The principle of double effect (PDE) is an important principle of medical ethics. Yet it is often poorly understood, abused, and criticized. In this article, the author explains the purpose of the PDE. It is further explained that the PDE requires (1) that there be two effects that follow from the doctor's actions; (2) that one effect be intended and the other unintended; (3) that the unintended bad effect cannot be the cause of the intended good effect; and (4) that the good effect must outweigh the bad effect. The differences between intentions, beliefs, desires, and motives are explained. Screening questions about clinical intentions are proposed, and guidelines for morphine dosing that would be consistent with an intention to relieve pain and not to cause death are offered. The PDE does not relieve physicians of responsibility for their actions, but only sets conditions under which they may not be held morally culpable for the unintended side effects of actions they undertake responsibly. As an example, the use of morphine is distinguished from the use of pancuronium to treat the gasping of a patient for whom ventilator treatment is being discontinued. The PDE would permit the use of morphine, but the PDE would not permit the use of pancuronium in such a case.

Key words: Medical ethics, Double effect, Euthanasia, Narcotic analgesics.

The principle of double effect is a much maligned, much abused, and much misunderstood principle of medical ethics. Yet, if properly applied, it is a critically important moral principle for any physician who believes that morality does not depend solely on the consequences of a given intervention.

Some physicians do believe that acts are morally justified solely on the basis of the consequences. For them, no rule or duty is absolute. They do not need a principle of double effect. The right thing to do in any given situation always depends on the consequences.

But many clinicians have moral beliefs that present them with a series of principles and rules that they are told never to violate. The Ten Commandments is an example of such a set of moral rules. The Hippocratic Oath is another. Many physicians believe that they have a number of moral duties, including a duty to help patients to be cured of their illnesses and to be relieved of their symptoms, a duty to be honest with patients, a duty to preserve life, a duty to respect patients' dignity and autonomy, and others.

Those who follow moral systems with rules and duties can have a harder time in clinical practice than physicians who believe that the right thing to do depends solely on the consequences. Duties may be in conflict. There is a duty to promote the good of the patient—e.g., to relieve pain. On the other hand, there is a also a rule against killing patients, at least according to those who follow the Hippocratic precept that one must "never administer a poison to anybody when asked to do so." (1) Giving morphine to a patient who is dying because of respiratory failure is likely to hasten that death. Would this not mean that the doctor would be killing the patient by giving morphine? Would this knowledge, therefore, force a physician to abandon the duty to help the dying patient with pain relief? How does one resolve such a dilemma? The principle of double effect offers one way for helping to do so.
THE PRINCIPLE OF DOUBLE EFFECT

The principle of double effect (PDE) states that one may, in conflict situations, violate one moral rule in order not to violate another. But one cannot do so willy-nilly. The PDE sets five mandatory conditions (2):
1. There must be two effects that follow from one's action, one good and one bad.
2. The action cannot be evil in itself.
3. One must sincerely intend the good effect, not the bad effect.
4. The bad effect cannot be the cause of the good effect under one's plan.
5. The good that one foresees must be proportionately much greater than the bad that one foresees, but does not intend.

Although it sounds complex, physicians engage in this sort of reasoning intuitively all the time. For example, a physician may contemplate giving morphine to a patient who is dying because of respiratory failure. Such a physician generally fulfills all five conditions of the PDE. First, the physician clearly knows that there are two likely physiologic effects that follow from this action—pain relief and respiratory depression. The physician might even believe that these effects are mediated by different subtypes of μ receptors. Second, it would be odd for a physician to think that there would be anything intrinsically evil about injecting morphine. Third, assuming that this physician subscribes to the Hippocratic moral code, which states that physicians should not kill their patients but yet have a duty to help them (1), the physician might very sincerely intend only the pain relief, but not the death of the patient. Fourth, although it is true that death by morphine intoxication would end the suffering of the patient, this cannot be the physician's plan according to the PDE. The physician must plan to relieve pain by the direct analgesic effects of morphine. The physician cannot plan to relieve pain by way of the death caused by a rapid intravenous infusion of a lethal dose. Competent clinicians readily recognize the difference between these two plans and know how to carry out one and not the other. Fifth and finally, clinicians must judge that the direct benefits of their acts, namely the pain relief caused by the analgesic effects of morphine, constitute a proportionately much greater good in these circumstances than the bad of hastening the inevitable death of the patient. A good clinician would judge this to be the case. If so, then, according to the PDE, the physician may proceed with a clear conscience. The physician's dilemma has been resolved: the morphine can be administered and the duty to relieve suffering fulfilled without violating the duty not to kill a patient.

