For Clinicians: Incidental and Secondary Findings

In December 2013, the Presidential Commission for the Study of Bioethical Issues (Bioethics Commission) released its report, *Anticipate and Communicate: Ethical Management of Incidental and Secondary Findings in the Clinical, Research, and Direct-to-Consumer Contexts*. The report outlines the types of findings that can arise from various tests and procedures in a variety of contexts, and makes 17 recommendations for the ethical and professional management of such findings.

This primer was designed to help clinicians understand and implement the Bioethics Commission's recommendations regarding how to manage incidental and secondary findings ethically in the clinical setting. Clinicians can use it to aid ethical decision making and to address common questions about incidental and secondary findings and their ethical management. In addition, the final page of this primer provides a list of considerations to help clinicians evaluate whether they have prepared fully for the management of incidental and secondary findings. Please see *Anticipate and Communicate* for further reading on the Bioethics Commission's analysis and recommendations (Executive Summary, pp. 2-20 and Chapter 4, pp. 53-73). This primer and the list of considerations are not derived from regulations. Rather, the primer reflects the Bioethics Commission's recommendations regarding the ethical management of incidental and secondary findings.

Clinicians should have procedures in place including:

- clear informed consent processes and communication strategies that convey the plan for managing incidental findings;
- use of tools to engage in shared decision making with patients; strategies for effective communication about the risks associated with incidental findings and their follow-up;
- selective diagnostic testing to minimize the likelihood of incidental findings; and
- an awareness and understanding of existing clinical guidance for the management of incidental and secondary findings.

Clinicians can find further guidance regarding these elements below.

FREQUENTLY ASKED QUESTIONS

1. What are incidental and secondary findings?

Incidental findings traditionally are defined as results that are outside the original purpose for which a test or procedure was conducted. These are distinct from *primary findings*, which are the results that are actively sought as the primary target of a test or procedure.

Incidental findings can be either "anticipatable" or "unanticipatable." An *anticipatable incidental finding* is one that is known to be associated with a test or procedure. Anticipatable incidental findings need not be common or even likely to occur—their defining characteristic is that the possibility of finding them is known.

Unanticipatable incidental findings include findings that could not have been anticipated given the current state of scientific knowledge. Practitioners cannot plan for these types of findings specifically. However, they can consider in advance what they might do if a particular kind of unexpected finding arises, for example, one that could be actionable or lifesaving.

A *secondary finding*, by contrast, is not the primary target of the test or procedure; rather, it is an additional result actively sought by the practitioner. Secondary findings might be deliberately sought when doing so is recommended by an expert body or by a consensus of practitioners. The following table provides examples of each type of finding.

Bioethics Commission Classification of Individualized Results of Medical Tests

TYPE OF RESULT DISCOVERED	DESCRIPTION	EXAMPLE
Primary Finding	Practitioner aims to discover A, and result is relevant to A	In a child with unknown vaccine history, a test done to determine a child's immunity status before the chickenpox vaccine is administered
Incidental Finding: *Anticipatable*	Practitioner aims to discover A, but learns B, a result known to be associated with the test or procedure at the time it takes place	Discovering misattributed paternity when assessing a living kidney donor and potential recipient who believe they are biologically related
Incidental Finding: *Unanticipatable*	Practitioner aims to discover A, but learns C, a result not known to be associated with the test or procedure at the time it takes place	When a DTC genetic testing company identifies a health risk based on a newly discovered genetic association not knowable at the time a previous sample was submitted
Secondary Finding	Practitioner aims to discover A, and also actively seeks D per expert recommendation	ACMG recommends that laboratories conducting large-scale genetic sequencing for any purpose should actively look for variants underlying 24 phenotypic traits

Source: Presidential Commission for the Study of Bioethical Issues (PCSBI). (2013, December). *Anticipate and Communicate: Ethical Management of Incidental and Secondary Findings in the Clinical, Research, and Direct-to-Consumer Contexts.* Washington, DC: PCSBI, p. 27. Note: DTC = direct-to-consumer, ACMG = American College of Medical Genetics and Genomics.

2. What are some of the tests or procedures that could give rise to incidental and secondary findings?

A variety of tests and procedures can give rise to incidental and secondary findings. Examples include:

- **Large-Scale Genetic Sequencing:** Genetic sequencing is the analysis and ordering of the billions of base pairs—the As, Ts, Cs, and Gs—that make up the human genome. Large-scale genetic sequencing techniques include whole genome sequencing, whole exome sequencing, and other next-generation genomic analyses. Because of the large number of base pairs sequenced and potentially analyzed, large-scale genetic sequencing has the potential to yield large numbers of incidental and secondary findings. While some variants discovered during large-scale genetic sequencing reveal clinically relevant information, much of the data produced are of unknown or uncertain medical value. In addition, incidental and secondary findings that arise in genetic sequencing also can have implications for biologically-linked family members.

- **Testing of Biological Specimens:** Analysis of biological specimens such as blood, urine, or bodily tissues can be a source of incidental or secondary findings. Incidental and secondary findings arising from blood and tissue testing could definitively indicate a health issue of concern, or could require a series of additional diagnostic tests to determine the health implications, if any, of the result. For example, a clinician might order a metabolic panel to assess kidney function, but the laboratory results might reveal an incidental finding of liver dysfunction.

