Incidental Findings in Human Subjects Research: What Do Investigators Owe Research Participants?

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A physician-investigator conducting brain imaging research to study the pathophysiology of depression detects a suspicious finding in a healthy volunteer that suggests a possible brain tumor. Must the investigator disclose this finding to the research subject? Further, is there a duty to ensure that brain scans performed to answer research questions are evaluated clinically to identify potential health problems? If so, what in the nature of the investigator-subject relationship gives rise to such an obligation?

Investigators and Institutional Review Boards (IRBs) commonly struggle with the question of how to address incidental findings — that is, "a finding concerning an individual research participant that has potential health or reproductive importance and is discovered in the course of conducting research but is beyond the aims of the study."[1] A working group convened by the National Institutes of Health has recommended that brain imaging research studies should establish protocols for handling incidental findings.[2] However, there is little ethical guidance available to steer such efforts, and practices appear to vary widely.[3] Although several articles have catalogued the ethical dilemmas surrounding incidental findings,[4] with the exception of seminal work by Henry Richardson and Leah Belsky on the more general topic of researchers' obligations to provide ancillary clinical care to research subjects,[5] systematic ethical analysis of the incidental findings problem is lacking.

In this article, we seek to describe an ethically defensible response to incidental findings in human subjects research, grounded in an appropriate conception of the investigator-subject relationship. To focus our analysis, we consider the simple case of the relationship between an investigator and a healthy volunteer, where there is no concurrent therapeutic physician-patient relationship that might provide an alternative source of obligations regarding incidental findings. Further, we consider what the investigator's "default" obligations should be when no explicit promises have

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been made regarding disclosure of such findings, nor has the subject expressed any preferences concerning disclosure.

One conceivable position on this question is that investigators have no default obligations, only duties of promise-keeping that arise when they make particular representations to subjects. This view is grounded in the notion that the researcher-subject relationship is essentially contractual in nature, as opposed to fiduciary or professional. As such, the rights and obligations that inhere in the relationship are defined by the "contracts" the parties execute — the informed consent form and surrounding interaction — and the implied warranty of good faith and fair dealing that accompanies them. This is a legalistic view, and a minimalist one in the sense that few implicit duties are presumed. Under this view, unless incidental findings fall within the terms of this contract, investigators are under no obligation to respond to them.

We reject this position in favor of the view that investigators do have limited obligations to inform subjects of incidental health-related findings. There are at least three potential sources for such obligations, which we consider in turn. First, if the investigator (or another on her research team) is a physician, these obligations might derive from the nature of a physician's professional duties. Second, they might derive from duties rooted in general beneficence, independent of any professional or other relationship between the parties. Finally, and most persuasively, they might derive from the nature of professional responsibility generally or professional responsibility in the investigator-subject relationship. Considering these possibilities, it turns out, sheds light not only on investigators' duties regarding incidental findings, but more fundamentally on the nature of the investigator-subject relationship itself.

Physicians' Professional Duties

A natural place to begin an exploration of investigators' obligations regarding incidental findings is with physicians' responsibilities to patients during routine medical care. Recall that we are focusing on research in which the investigator does not have a physician-patient relationship with the subject. Nonetheless, most clinical investigators, even those engaged in research with healthy volunteers, are physicians. It is tempting to argue that physicians do not shed their medical professionalism when they shift to research activities, and therefore that their professional responsibilities extend to the research setting as well. Additionally, even if we reject the claim that physicians' duties extend beyond therapeutic physician-patient relationships, it is helpful to consider whether any features of such relationships are preserved in the investigator-subject context, and whether those features help ground investigators' duties to respond to incidental findings.

In invoking the physician-patient relationship, we face the question of whether health-related incidental findings are a meaningful construct in clinical medicine. Certainly, physicians providing clinical care may discover unexpected abnormalities that are unrelated to patients' complaints. And in conducting diagnostic studies, physicians may detect suspicious findings unrelated to the problem being investigated.[6] But these findings are hardly incidental to the practice of medicine. Especially in primary care, it would seem that the concept of incidental health-related findings has no application, as the general practitioner assumes responsibility, directly or through referral, for all aspects of the patient's health.