INTENTION: NOT BELIEF OR DESIRE

Clinicians sometimes worry that this is all specious and that anything one foresees as coming about because of one's clinical actions, or any outcome one foresees and desires, is actually intended. But the notion that intention is the same as belief or desire is overly simplistic (3).

For example, consider the fact that many clinicians every day intend to do things that they do not desire (e.g., answering pages at 2 AM). Clinicians also intend to do things that they do not believe will happen (e.g., trying against all odds to resuscitate a previously healthy 21-year-old victim of a motor vehicle accident who ends up in the emergency department pulseless and breathless with multiple traumatic injuries). Having an intention requires that one must commit oneself to bringing something about. This is not a belief or a desire. So, for example, consider the case of Karen Ann Quinlan. One may suppose that everyone believed that she would die after disconnecting her respirator. It is likely that most parties involved, motivated by a concern that her long-suffering state should end, desired that she should die after disconnecting the respirator. But this does not mean that they intended that she should die by the means of disconnecting her from the ventilator. One can easily suppose that the disconnection itself, not the death, fulfilled the intention of their action. If asked what the aim was, one could suppose that the family would readily have responded that their goal was the removal of the ventilator, which they believed to be an obstacle to death. It would seem that the intention of the act (what they were committed to bringing about by way of their act) was to have Karen off the ventilator, not to have Karen dead. As is well known, despite any beliefs or desires to the contrary, Karen Ann Quinlan began to breathe on her own after being disconnected. She survived for 10 more years.

Clinicians who want to explore their intentions in such situations ought to ask themselves the following two screening questions. These questions are far from perfectly sensitive or specific, but they can serve as a useful starting point for an honest exploration of intentions.
If, hypothetically, the outcome that you claim to foresee but not intend were to fail to come about

- How would you feel?
- What would you do?

Suppose, for example, that you were caring for a morphine-naive patient who was suffering from lung cancer. Suppose you were to consider injecting 20 milligrams of intravenous morphine sulfate over 15 minutes of careful titration and elicitation of feedback from the patient. Suppose that if you had done so, the patient were to express relief from pain but to have become somewhat somnolent with a respiratory rate slowed to 10 breaths per minute. How would you feel? Would you feel that you had failed? Would you be frustrated that the patient was still alive and still suffering from existential angst despite relief of pain? What do you think you would do? Would you next draw up a syringe filled with 50 milligrams more morphine sulfate with a plan to inject it over 1 minute? If you were sincerely to answer, “No,” to these questions, this is consistent with an intention to relieve pain and not to kill. If you were sincerely to believe that you would not plan to take further measures to try to bring about the patient’s death (the result that you claimed not to intend), this is also perfectly consistent with an intention to relieve pain and not to cause death. If you were sincere about your answers to these questions and sincere in the intention to relieve pain and not to kill, then even if it were to turn out that the respiratory rate were to have dropped to 6 and not to 10 after a slow and careful injection of 20 milligrams of intravenous morphine, and if the patient were to have died 30 minutes later, you would have satisfied...
all the conditions of the PDE, and you
would be able to proceed with a clear
conscience.

INTENTIONS ARE NOT
MOTIVES

Sometimes physicians confuse inten-
tions with motives. For example, a
physician who gives a dying patient
who has no previous narcotic exposure
20 milligrams of intravenous morphine
and a physician who gives that same
patient 1000 milligrams of intravenous
morphine may both have the same mo-
tives, but they clearly have different
intentions. Both are likely to be moti-
vated by mercy and a desire to relieve
suffering. But, one intends to relieve
suffering by causing analgesia and the
other intends to relieve suffering by
cause death. Motives start intentions
but are not the same as intentions (4).
An intention is a commitment to bring
about an event in a certain way. Mo-
tives help to explain why one has an
intention, but a motive is not an inten-
tion.