- **Imaging:** Medical imaging includes magnetic resonance imaging (MRI), computed tomography (CT) scans, X-rays, neuroimaging, and ultrasounds, among others. The images produced provide visualization of an entire field of study and can give rise to incidental and secondary findings in areas outside the area of diagnostic interest. For example, scans of the abdomen and pelvis can include images of the kidneys, liver, adrenal glands, and pancreas, only one of which might be the organ of interest to clinicians.

3. What are a clinician's ethical and professional responsibilities when conducting tests and procedures likely to give rise to incidental and secondary findings?

Clinician's should inform patients about the likelihood of incidental and secondary findings that might arise from a particular test or procedure. Providing this information in advance enables a patient to decide whether and how to proceed. It facilitates trust and shared decision making, and can help decrease anxiety and confusion about results.

Informed Consent

Clinicians should describe to their patients the incidental findings likely to arise or the secondary findings to be sought from the tests and procedures conducted, and the plans for disclosing and managing these findings. Once clinicians discover and disclose an incidental or secondary finding, they must communicate with their patients about options for follow-up. Clinicians should convey clearly to patients the possible outcomes of investigating an incidental finding, the possibility of discovering additional incidental findings, and the potential benefits and risks of both pursuing and not pursuing the finding. When done properly, the informed consent discussion need not be particularly time-consuming, and could prevent future testing and patient anxiety.

Shared Decision Making

The clinician-patient relationship is a fiduciary one built on trust and dependency, and should include shared decision making. Clinicians should give patients enough information so that they understand their options. Clinicians should encourage patients to ask questions, state reservations, and express preferences about the return and management of incidental and secondary findings. One of the arts of clinical communication is to distinguish and focus on the medical information central to the particular clinical encounter. For incidental findings that are of uncertain significance or for which disclosure is unlikely to benefit patients, clinicians can exercise professional discretion in deciding what level of detail, if any, to disclose while still demonstrating respect for patients' self-determination.

Clear Communication

Clinicians should consider incorporating graphs and other visual displays to enhance patient comprehension of risk in medical decision making. Accurate graphical displays of numerical and probabilistic health information can assist patients in accessing, processing, interpreting, and acting on numerical health information. It is also critical that clinicians use relevant and understandable numerical evidence to support shared decision making; for example, clinicians should describe patients' absolute risk whenever possible, rather than or in addition to relative risk.

Clinical Judgment

Clinicians can minimize the likelihood of incidental findings by engaging in selective diagnostic testing. They can do this by emphasizing thorough communication with patients to better understand symptoms and help narrow the list of potential diagnoses before ordering diagnostic tests. In this way, clinicians can use diagnostic tests to confirm or eliminate specific possible causes of symptoms. Medical educators, both in the classroom and clinic, should cultivate "diagnostic elegance" and "therapeutic parsimony" among practitioners—ordering and conducting only tests and interventions necessary for addressing health concerns related to their patient's medical history and clinical status.

The following table of ethical principles and their application to incidental and secondary findings can help clinicians determine their ethical responsibilities.

Ethical Principles in the Clinical Context

Principle	*Definition*	*Application*
Respect for Persons	This principle recognizes the fundamental human capacity for rational self-determination.	This principle helps ensure that patients are sufficiently informed about tests and procedures to make health care decisions that are consistent with their values and beliefs. Clinicians, acting in accordance with a patient's best interest and expressed wishes, must use professional judgment to provide information that supports an individual's ability to make medical care decisions.
Beneficence	This principle calls on professionals to take action to ensure the wellbeing of others. Its corollary, non-maleficence, requires not imposing harm on others.	Clinicians, whose expertise makes them more capable of offering help and therefore more responsible for providing it, have a fiduciary duty to act in a patient's best interest. Clinicians must consider whether the risk of harm of pursuing an incidental finding is greater than the risk that the finding presents in the first place.
Justice and Fairness	This principle requires fair and equitable distribution of benefits and burdens across society.	The principle of justice and fairness requires that patients with incidental or secondary findings receive resources appropriate to the medical priority of their needs and cautions against using health resources in a profligate manner or without considering other health priorities. Best practices that encourage the responsible use of tests and procedures can help clinicians manage health care resources effectively and efficiently.

4. What information is available for making decisions about the appropriate management of incidental and secondary findings?

Evidence-based practice guidelines can provide information about the findings likely to arise during common tests and procedures, and the ways in which clinicians can best manage these findings.

Many professional organizations—including the American College of Medical Genetics and Genomics, the American Medical Association, the American Cancer Society, the American College of Preventive Medicine, and the U.S. Preventive Services Task Force—have developed guidelines delineating the circumstances under which practitioners should return particular findings. Groups have also proposed approaches for categorizing incidental findings that arise in research.

Guidelines developed within medical specialties should elucidate the types of incidental findings that might arise in common tests and procedures, findings that should be actively sought as secondary salient features that might indicate a serious problem warranting

immediate follow up, factors that indicate cause for potential concern that should be observed, and relevant features that might denote a lack of medical significance.

Considerations for Ethical Management of Incidental and Secondary Findings

- Consider various incidental and secondary findings that can arise from the test or procedure that is being conducted.
- Communicate with the patient about the types of findings that might arise, and ascertain patient preferences about disclosure.
- Develop a plan for managing incidental and secondary findings. Answers to the following questions will help inform such a plan:
  - Will findings be actively sought?
  - Will findings be communicated to the patient? If so, how?
  - What, if any, follow-up will be needed?
  - Who will be responsible for that follow-up?
- Discuss the plan for managing incidental and secondary findings with the patient.