Even if the concept of incidental findings makes little sense in primary care, might it be relevant to specialty care? Consider an orthopedic surgeon who detects signs of a cardiac problem during an initial physical exam of a patient who complains of hip pain. Is this an incidental finding that the surgeon can ignore because it falls outside the domain of his specialty? Or does he have a responsibility to disclose the finding to the patient and to advise follow-up with an appropriate practitioner? Whether or not we choose to call these findings "incidental," the surgeon undoubtedly has a responsibility to tell the patient that there is a potential problem that deserves medical attention from a qualified practitioner. Thus, specialists in the context of patient care may confront findings or suspicious signs of health problems outside the domain of their specialties, but to classify these findings or suspicious signs as beyond the scope of their duties suggests a dubious fragmentation of medical responsibility. The overall health of the patient is of primary concern to all physicians engaged in patient care.

What aspects of the physician-patient relationship ground the physician's responsibility to address findings that fall outside the scope of the patient's complaint or even of the specialist's professional competence? At least four features of the relationship are relevant. First, and most important, in entering into a relationship with a patient, the physician undertakes to act in the patient's best interests. The duties of therapeutic beneficence and nonmaleficence are bedrock principles of medical ethics that binds all physicians engaged in patient care.[7]

Second, the patient likely expects that the physician will disclose all health-related findings, an expectation that might lead to "reliance" behaviors on the patient's part — that is, the patient may rely, to his detriment, on

the physician's decision to remain silent. For example, consider a bicycle accident victim whose emergency room physician orders a chest X-ray to check for lung injury. The film shows no sign of trauma to the chest, but the physician notices a mass in her lung, and says nothing. The patient might subsequently decide not to seek care from another physician for a chronic cough, believing that the emergency room physician would have told her if anything of potential significance had been seen on the chest X-ray. In this situation, nondisclosure of the incidental finding actually violates the ethical principle of nonmaleficence, because the physician's silence has made the patient worse off than if she had never encountered the physician at all.

Third, because the physician has superior knowledge and expertise, she is in a unique position to identify and interpret an incidental finding. This is particularly true when the incidental finding is undetectable by the patient, but may also be the case for symptomatic conditions the clinical significance of which a reasonable patient may not understand — for instance, a suspicious mole. Finally, in many cases, by acting on the information, the physician can with little effort prevent serious harm to the patient.

Although these factors provide a compelling argument that the therapeutic physician-patient relationship involves a duty to disclose incidental findings, they do not establish a useful model for considering the obligations of an investigator, because the relationship between investigators and healthy subjects differs in a crucial respect from the traditional physician-patient relationship. (Clinical trials, in which the investigator often serves simultaneously as the patient's treating physician, present a different case.) Unlike the physician, the investigator has not undertaken to act in the subject's best interests when entering into the relationship; she has not taken on a fiduciary role.[8] Rather, she has agreed to minimize risks to the subject, as well as to maximize benefits to the extent consistent with successfully obtaining an answer to the study question and with prudent use of the available resources. Because benefit to the subject is not the central purpose of the investigator-subject interaction, it cannot serve as the source of investigator responsibilities regarding incidental findings. Even though the other three hallmarks of the physician-patient relationship may be preserved in the investigator-subject relationship, in our view, the absence of a fiduciary commitment on the part of the investigator makes medical professionalism an inapt model for grounding investigator responsibilities to disclose incidental findings in research.

General Beneficence

If physicians' responsibilities to patients are not a useful model for researchers' obligations to subjects, then perhaps the source of an investigator obligation to disclose incidental findings can be found in obligations of general beneficence.[9] What does one person owe to another who is in need of help, independent of any special relationship between them? What do these duties imply for researchers?

If physicians' responsibilities to patients are not a useful model for researchers' obligations to subjects, then perhaps the source of an investigator obligation to disclose incidental findings can be found in obligations of general beneficence. What does one person owe to another who is in need of help, independent of any special relationship between them? What do these duties imply for researchers?

