Master's Project Approval Form

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I. Abstract

This master's project is a critical literature review that examines what it means to be underinsured and the ways of determining the number of people in the United States who are underinsured. The project begins with an examination of why a characterization and measurement of underinsurance is something with which policy makers at both the national and state levels ought to be concerned. The project next examines the 1993 article by Rashid Bashshur, Dean G. Smith and Renee A. Stiles. This article is the single attempt in the health research and policy literature to provide a systematic typology (taxonomy) of the underinsured. After explicating this typology in detail, the project critically evaluates the typology arguing that it contains various confusions and fails to appreciate the interrelationships that exist between the various aspects of underinsurance. On the basis of this critical examination, the project shows how the definitions and measurements provided by various authors can be more accurately and usefully conceptualized with a different kind of typology. Finally, the project considers the implications of the typology offered in this master's project for measurements of the number of underinsured people. This final stage has two steps. First, using the new typology, the project examines what sorts of questions would need to be asked for an accurate assessment of the number of underinsured people. Second, the project considers several extant surveys to determine whether or not they provide the kind of information necessary for an accurate assessment of the number of underinsured people.

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III. Methodology

The methodology used in the preparation and writing of this master's project was a literature search. The keywords used in the literature search were:

'adequate health insurance'
'basic health care'
'catastrophic illness'
'essential health care'
'gaps in health coverage'
'health care access'
'health care coverage'
'health care gaps'
'inadequate health insurance'
'medical necessity'
'medically underserved'
'minimum benefit package'
'obstacles to health care'
'underinsurance'
'underinsured'
'unmet health care needs'
'unmet medical needs'

Using these key words, the following databases were searched:

All Academic
BioethicsLine
Cambridge University Press Journals (online electronic journals)
Catchword (online electronic journals)
CINAHL
Cochrane Library
Current Contents
Expanded Academic Index
Full Text – ACP Journals Club
Gateway
Harcourt (online electronic journals)
Health reference Center – Academic
InfoTrac OneFile
Ingenta
JSTOR (online electronic journals)
Lexis-Nexis
Medline
Mosby (online electronic journals)

National Guideline Clearinghouse
Oxford University Press (online electronic journals)
Project Muse (online electronic journals)
Saunders (online electronic journals)

The following “search engines” were used with the key words:

AltaVista
Excite
Google
Hotbot
Lycos
Teoma
Yahoo

The following “meta-search engines” were used with the key words:

Dogpile
Mamma.com
Metacrawler

The publications and documents of the following organizations were searched using the keywords:

The Academy for Health Services Research and Health Policy
The American Medical Association
The American Public Health Association
The Brookings Institution
The Center on Budget and Policy Priorities
The Commonwealth Fund
The Henry J. Kaiser Family Foundation
The National Health Policy Forum
The National Library of Medicine
The Rand Institution
The Robert Wood Johnson Foundation
The Rural Policy Research Institute
The Urban Institute
The World Health Organization

Publications and documents available from the following federal agencies were searched using the keywords:

Agency for Healthcare Research and Quality
Centers for Medicare and Medicaid Services

Department of Health and Human Services
Health Resources and Services Administration

Finally, the University of Minnesota book holdings were searched using the keywords.

IV. Introduction: Uninsured and Underinsured

In May 1946, then Social Security Board Chairman Arthur J. Altmeyer spoke at the National Conference of Social Work in Buffalo New York. At that conference he said that the "crucial test of a health insurance program is not its good intentions, but the population coverage it achieves and the scope of protection it furnishes." (Altmeyer: 1946) Mark McClellan, detailing President George W. Bush's health care plan, echoed this same sentiment some 57 years later in an April 17, 2002 speech. Mr. McClellan, a member of the Council of Economic Advisors at the White House, said that "[I]n the president's vision, all American's should have access to high-quality and affordable health care."[1] Unfortunately, while the vision for what U.S. health care ought to be may have remained the same since the 1946 speech by Altmeyer, so too has the problem: the U.S. health care system does not provide high-quality, affordable health care for all Americans. More specifically, there is good reason to believe that a sizeable number of Americans remain either uninsured or underinsured.

