses. It has generally been recognized that the functions of nurses and physicians overlap to some extent*, and a licensed nurse, when acting under the direction and supervision of a licensed physician, is permitted to perform certain tasks which, without such direction and supervision, would constitute the illegal practice of medicine or surgery. . . .

"Three years after the *Chalmers-Francis* decision, a number of provisions concerning nursing were added to the code, among which were sections 2725 and 2726. Section 2725 defines the practice of nursing and shows a legislative intent that a nurse may, under the direction of a licensed physician, perform services which require technical skill and medical knowledge. Section 2726 states that the chapter dealing with nursing does not confer any authority to practice medicine or surgery. These sections must be construed together, and when this is done it is clear that section 2726 does not mean that nurses are precluded from performing all acts which are medical or surgical in character but, rather, that they would be guilty of illegally practicing medicine or surgery only if their conduct in performing such acts did not come within the permissible scope of a nurse's functions as defined in section 2725. *The definition in section 2725 is so broad that the administration of certain forms of anesthetics by a registered nurse, acting*

*under the immediate direction and supervision of a licensed physician, may come within its scope.* To what extent and under what conditions it authorizes nurses to perform such acts is not before us, and we need note only that any authority they may have in this field is derived from their special statutory position and does not affect the authority of others. Obviously, the *Chalmers-Francis* decision related only to the then existing practice and to the particular general anesthetics in use at that time, and it is not controlling with respect to any other anesthetic or any other method of producing anesthesia." (57 Cal.2d at 83-84; emphases added.)

The court in *Magit* thus achieved reconciliation between the broad authorizations found in section 2725 of the Nursing Practice Act's definition of the practice of nursing (which is strikingly similar to the current definition found therein)<sup>9</sup> and the Act's guarding against an authorization to practice medicine (cf. § 2726) by looking to established custom and practice to define the permissible scope of nurses' activities. *Magit* has thus been understood to stand for the proposition that the practice of nursing embraces those activities which established custom and practice have seen registered nurses perform. However, it was assumed therein that at least where medical activities were involved, established custom and practice would require appropriate supervision of the nurse's actions by a responsible physician. As the court in *Magit* paraphrased a noted work on nursing practice:

"In Lesnik and Anderson, *Nursing Practice and the Law* (2d ed. 1955) pp. 277-279, it is said that nurses perform many functions that are medical acts, and, in the absence of statute, custom and usage generally will control the nature and scope of medical acts performed by them. *Among the*

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<sup>9</sup> At the time of the *Magit* decision, section 2725 defined the practice of nursing as follows:

"The practice of nursing within the meaning of this chapter [Nursing] is the performing of professional services *requiring technical skills and specific knowledge based on the principles of scientific medicine*, such as are required by means of a prescribed course in an accredited school of nursing as defined herein, and practiced in conjunction with curative or preventive medicine as prescribed by a licensed physician and the application of such nursing procedures as involve understanding cause and effect in order to safeguard life and health of a patient and others." (Emphasis added.)

It bears a striking resemblance to the current definition in its formulation and broad application. Also at the time, section 2726 provided:

"This chapter [Nursing] confers no authority to practice medicine or surgery or to undertake the prevention, treatment or cure of disease, pain, injury, deformity, or mental or physical condition in violation of any provision of law."

*minimum requirements for a nurse's authority to perform such acts are that she proceed under the order and direction or supervision of a licensed physician and that she comprehend the cause and effect of the order."* (Emphasis added; 57 Cal.2d at 83, fn. 5.)

At the point when the Nursing Practice Act was amended in 1974 then, the concept of supervision by a physician who would bear responsibility for treating a patient was considered to be the *sine qua non* for permitting a registered nurse to assist a physician in a case by performing many acts which constitute the practice of medicine. (Cf. 64 Ops.Cal.Atty.Gen., *supra*, at 246-247.)<sup>10</sup> Thus for example, it was held that a registered nurse might, *at the immediate direction and under the supervision of a physician present in an operating room*, administer general anesthesia to assist with a surgical operation (*Magit v. Board of Medical Examiners, supra*, 57 Cal.2d at 84; *Chalmers-Francis v. Nelson, supra*, 6 Cal.2d at 404-405; 56 Ops.Cal.Atty.Gen., *supra*) and that a nurse might, providing there was *effective supervision* by a physician, furnish drugs to a patient (57 Ops.Cal.Atty.Gen., *supra*, at 98).