T. M. Scanlon[10] identifies two dimensions of general beneficence: the rescue principle and the helpfulness principle. The rescue principle states that "if you are presented with a situation in which you can prevent something very bad from happening, or alleviate someone's dire plight, by making only a slight (or even moderate) sacrifice, then it would be wrong not to do so."[11] Several features of Scanlon's scenario are worth noting, including the urgency of the situation, the severity of the outcome if nothing is done, the ability of the potential rescuer to prevent that outcome, and the fact that only modest effort or sacrifice on the rescuer's part is required. These features are present for a subset of incidental findings in research, arguably including the example of the suspected brain tumor in the neuroimaging study with which we began. Thus, assuming a general duty of rescue, we need look no further to ground the investigator's duties to address at least some incidental findings in research.

However, most incidental findings in research are probably not sufficiently serious, urgent, and easily treatable to trigger obligations under the rescue

principle. In considering the investigator's obligations to address incidental findings that do not satisfy these criteria, we turn to Scanlon's second principle of general beneficence, the principle of helpfulness. He illustrates this with the following case:

> Suppose I learn, in the course of conversation with a person, that I have a piece of information that would be of great help to her because it would save her a great deal of time and effort in pursuing her life's project. It would surely be wrong of me to fail (simply out of indifference) to give her this information when there is no compelling reason not to do so. It would be unreasonable to reject a principle requiring us to help others in this way (even when they are not in desperate need), since such a principle would involve no significant sacrifice on our part.[12]

Do these two principles do all the needed moral work in determining whether investigators have an obligation to respond to incidental findings? We think not. One problem is that it is somewhat unclear what the scope and limits of the two principles are when taken together. Consider, for example, the situation of a physician-investigator who is riding on the subway. She notices that the passenger across the aisle has a skin lesion that, in her clinical judgment, appears potentially cancerous. Does she have a duty grounded in general beneficence to inform the passenger? Suppose she decides to remain silent. Would the passenger, if he learned of the investigator's suspicions, be justified in feeling that he was wronged by her failure to warn?

Although this case arguably lacks sufficient urgency to fall under the rescue principle, Scanlon's helpfulness principle might provide an alternative source for a duty to intervene. This case differs in at least one important way, however, from the scenario Scanlon cites to illustrate the latter principle. In Scanlon's example, the person who has a duty to help is in conversation with the person who might benefit from help. The conversation may signify that the parties have at least a minimal relationship with one another. In contrast, in our train case, the investigator and passenger are strangers. Indeed, the situation is such that the passenger may view the investigator's intervention as intrusive. A public opinion survey administered in four European countries found that only about a third of respondents would condone intervention in a very similar scenario.[13]

In contrast, intervention might be more appropriate if the parties are in a relationship with one another, for a variety of reasons: there may be precedent in the relationship for performing acts of caring or vigilance toward one another, they may trust and respect one another, they may have established themselves as persons who generally act out of good motives, and so on. The more intimate their acquaintance, the more likely these elements are to be present in the relationship. But even casual acquaintances stand in a quite different position than strangers on a train. Even if the investigator happened to engage in a brief, casual conversation with the fellow passenger with the suspicious skin lesion, it is not clear that the general duty of helpfulness would require an expression of concern about the potential medical problem. As a result, we suggest that although intervening might be a morally laudable (if socially awkward) thing for our investigator to do, she would not commit a wrong in declining to intervene in these circumstances. Moral indignation would not be an appropriate response to the investigator's inaction.

If our intuition in this case — that the investigator has no duty to inform her fellow passenger of her concern — is correct, then general beneficence alone is insufficient as a basis for an investigator's duty to inform another of a serious health-related concern unless the conditions triggering the rescue principle are met. In asking whether investigators have an obligation to respond to incidental findings, and in seeking to justify them, we must therefore turn to a consideration of the nature of professional responsibility in the investigator-subject relationship.

Beneficence in the Context of Professional Relationships

The concepts of incidental findings and ancillary care presume some sort of professional relationship in which the findings are incidental or the care is ancillary. By a "professional," we mean a person who possesses specialized knowledge, whose work involves the frequent exercise of discretion, and who can claim membership in a learned profession with a regulatory structure and ethical code of conduct.[14] The hallmarks of a professional relationship are that the professional is entrusted by another with access to private information and/or other domains of individual privacy, such as the home or the body. Professional relationships are often, though not always, characterized by a service role, and may, but do not necessarily, involve a fiduciary relationship.