Whatever the reasons may be for people being uninsured, and they are various and complexly intertwined, we at least have a fairly good notion of what it means for a person to be uninsured. A person is uninsured if and only if he or she is not covered at a point in time or over some specified period of time[2] by any health insurance plan. However, when we turn our attention to the underinsured, the matter is not so simple. The underinsured, unlike the uninsured, are covered by a health insurance plan and so the problems they face are not directly the result of the absence of health insurance

[1] Quoted in Consumer Reports (2002). Also see Friedenberg (2001).
[2] The period that is usually used in such determinations is one year. See Brown, Bindman and Lurie (1998), and Monheit (1994).

coverage. Instead, the problems faced by the underinsured are because the coverage provided by their health insurance plans is, in one way or another, inadequate. (Boodman: May 5, 1992)

Three examples will suffice to demonstrate why underinsurance is a growing concern for policy makers. First, as part of their health insurance coverage expansion efforts, states have seriously considered limiting the benefits such health insurance provides. (Rowland & Garfield: 2002). Without careful examination of what constitutes adequate health benefits coverage, the problem is that states may simply substitute one problem for another. States may provide access to affordable health insurance even as they increase the number of people for whom health insurance fails to provide adequate health benefits. (Donelan, DesRoches, and Schoen: 2000; Hill, Lutzky and Schwalberg: 2001) For example, Families USA writes that although "the Health Insurance Flexibility and Accountability Initiative is being touted as a way for states to increase the number of people covered by Medicaid and SCHIP, the new initiative does not provide any extra funds to states to expand coverage, and is likely to result in significant benefit cuts, increased cost-sharing, and possibly the widespread use of caps on enrollment in Medicaid." (Families USA: 2001)[3] Second, because of the long-term erosion in the number of people covered by employer-based health insurance, (Pauley and Percy: 2000; Farber and Levy: 2000) Congress and the Bush Administration have begun to consider legislation that would extend a tax credit to people electing to purchase individual insurance. (Gabel, Dhont, Whitmore and Pickreign: 2002) Under the president's proposal, the tax credits enabling people to purchase individual insurance "would be worth up to $1000 for individuals and $3000 for families". These tax credits

“would be available when people need them to pay their insurance premiums, and do not depend on taxes owed.” (Office of the Press Secretary, the White House: 2002)[4] However, unless the legislation incorporates a careful analysis of the cost for adequate health insurance coverage, the result of such legislation could again be that affordable insurance is provided for many people while at the same time failing to provide adequate health benefits for a significant number of people.[5] Finally, because of increasing health insurance costs and a general economic downturn[6], many employers are considering ways to pass along at least part of that cost to their covered employees. (Abelson: 2002; Consumer Reports: 2002; Pallarito: 2002; Rovner: 2002)[7] Amongst other options, employers are considering raising the out-of-pocket costs that their employees have to pay, or offering health insurance plans with a reduced number of benefits.[8] In either case though, there is reason to be concerned that the result will be a continuation of employer-based insurance coverage only because the adequacy of such health insurance plans has been unacceptably compromised. If this is in fact the result, the number of people who have health insurance coverage may remain relatively stable

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[3] Also see Polzer (2000).
[4] Also see Bush (2000). For other examples of federal bills whose intent is to provide refundable tax credits for health insurance, see Bartlett (2000).
[5] Another worry, noted by Park (2002), is that such tax credits could weaken the current employer-based health insurance system.
[6] See Miller (2001)
[7] This is not a new phenomenon. As Rockefeller (1991) wrote, “[I]n 1987, employers’ health care spending was equivalent to 94% of after-tax profits, up from about 14% in 1965 and 74% in 1984. Faced with these cost pressures, employers have, not surprisingly, tried to reduce the benefits they provide.” Also see Bove (1992).
[8] A related concern is insurance coverage for retirees. A 2002 report by the Kaiser Family Foundation, the Commonwealth Fund, and Health Research and Educational Trust says that by “2001, numerous warning signs indicate that although few employers are dropping coverage altogether, many say they plan to make changes that shift a greater share of costs to retirees by raising premium contributions and imposing greater cost-sharing requirements for benefits such as prescription drugs.” (Kaiser Family Foundation, the Commonwealth Fund, and Health Research and Educational Trust: 2002)

or even increase, but only because the number of people who are “underinsured” increases.