So the situation stood when the Legislature amended the Nursing Practice Act in 1974: although not specifically authorized to do so by statute, a registered nurse could nonetheless, according to the case law looking to custom and practice, perform "certain" acts constituting the practice of medicine to assist a physician in a particular case *provided* that there was appropriate direction and supervision by the physician over the nurse's activity. When it amended the Nursing Practice Act the Legislature must have been aware of that situation wrought by the judicial decisions which defined the parameters of nursing functions, as well as of our just-then-issued opinion (57 Ops.Cal.Atty.Gen. 93 (1974)) which summarized and iterated their import. (See *English v. Marin Municipal Water District* (1977) 66 Cal.App.3d 725, 731; *Arnold v. Newhall County Water Dist.* (1970) 11 Cal.App.3d 794, 804; *Orr v. Superior Court* (1969) 71 Cal.2d 220, 226; *Bishop v. City of San Jose* (1969) 1 Cal.3d 56, 65; *Stafford v. Realty Bond Service Corp.* (1952) 39 Cal.2d 797, 805; *California Correctional Officers' Assn. v. Board of Administration, supra*, 76 Cal.App.3d at 794.) The new Act must be viewed in light of that decisional background (*People v. Dixon* (1929) 24 Cal.3d 43, 51) in which the concept of supervision by a physician who would bear responsibility for treating a patient, was the crucial factor in permitting registered nurses to assist a physician in a case by performing certain functions which constitute the practice of medicine (64 Ops.Cal.Atty.Gen., *supra*, at 247). Since the Legislature did not significantly redefine the scope of nursing practice to

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<sup>10</sup> Needless to say, it was also assumed that there would be other acts involving the practice of medicine which a registered nurse could *not* perform, *even under* the direction and supervision of a physician or in the physician's immediate presence. (64 Ops.Cal.Atty.Gen., *supra*, at 252, fn. 17; cf. 2726; *Magit v. Board of Medical Examiners, supra*, at 84.)

compromise that background, we must presume that the Legislature intended that it be carried forward in interpreting the statute as amended. (See *State of South Dakota v. Brown* (1978) 20 Cal.3d 765, 774; *Buchwald v. Katz* (1972) 8 Cal.3d 493, 502; *Union Oil Associates v. Johnson* (1935) 2 Cal.2d 727, 734-735; *California Correctional Officers' Assn. v. Board of Administration, supra*; *People v. Hallorer, supra*, 43 Cal.2d at 719.) Indeed, that presumption is all the more compelling in light of the fact that the Legislature used language in the amended statute to declare the legislative intent and to redefine the practice of nursing that is strikingly similar not only to the language found in the statute before it was amended but to that found in the cases and our opinion interpreting the former Act as well.<sup>11</sup> (*Ibid.*; see also *Marriage of Skelly* (1976) 18 Cal.3d 365, 369; *Rosemary Properties, Inc. v. McColgan* (1947) 29 Cal.2d 677, 687; *City of Long Beach v. Marshall* (1938) 11 Cal.2d 609, 620; *Perry v. Jordan* (1949) 34 Cal.2d 87, 93.) We therefore believe the Legislature wished to adopt, ratify and continue the understandings that existed under prior law as expressed in *Chalmers-Francis, Magit* and our 1974 opinion regarding the scope of nursing practice. Remaining viable, therefore, were the observations that registered nurses, although not specifically authorized by statute, are nonetheless possessed of special skills which enable them to assist physicians and, according to custom and practice, might "perform certain functions *under the supervision of a physician which*, but for such supervision would constitute the [illegal] practice of medicine" (57 Ops.Cal.Atty.Gen., *supra*, at 97). (64 Ops.Cal.Atty.Gen., *supra*, 240.) Under the current Act then, as before, appropriate supervision by a physician over a nurse's activity would be essential for a registered nurse to perform certain functions and procedures which commonly accepted custom and usage might see the nurse perform.

The activity of immediate concern, the administration of contrast agents by a registered nurse in assisting a physician perform a radiological diagnostic study, must surely be an activity that custom and practice indicate a nurse may perform. It is traditionally accepted that nurses, in the course of their practice, do assist physicians by administering medications to their patients (64 Ops.Cal.Atty.Gen., *supra*, at 247; cf. § 2725, subd. (b)) and we understand that it is accepted that radiologists performing diagnostic studies do utilize the services of registered nurses to assist them in starting the

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<sup>11</sup> E.g., *compare* (a) the Legislature's declaration of intent to "recognize [those] functions and procedures which have common acceptance and usage" *with* the discussion in *Chalmers-Francis* of "the established and uniformly accepted practice and procedure followed by surgeons and nurses" (6 Cal.2d at 404) and *Magit's* notion of looking to "existing custom and practice" (57 Cal.2d at 83); (b) the Legislature's declared recognition of "the existence of overlapping functions between physicians and nurses" *with Magit's* recognition "that the functions of nurses and physicians overlap to some extent" (*ibid.*); and (c) the paragraph defining the practice of nursing *with* the former definition (fn. 9, *ante*) and our notion of nursing as being a discipline based on "special skills" (57 Ops.Cal.Atty.Gen., *supra*, at 98).

procedure by administering the contrast agent. But considering the risks involved in that endeavor and the fact that it does involve the practice of medicine, it cannot be questioned that *some* supervision by a physician is required for nurses to perform it. (Cf. §§ 2725, subd. (b); 2726, 2860.5, subds. (a), (c); *Magit v. Board of Medical Examiners*, *supra*, 57 Cal.2d at 83, fn. 5.) Just what degree of supervision is required and whether it involves a physician being immediately present is to what we finally turn.