It is reasonable to regard research as a professional activity notwithstanding the fact that researchers cannot be viewed as having a helping or service role vis-à-vis individual subjects. Researchers possess the core qualities of professionals. Additionally, the researcher-subject relationship involves investigator access to and entrustment with subjects' private information and their bodies, pursuant to subjects' consent to participate in the research study.

What should a professional do when in the course of work, he obtains private information about a client (generally refering to the person with whom the professional is in a professional relationship) that bears on the client's interests but is outside the scope of the relationship? As noted previously, one response is to claim that the professional has no responsibility in this situation, precisely because the incidental information falls outside the scope of the professional relationship. This view suggests that responding to incidental findings is not part of the "contract" that governs professional work. This minimalistic ethical stance, however, seems wrong. Indeed, it would seem wrong even if there were a formal contract or quasi-contract (such as an informed consent document) stating that the professional refuses to accept responsibility for responding to any incidental findings.

To explain why it is wrong, it helps to view the relationship from the client's perspective, focusing here on health-related information. Everyone is vulnerable to disease; we are especially vulnerable to the effects of health conditions that are difficult for us to detect, either because they are asymptomatic or because their symptoms do not clearly indicate a problem that warrants medical attention. If in the course of a professional relationship, a professional detects a sign of a potentially serious health problem but decides not to reveal this to the client, then she ignores the client's vulnerability and the chance to prevent harm. Not only does this seem wrong, but it is arguably a role-specific wrong to the client. It is important to note that responsibility to respond appropriately to the incidental information is not solely a matter of general beneficence, which as we have seen lacks specificity at least in less serious or urgent cases. Rather, the professional's privileged access to private information in the context of a consensual, professional relationship, together with his or her competence to identify the potential significance of this information, trigger and give shape to obligations to respond to incidental findings. We believe this analysis has direct applicability to investigators who discover clinically significant incidental findings concerning research subjects.

We have framed this responsibility in terms of a client or subject's interest in health, but other interests of a client in a professional relationship might ground obligations to disclose an incidental finding. To take a mundane example, a plumber asked to make a repair in a homeowner's basement might detect subtle but serious signs of termite infestation. This incidental finding involves access to private information — the plumber has no right to observe the condition of the homes where he works without the homeowners' consent. The plumber could take the stance that such incidental findings, being outside the scope of contracted work, are none of his business. However, in light of his professional relationship to the homeowner, his consensual access to private information and observations about the home, and his superior competence to recognize the termite problem, the plumber has thus an obligation to inform the homeowner of the problem.

Certainly, the concept of entrustment is relevant to the case of clinical research. Subjects trust investigators to avoid exposing them to undue risks of harm, and entrust them with private information in the expectation that the information will be held in confidence and will be used for beneficent rather than maleficent purposes.

The example of the plumber indicates that there is nothing unique to clinical research that gives rise to a professional responsibility to respond to incidental findings. Closer to the arena of clinical research, obligations to respond to incidental findings can also pertain to non-standard medical professional roles. For example, a physician working for a company who performs physical examinations to determine suitability for employment may detect signs of health problems that ought to be communicated to the job applicants, even though no conventional doctor-patient relationship exists. Or consider the situation in the legal case of *Spaulding v. Zimmerman*,[15] involving a physician who was hired by an insurance company to examine Spaulding following an automobile accident. Spaulding was seeking compensation for rib fractures, con-

cussion, and fractured clavicles. The physician, who had no other relationship with Spaulding, detected signs of an aortic aneurysm. He reported this condition to the insurance company, but did not disclose it to Spaulding. This constitutes an incidental finding that our ethical analysis suggests the insurance company physician should have revealed.

These cases of physicians practicing outside the ordinary context of patient care share three key features with the situation of the clinical investigator conducting research with healthy volunteers: (1) there is a professional (though not a standard doctor-patient) relationship; (2) there is privileged access to private information obtained legitimately via the subject's consent to enter the relationship; and (3) information bearing on the health of the subject is discovered that is incidental to the primary goal of the relationship. These three features, taken together, give rise to a duty to respond to incidental findings.