DOUSAGE, INTENTION, AND
ACTION

Physicians sometimes worry about
basing morality on intentions, in part
because intentions are so difficult to
know (5). They ask, could not a doctor
administer massive doses of morphine,
claiming to be intending only the anal-
geic effects but merely foreseeing the
lethal respiratory depressant effects?

It is true that intentions can be diffi-
cult to know. But the fact that there are
some gray areas does not mean that the
distinction between what is intended
and what is unintended is meaning-
less. As philosopher Elizabeth
Anscombe once observed, “The fact of
twilight does not mean that you cannot
tell day from night.” (6)

These worries may be most intense
in the case of a drug such as morphine.
Therefore, I would like to offer a few
rough-and-ready clinical criteria for
distinguishing between killing and
foreseeing death as a side effect when
using morphine under the auspices of
the PDE. Little is known about how
much morphine constitutes a lethal
dose, because until recently physicians
were more preoccupied with the safety
than with the lethality of morphine,
and no one has conducted controlled
clinical trials to determine how much
would be required to kill a human be-
ing. Most of the data available are,
therefore, based on retrospective anal-
yses of accidental overdoses. And fur-
ther, there is a great deal of variation
among individuals, and tolerance to
various effects of the drug develops in
individuals who have been treated with
long-term morphine therapy. Nonetheless,
 based on what is presently
known about morphine dosing (7–12), I
would propose the following rules of thumb for clinicians:

1. For morphine-naive individuals
not being treated with other sedatives
or suffering from underlying respira-
tory embarrassment, initial doses in
excess of 250 milligrams orally or 60
milligrams intravenously; rapid in-
travenous administration of morphine
(i.e., delivering a bolus in much less
than 5 minutes); and rapid repetition
of escalating doses (e.g., increasing doses
at 5-minute intervals) are all more con-
sistent with an intention to kill than to
relieve pain.

2. For individuals treated with long-
term morphine therapy at a given level
of drug tolerance, a dose that would
have been sufficient to cause the death
of the patient in the absence of the
underlying terminal condition, and at
that level of tolerance, would be pro-
scribed as independently lethal. To ad-
minister such a dose would certainly
indicate an intention to cause death.

4. Doses less than these indepen-
dently lethal doses that nonetheless
hasten the death of the patient because
of the combined effects of the drug and
the underlying terminal condition may
plausibly be consistent with intending
pain relief and not death under the
PDE. As the dose approaches the inde-
pendently lethal dose, the claim that
one intended only pain relief and not
death becomes less plausible.

4. Increasing doses given to individ-
uals who are already comatose and not
apparently capable of experiencing
pain are inconsistent with an intention
to relieve pain but not cause death.

The justification for using a massive
dose could only be that analgesic doses
have not been effective in relieving all
suffering and that what is intended is
to relieve suffering by death. One
should note, for example, that only a
minority of Dutch patients who seek
euthanasia or assisted suicide report
that the suffering they experience is
due to unrelieved pain (13). It would
not be possible for a physician credibly
to claim to have intended only pain
relief in administering 1000 milligrams
of morphine by rapid intravenous in-
fusion to a patient who had no previ-
ous exposure to morphine and no tol-
erance to the drug. Because the
massive doses of morphine in such
cases would be used to bring about the
bad outcome (death) in order to
achieve the intended good outcome
(relief from suffering), the fourth con-
dition of the PDE would be violated.

RESPONSIBILITY AND
DOUBLE EFFECT

Some commentators have expressed
worries that justifying physicians’ ac-
tions by the PDE might imply that phy-
sicians bear no responsibility for the
effects of their actions that they claim
were not intended (14).

This, however, is a misinterpretation
of the PDE. Although space consider-
ations prohibit a full explanation of
the philosophy of intentional action, it
can suffice to discuss the difference be-
tween intended consequences and side
effects (3,4). If I undertake an action
intentionally, I am responsible for the
act and for all of the consequences that
I could and should have foreseen. But
I am not always judged to have acted
immorally if some foreseen but unin-
tended consequences occur. This is
what is meant by a side effect. To say
that something is a side effect has
moral meaning. I am responsible for
the side effects that I foresee and cause.
I can only risk bad side effects for an
important reason. But if a side effect is
foreseen, yet unintended, and the ac-
tion is nonetheless undertaken for a
good reason, I am not always judged to
be guilty of having acted wrongly. The
PDE is a means of assuring that such
decisions are made responsibly.