Regardless of the cause of the increase in the number of underinsured people, the result of being underinsured is that individuals and families are more likely to delay or to forgo seeking health care. This failure to receive health care can have detrimental physical, psychological and financial impacts on individuals and families. For example, the 2002 National Public Radio, Kaiser Family Foundation, and Harvard’s Kennedy School of Government survey reports that among the “10% who did not get the medical care they believe they needed at some point in the past year, 84% said the problem seriously increased stress, over half (52%) said it caused a significant loss of time at work, school, or other important life activities, 44% said it resulted in a temporary disability that included significant pain and suffering, and three in 10 (29%) said it caused a long-term disability.” (National Public Radio/Kaiser Family Foundation/Harvard University Kennedy School of Government, National Survey on Health Care: 2002) The situation is not much better for those who only delayed seeking health care. The same survey reports that for the “22% who reported delaying seeking medical care, slightly fewer reported serious conditions, but a similar pattern emerges: Two-thirds (63%) said postponing care seriously increased stress, four in 10 (41%) said it caused a temporary disability, three in 10 (29%) said it caused significant lost time at important activities, and 18% said it caused a long-term disability.” (National Public Radio/Kaiser Family

Foundation/Harvard University Kennedy School of Government, National Survey on Health Care: 2002)[9]

It follows that the policy issues posed by underinsurance, both in terms of its causes and in terms of its effects, are issues that are significant and important. At the same time though, "the question of who is underinsured is a matter of impassioned debate." (Boodman: May 5, 1992; Boodman: May 26, 1992)[10] Unlike the characterization of a person as uninsured, the characterization of a person as underinsured has, because of its reference to "inadequate coverage", an ineliminable normative component. As Alan Monheit writes, "definitions of inadequate coverage directly confront alternative views of the purpose of health insurance: should coverage be structured to protect individuals from low-probability/high-cost medical events, or should insurance finance predictable kinds of medical care or care that society wishes to encourage (e.g., preventive health services)." (Monheit: 1994) Similarly, Pamela Short and Jessica Banthin write that the biggest problem for characterizations and measurements of the underinsured is that "different people emphasize different objectives in formulating a definition of underinsured. In particular, there has long been a tension between those who favor generous insurance for primary care and those who would limit insurance to more costly services." (Short and Banthin: 1995)[11]

[9] Also see Baker, Shapiro, Schur and Freeman (1998), Bodenheimer (1992), Freiman (1998), Lave, Keane, Lin, Ricci, Amersbach, and LaVallee (1998), Monheit (1994), Rewers, Chase, Mackenzie, Walravens, Roback, Rewers, Hamman, and Klingensmith (2002), and Skolnick (1991).
[10] Also see Bartlett (2000) and Monheit (1994).
[11] Also see Rice (1991) and Aday and Andersen (1981). In either case though, there is the underlying commitment to equity, according to which all people (citizens) should be assured access to appropriate medical care. (Richmond and Fein: 1995) Whether this is a "moral" right of all people (citizens) is a contested question. For a discussion of some of the issues involved in this question, see Aday and Andersen (1981), Burgess and Stefos (1991), Daniels (1981), and White (1971).

Because any characterization of underinsurance will refer to, and make use of the value judgments of people about what counts as “adequate” and “inadequate” health care, the goal of characterizing and measuring the underinsured will be hard won. To accomplish the goal first requires a careful sorting out of the socio-cultural issues that surround any reference to “adequate” health coverage. As will be shown below, the result of this “conceptual typology” is that there is a variety of criteria each of whose satisfaction captures an aspect of what it means for a person to be underinsured. Once this process of sorting out has been accomplished, the question of measurement must be addressed. For example, do data sources currently exist that can be used to measure the satisfaction of one or more of the criteria that characterize the underinsured? Do the criteria suggest new uses of existing data, or the need to accumulate new data? Finally, because there are a variety of criteria that jointly characterize the underinsured, and singularly characterize aspects of the underinsured, the question arises about the relative merit of the individual criteria. In particular, the question is whether the satisfaction of some criteria results in a “better” picture of the underinsured than the satisfaction of other criteria. It is these tasks, and the questions associated with each, that will be addressed in what follows. The result will be a “conceptual flowchart” whose use enables various characterizations and measurements to be made of the underinsured population, as well as an assessment of the relative values of those characterizations and measurements.