If a subject has explicitly indicated that she does not want to receive incidental findings, for instance, this preference surely should be honored. Indeed, including such an "opt-out" provision in a research informed consent form seems an attractive mechanism for clarifying the subject's expectations and avoiding potentially harmful "reliance" behaviors.

The responsibility to respond to incidental findings might be understood as a specification of Scanlon's principle of helpfulness within the context of professional relationships, as distinct from a general obligation of beneficence owed even to strangers. It might usefully be seen as an answer, in the specific setting of clinical research, to a general question: when is B, who is vulnerable to harm from an undetected problem, entitled to the help of A, where A has the expertise to identify the fact that B has a potential problem? We argue that if (but not only if) A is in a professional relationship with B, such that A has consensual access to private information bearing on the welfare of B, then A has a limited obligation to intervene to help B based on incidental findings outside the scope of the contractual professional relationship. In contrast, when A and B are strangers, unless the conditions that trigger the rescue principle apply, the fact that A detects a potential problem pertaining to B does not give rise to an obligation to help. Given the three features described above, the investigator has a duty to help research subjects by responding appropriately to incidental findings that emerge in the course of research.

Comparison with the Partial Entrustment of Health Model

Our ethical analysis differs significantly from the account of ancillary care in research developed by Richardson and Belsky[16] in the way that responsibility for incidental findings is grounded. In assessing responsibilities for ancillary care, Richardson and Belsky focus on the specific nature of the relationship between investigators and research subjects, locating the role of the clinical investigator as intermediate between that of a "mere" scientist engaged in experimentation with human subjects and that of a physician practicing medicine. They present a "partial entrustment" model of clinical research, under which research subjects tacitly entrust a dimension (but not the whole) of their health to the discretion of clinical investigators when they consent to participate in research. It is this partial entrustment of a subject's health that gives rise to investigators' duties of ancillary care, including the duty to respond to incidental findings. Richardson and Belsky posit that the scope and strength of the ethical obligation will vary from case to case depending on the vulnerability of the subjects, their degree of dependence on the researchers, the extent of their uncompensated risks or burdens, and the intensity and duration of the researcher-subject relationship.[17]

Certainly, the concept of entrustment is relevant to the case of clinical research. Subjects trust investigators to avoid exposing them to undue risks of harm, and entrust them with private information in the expectation that the information will be held in confidence and will be used for beneficent rather than maleficent purposes. Indeed, as the plumber case shows, entrustment with private information is a generic feature of professional relationships, and is not specific to the investigator-subject or health-related contexts. Nevertheless, because clinical research does not aim at promoting the health of research subjects, the notion of (even partial or limited) entrustment of *health* fits the nature of the activity poorly.

We instead derive the responsibility for addressing incidental findings in research from the investigator's

consented access to private health-related information in the context of a professional relationship. Privileged access to this information and the competence to interpret it, or at least to detect that there is a potential problem that needs attention, plus the vulnerability of the subject to harm if the information is not disclosed, give rise to the moral responsibility.

With respect to the issue of *assigning* responsibility for incidental findings, in our view the distinctive nature of the relationship between a clinical investigator and research subject is not determinative. Richardson and Belsky[18] suggest that if investigators are seen as "mere" or "pure" scientists, then they have no ancillary care responsibilities, and thus no duty to respond to incidental findings. We disagree. A strictly scientific relationship between an investigator and a research subject will involve responsibility with respect to incidental findings if the three key features of professional relationships, discussed above, are present. Moreover, we believe that there are good reasons for seeing clinical investigators solely as scientists, though we do not argue for that view here.

Despite these differences, our analysis to a large extent converges with that of Richardson and Belsky in its practical implications regarding the scope and limits of investigators' duties to inform subjects of incidental findings. We diverge from their position, however, with respect to the question of whether investigators must invest resources in actively seeking out incidental findings. Richardson and Belsky argue that "[f]unctional brain imaging researchers…generally have a responsibility to do diagnostic readings on brain scans and to follow up appropriately."[19] Below, in discussing the limits of duties to respond to incidental findings, we dispute this conclusion if it means that such investigators must engage radiologists, outside the scope of the research, to ensure expert clinical review of brain scans of research subjects.