The concept of a side effect is ubi-
quitous in clinical practice. This is how
the PDE plays its important role. If I
operate on a patient knowing that a
scar is likely, I do so intentionally and
accept responsibility for the scar as
a side effect of the operation. But the in-

88

Sulansky • Use and Abuse of the Principle of Double Effect
tention of my action is only the removal of the diseased appendix, not the scar that I can foresee as a likely side effect. I can also give morphine intentionally, knowing that it might hasten death, but the intention of my action would be pain relief and not the death of the patient.

I can apply the screening questions to test my sincerity. I would not feel frustrated if the patient were to experience pain relief but were still breathing. I would not seek alternate ways to try to cause the death of the patient. Under these circumstances, I would not be held blameworthy for giving the morphine, but I would still be responsible for making a careful decision. I should not give morphine and risk an accelerated respiratory death to treat a minor pain that could be relieved by acetaminophen.

The PDE is a means of assuring that such decisions are made responsibly. To be morally acceptable, the act must fulfill the conditions of the PDE. The third condition of the PDE requires that death not be the intention of the physician's action. The fourth condition requires that death must not be the cause of the good for which the physician aims, that is, the relief of pain. And the fifth condition requires that the reason to proceed despite the side effect must be proportionate. In this case, it is. If the patient is dying anyway, pain control would become paramount. Therefore, the use of morphine would be justified according to the PDE.

A surgeon is not judged to have behaved in a morally wrong fashion because he caused a scar in performing an appendectomy. Certainly, a surgeon could be blamed for trying to cause a scar, or for causing a scar but not performing the operation. But in most cases one can presume that it is not the surgeon's intention to cause a scar; it is not something the surgeon is committed to achieving. One who uses the PDE to make a decision is responsible for the decision and responsible for all the effects of that decision. The PDE only states that if its conditions are met, one cannot be blamed for the bad side effects that one could foresee but did not intend.

ONE PRINCIPLE AMONG MANY

Another objection to the PDE is that it sometimes seems that the right thing to do would be to bring about a bad event in order to cause a good event (i.e., doing evil in order to achieve good) (15). The fourth clause of the PDE would seem to prohibit this. Consider, for example, the amputation of a gangrenous limb. Losing a limb is bad. Yet, one could not claim that the amputation was not the cause of the good intended—the saving of the patient's life. So, it would seem as if an act so common as amputation could not be justified by the PDE.

This assessment is correct as far as the application of the PDE is concerned. The amputation could not be justified by the PDE. But this is not an objection to the PDE. The PDE is not the sole principle of medical ethics. In traditional Roman Catholic medical ethics, for example, no one would think to try to justify amputation by appeal to the PDE. These cases are covered by another principle, the principle of totality, that suggests that one may legitimately remove parts of a human being's body in order to preserve the life of that human being (15). Similarly, there are a number of other principles of this system of ethics that are relevant to medical ethics. There is a principle of cooperation governing interactions with persons who are engaged in acts that one considers immoral. There is also a distinction between ordinary and extraordinary means. Each of these applies to a different set of circumstances, and that is why it is not legitimate to criticize the PDE on the grounds that it does not cover all of these circumstances. It was never meant to do so.

AN INTERESTING EXAMPLE OF THE ABUSE OF DOUBLE EFFECT

A case was recently discussed in which an intensivist argued that the PDE justified the use of benzodiazepine sedation and pancuronium neuromuscular blockade before discontinuation of ventilator support for a conscious 78-year-old woman who was dying of complications of viral pneumonia (16). The authors were justifiably suspicious of this reasoning, but it is instructive to see precisely why this is an abuse of the PDE.

Most people would feel a bit uneasy about giving this patient pancuronium but would not feel similarly uneasy about giving morphine. The PDE can help to explain this intuitive discomfort.

The intensivist might want to claim that there were two effects of the pancuronium. There would be a good effect of preventing the patient from gasping, both for her sake and for her family's. But there would also be a bad effect—her death via respiratory arrest. Could the physician who used pancuronium rationally claim to intend only the prevention of gasping and not the acceleration of the patient's death?