The degree of supervision by a licensed physician that is necessary for a nurse to perform a particular activity, which includes the question of whether the physician must actually be present during its performance, must bear some relationship to the degree of hazard that is involved in the activity to be performed. While it cannot be expressed with the nicety of a mathematical formula, at least it might be said that the more dangerous or life-threatening an activity, the more stringent should be the demand for a physician's presence and direct supervision over it (compare *Magit v. Board of Medical Examiners*, *supra*, and *Chalmers-Francis v. Nelson*, *supra*, (direct supervision and immediate presence necessary for nurse to administer general anesthesia) with 57 Ops.Cal.Atty.Gen., *supra*, at 98 ("effective" supervision necessary for nurse to furnish drugs) and 64 Ops.Cal.Atty.Gen., *supra*, at 251 & 251, fn. 16 (physician's order sufficient to administer drugs generally))—until of course the line is crossed into the area of those activities which a registered nurse could not perform even in a physician's presence and under a physician's direct supervision and direction (see fn. 10, *ante*).

With regard to the activity contemplated herein, we understand that the use of contrast media for diagnostic studies takes place in a highly specialized setting which carries certain threatening risks. Adverse reactions, ranging from the minor to the life-endangering and death itself, are possible with significant and predictable certainty. (See, e.g., 137 *Diagnostic Radiology*, *supra*, at 299-302.) The possibility of mortality, while not that great (see fn. 3, *ante*), nevertheless exists, and above that there is a significantly greater chance for reactions to occur that require subsequent hospitalization of the patient which surely would have more serious consequences if not for the immediate intervention of physicians or other suitably trained and capable medical personnel.<sup>12</sup> Furthermore, the medical literature also cautions that even minor reactions must not be taken lightly since they may herald more serious ones.

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<sup>12</sup> The Shehadi and Toniolo studies reported that .05 percent and .09 percent of the respective patients experienced adverse reactions to the contrast media serious enough to require subsequent hospitalization. Beyond that, 1.6 percent and .96 percent of the patients experienced moderate reactions which were treatable in the radiology department itself. (137 *Diagnostic Radiology*, *supra*, at 300.)

We must not lose sight of the fact that the patient involved in a diagnostic study *is the physician's patient*. It is *the physician* who must ascertain the relevant facts about the case, it is *the physician* who must interpret the results and make a diagnosis, and it is *the physician* who is responsible for the patient and on whose professional judgment the patient's well-being depends. (64 Ops.Cal.Atty.Gen., *supra*, at 251.) While the physician may well utilize the services of a particularly qualified registered nurse to *assist* in certain aspects of the performance of a diagnostic study (*ibid*; *Magit v. Board of Medical Examiners*, *supra*, 57 Cal.2d at 83-84; 57 Ops.Cal.Atty.Gen., *supra*, at 98; cf. 45 Ops.Cal.Atty.Gen. 116, 117 (1965)), the nurse in assisting but carries out *the physician's orders*, and the responsibilities and duties in the case always remain with the physician. (*Chalmers- Francis v. Nelson*, *supra*, 6 Cal.2d at 404-405; 64 Ops.Cal.Atty.Gen., *supra*, at 251.) Needless to say, in these circumstances, we would assume that a physician who performs a diagnostic study would insure as close a communicative proximity to the patient as would enable an appropriate response to be made to any of the foreseeable risks that it entails.

We understand that a reaction to an iodine-based contrast medium, if it is to come, will occur within a short time after the contrast is introduced into the body. Based on that understanding we would assume that good medical practice would call for the physician to remain sufficiently close to the patient when the contrast is introduced and during the critical period when a life-threatening adverse reaction to it may manifest itself or to have made arrangements for other suitably-trained medically- responsible personnel who could provide an appropriate response to be so situated. In addition we would assume that good medical practice would call for the physician (or the responsible surrogate(s)) to remain in appropriate proximity to the patient for the remainder of the procedure as would permit an effective response with such further intervention as might be necessary to meet any other eventuality that might foreseeably occur.

The question we are asked concerns a specific act by a registered nurse that occurs at but one point in what might be a lengthy diagnostic procedure, *viz.*, the introduction of the contrast agent to initiate it (cf. fn. 6, *ante*) and the authority of the nurse to perform *that act, at that point in time* must be reckoned with reference to the exigencies that then exist. We have set forth what we understand to be the predictable risks and dangers that are inherent in a diagnostic procedure at the time when the contrast agent is introduced, as well as our perception, as an indication of their possible severity, that prudent medical practice would call for a physician performing such a procedure to maintain sufficient proximity to the patient at that time or to have arranged for the maintenance of such by other medically-suitable personnel. We comprehend the appropriate supervision by the physician that is required by the circumstances when a nurse assists in a radiological study and introduces the contrast agent to be defined by that understanding.

Accordingly, we conclude that a registered nurse may administer contrast agents to assist a physician perform a diagnostic study but only if the physician, or other medically-suitable personnel with whom the physician has made arrangements, is sufficiently close to the patient at the time the contrast is introduced to enable response to be made to the foreseeable adverse reactions that might occur.

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