The Scope and Limits of an Obligation to Respond to Incidental Findings

How should we define the boundaries of investigators' obligations with respect to incidental findings? We do not attempt a systematic answer to this question, but instead briefly highlight a few points that deserve attention.

One question is whether the duty to disclose applies with equal force to all incidental findings that have any potential clinical significance. We think not. Incidental findings in research range along a spectrum from those requiring immediate disclosure and medical follow-up, to those whose disclosure will probably be more helpful than harmful, to those whose disclosure is likely to impose more burdens and harms than benefits. Of course, there may be uncertainty about where a given incidental finding falls along the spectrum. As in many clinical situations, investigators need to be concerned about two types of error in assessing incidental findings: (1) the false-positive error of reporting a finding that turns out to be of no clinical significance and (2) the false-negative error of failing to report a finding linked to a serious health problem. This makes incidental findings a matter of both risk and benefit. Disclosing incidental findings carries the risk of distress in the subject, the risk of a false-positive finding, and the risk of physical harm from procedures to diagnose and (in some cases) treat the putative problem.[20] However, disclosing incidental findings also carries the potential benefit of obtaining medical intervention to correct a health problem that may be dangerous or adjusting life plans in light of an untreatable condition.[21] Once a basic responsibility to disclose at least some incidental findings to subjects is acknowledged, deciding where each incidental finding falls on this spectrum is one of the principal difficulties that investigators and IRBs inevitably face.

It might be objected, however, that framing the problem as a risk-benefit analysis on the part of the investigator and IRB begs an important procedural question: Who should decide? What gives the investigator, research team, or even the IRB the right to decide whether a suspicious finding warrants disclosure to the research subject? An alternative approach might argue that respect for the autonomy of the research subject dictates that the subject, not the research team, should have the discretion to decide whether or not an incidental finding is disclosed.

If a subject has explicitly indicated that she does not want to receive incidental findings, for instance, this preference surely should be honored.[22] Indeed, including such an "opt-out" provision in a research informed consent form seems an attractive mechanism for clarifying the subject's expectations and avoiding potentially harmful "reliance" behaviors. We have argued in favor of a default obligation to disclose incidental findings but believe the subject in a research relationship should be able to contract around it, although empirical research suggests that few subjects would choose not to receive findings.[23]

In the absence of an expressed preference not to receiving incidental findings, the autonomy-oriented view would suggest that once a finding rises to the level of being considered as possibly indicative of a health problem, it should be offered to the subject, who is entitled to decide whether or not she wants to seek medical follow-up. Furthermore, this

view might draw upon the argument that investigators have a responsibility to offer to provide individual research results to subjects.[24] However, there exists an important difference: individual research results are anticipated, not incidental. They concern the primary research data — the individual subject's contribution to the research. While respect for persons supports offering individual research results in many circumstances, we do not see this principle as requiring disclosure of incidental findings regardless of their clinical significance. More significantly, the whole point of inquiring into the responsibilities of investigators with respect to incidental findings concerns the scope of a duty to help or to prevent harm, bringing it squarely under the principle of beneficence. If there is a good reason to think that disclosing an incidental finding will cause burden or harm that is not outweighed by the prospect of benefit, then such a finding should not be disclosed. A concern for autonomy should not trump beneficence in this context.

A second important question about the boundaries of researchers' obligations is whether they have a responsibility to take affirmative steps to look for incidental findings — for example, by arranging for clinical examination of all research brain scans by radiologists. In our view, the fact that there is a duty to respond to an incidental finding that happens to emerge in the course of research does not entail a duty to actively seek out incidental findings. Indeed, the very concept of incidental findings suggests that they are unrelated to the primary professional responsibility of scientific investigation. Investigators are responsible for conducting research according to a scientific protocol, not for promoting the health of research subjects. An affirmative responsibility to seek incidental findings goes beyond the ethical obligations inherent in the investigator-subject relationship.