I think not. This claim is no more rational than a claim that one intended only to swallow food and not to eat it. Pancuronium causes the patient not to gasp by causing her not to breathe. Causation not to breathe is killing. To legitimately apply the PDE, the bad that one foresees but allegedly does not intend cannot be the cause of the good that one intends. Neuromuscular blockade prevents gasping by preventing breathing. To prevent someone from breathing is killing. Therefore, one cannot claim to intend only to prevent gasping while not intending to cause death.

By contrast, consider the use of a therapeutic dose of morphine in this same situation. Morphine would ease her gasping. Yet it would do so not by causing complete respiratory arrest but by easing her pain and sense of respiratory distress. All of these pharmacodynamic effects of morphine would be occurring through different subtypes of opiate receptors at different locations in the central nervous system and with different dose-response curves and different kinetics. Clearly, some respiratory depressant effect is likely to occur. However, it is not necessary that complete respiratory arrest should occur in order for the patient to experience relief from the symptoms of respiratory distress. Hence, one can legitimately claim to intend one event and not the other and can apply the PDE correctly in this situation. Given that the patient is dependent on a respirator, that it is burdensome for her to continue this treatment, that the likelihood of recovery is negligible, and that the family has stated that they think the patient would deem the burdens of treatment disproportionate to the benefits, it would be legitimate to declare the treatment extraordinary and to withdraw respirator support. Once one had decided to withdraw support, one
could apply the PDE to examine the use of morphine. Each of the conditions of the PDE would be fulfilled. Morphine is not intrinsically evil. One can rationally intend to relieve respiratory distress without intending respiratory arrest. Relief from respiratory distress would not be caused by respiratory arrest. And in the situation of imminent death, the anticipated good of symptom relief would seem proportionately greater than the bad of hastening that death by the side effect of respiratory depression. The PDE would, therefore, allow the use of morphine in this setting, but not the use of pancuronium.

SUMMARY

The PDE can play an important role in clinical bioethics, but it must be used carefully. One will require a moral principle like the PDE if one believes that intentions play a critical role in ethics and that deciding whether an act is right or wrong does not depend solely on the consequences. Such physicians, facing conflict situations, must often choose to tolerate unintended side effects in order to achieve good. Considered in this light, the PDE is ubiquitous in the justification of medical practices.

The PDE has been criticized on the grounds that there is nothing special about intention. Some argue that every outcome that a physician desires or believes will result from a particular act is intended. However, this represents a very superficial understanding of the notion of intention. Intention is not the same as desire or belief. It is not the same as motive. Intention involves a commitment to bring about an event, even if one does not desire it and even if one believes that it is well-nigh impossible, no matter what the motive is.

The PDE has also been criticized because it is said illegitimately to relieve physicians of moral responsibility for the consequences of their acts. But this is a caricature of the PDE. The PDE does not relieve physicians of their responsibility for the consequences of their acts. Rather, it states under what conditions they might not be held culpable or blameworthy for the bad consequences that they foresee, but do not intend, in making a decision for which they are fully responsible.

Further, the PDE has been criticized as blocking all cases in which one causes some harm or loss in an effort to do something good. This criticism reflects a naive understanding of the role and the limits of the PDE. The PDE is not the only principle of medical morality. One needs to understand when and where to apply the PDE and how to use it properly.

Finally, the PDE has been criticized for allowing physicians to justify almost anything simply by redirecting their intentions. But intention redirection is an abuse of the PDE, not a legitimate use of the PDE. Physicians must be honest with themselves. Physicians cannot claim to intend a consequence that depends on the event that they foresee but claim not to intend.

The PDE is a principle of moral realism that is very appropriate for medical practitioners to understand. Side effects are the rule, not the exception in medical practice. Used correctly, the PDE helps physicians to navigate in a real world where it is often impossible to do any good at all for patients without risking harm. The PDE also helps to put appropriate moral limits on the effort to do good for patients. Not just anything can be justified as long as it all works out for the best. To those practitioners who believe that the end does not always justify the means, the PDE is an essential moral tool.

REFERENCES