A similar analysis applies to the question of whether researchers' obligations are limited to disclosure, or also extend to providing follow-up medical care to subjects or assisting them in obtaining appropriate follow-up elsewhere. This is a particularly salient issue when a subject population is known to have a high rate of uninsurance or underinsurance,[25] or when the study takes place in a setting where the local standard of care cannot adequately address the subject's incidentally discovered health condition. Though perhaps praiseworthy, providing nonemergency follow-up care is not an obligation that arises from the nature of the researchers' professional relationship with subjects. However, to the extent that researchers can provide assistance to subjects in obtaining follow-up care with little effort — for example, by informing them of what sort of follow-up might be beneficial and providing referrals — they should do so. Subjects' vulnerability and the principle of helpfulness support such a rule. Additionally, it serves the principle of beneficence because subjects will likely experience less distress when a finding is disclosed along with these supports.

Even "pure" scientists can and should advance research subjects' well-being and respect their autonomy by making appropriate disclosures of potentially significant incidental findings.

Investigators and research institutions may, of course, decide to go further than is ethically obligatory when confronted with incidental findings. A potential ethical concern in doing so, however, is that this policy may promote the "therapeutic misconception" among research subjects — that is, the disposition to believe that research studies as a whole and specific research procedures in particular are designed to provide personal medical benefit.[26] Accordingly, a policy, for example, of routine clinical evaluation of brain scans of research subjects may promote unrealistic expectations about what research participation involves, thus compromising researchers' ability to obtain true informed consent. Affirmative investigation of potential incidental findings and accepting responsibility for providing clinical follow-up also raise issues of cost and burden to the research enterprise, which we examine below.

As a general principle, the scope of the responsibility for incidental findings should be assessed in light of the potential impact on the primary mission of research, which is to promote socially valuable, generalizable knowledge. Because investigators have an obligation of appropriate disclosure of incidental findings that are detected in the course of research, the resources necessary to fulfill this duty should be expended. Affirmative efforts to seek out incidental findings or provide further diagnostic or therapeutic services, however, are ethically discretionary because they fall outside of the obligations arising from the professional relationship. In deciding whether to offer such discretionary services to subjects, researchers should consider the opportunity costs of investing resources for this purpose, together with the potential risks and benefits for subjects of the additional services.

Admittedly, research policies that do not mandate routine clinical evaluation of results from research procedures will risk some potentially dangerous health problems that could have been detected going unnoticed. Research institutions will need to weigh competing ethical considerations regarding the scope and limits of responsibilities relating to incidental findings. Whereas failure to look for incidental findings would constitute malpractice for radiologists engaged in medical practice, we contend that the duty of investigators is more limited, owing to the nature of clinical research as distinct from medical care.

Conclusion

Considerations of general beneficence along with the normative structure of professional relationships jointly ground a duty of investigators to respond to incidental findings that emerge in the course of clinical research. This obligation to respond to incidental findings does not, however, entail an obligation to actively seek out incidental findings through routine clinical review of research data or to provide follow-up clinical care.

The ethical tightrope that researchers and ethicists walk in defining the scope and limits of investigators' obligations with respect to incidental findings — a task we have left unfinished — is to fulfill obligations of beneficence, as it is understood in the research context, while not going so far as to contribute to the therapeutic misconception. The obligations that arise from professional relationships in research are different from those that arise from clinical-care relationships, and these relationships should not be conflated. At the same time, even "pure" scientists can and should advance research subjects' well-being and respect their autonomy by making appropriate disclosures of potentially significant incidental findings.

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16. See Belsky and Richardson ("Medical Researchers' Ancillary Clinical Care Responsibilities"), *supra* note 5; Richardson and Belsky ("The Ancillary-Care Responsibilities of Medical Researchers"), *supra* note 5.
17. See Belsky and Richardson ("Medical Researchers' Ancillary Clinical Care Responsibilities"), *supra* note 5.
18. See Richardson and Belsky ("The Ancillary-Care Responsibilities of Medical Researchers"), *supra* note 5.
19. *Id.*, at 32.
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