V. Bashshur, Smith and Stiles's Typology of Underinsurance

As noted in section (IV), the topic of underinsurance is an important one. For this reason, policy makers and researchers have increasingly turned their attention to characterizing what it means to be underinsured and to measuring the number of people in the United States who are underinsured. At the same time though, a systematic literature search on the topic of "underinsurance" reveals only one study that has sought to offer a general typology (taxonomy) of underinsurance. This study, published in 1993 by Rashid Bashshur, Dean G. Smith and Renee A. Stiles, has two parts. In the first part the authors offer a four-fold classification of health insurance coverage in which underinsurance is one kind of classification. In the second part, the authors focus specifically on the classification of underinsurance and identify three of its important dimensions. In what follows, I will examine each part of the authors' typology.

Part 1: The general consensus of writers who deal with underinsurance is that a person is underinsured if that person has health insurance whose benefits are in some way inadequate.[12] However, the concept of "inadequacy" is a relative one; viz., we can only understand what it means for a health insurance benefits package to be inadequate if we understand what it means for a health insurance benefits package to be adequate. For this reason Bashshur, Smith and Stiles do not immediately begin by examining the various dimensions of underinsurance, but instead begin with an examination of what it means for the coverage offered by a health insurance benefits

[12] See Committee on the Consequences of Uninsurance (2001), Farley (1985), Freedman, Klepper, Duncan and Bell (1988), Monheit (1994), Stroupe, Kinney and Kniesner (2000), Weissman (1996), and Woodward (1987).

package to be adequate. To this end, they classify the coverages offered by health insurance benefits packages into three kinds:

(a) Excessive Coverage

(b) Full Coverage

(c) Adequate Coverage

Excessive coverage, the authors write, "refers to the dual or multiple coverage for the same set of services, which does not provide any true financial benefits over full coverage." (Bashshur, Smith and Stiles: 1993) In contrast, in the case of full coverage there is no duplication of coverage for the same set of services. Still there is an important feature shared by both excessive coverage and full coverage; viz., both classifications refer to comprehensive benefit packages that provide complete protection against out-of-pocket expenses outside of premiums. Although the authors are not always as clear as they could be, what this means is that health insurance plans whose benefits packages offer either excessive or full coverage share both an economic dimension and a "scope of benefits"[13] dimension. The first, economic dimension is simply that benefits packages offering either excessive or full coverage provide complete protection for all out-of-pocket expenses outside of premiums. The second, "scope of coverage" dimension is in some ways the more significant of the two. The second dimension means that there are no limits on what health care services are covered by benefits packages offering either excessive or full coverage. In other words, not only does a health insurance benefits package offering either excessive or full coverage cover all needed health care services, it also provides coverage for all desired

[13] The expression "scope of benefits" is due to Gerst, Rogson and Hetherington (1969).

health care services.[14] There is, in effect, no distinction in such kinds of coverage between "services or interventions meant to prevent or cure (or otherwise ameliorate) conditions that we view as diseases or disabilities" and interventions that we view as a desirable function or feature of members of our species. (Daniels: 2000) Thus, not only do the two kinds of coverage provide complete protection for out-of-pocket expenses associated with needed heath care services[15], they also provide complete protection for out-of-pocket expenses associated with desired health care services.

In contrast with the classifications of the coverage provided by a health insurance benefits package as either excessive or full, the classification of a health insurance benefits package as adequate introduces important limitations. There are limitations in the scope of the health insurance benefits package as well as in the out-of-pocket financial responsibilities to those covered by the benefits package. As Bashshur, Smith and Stiles write, adequate health insurance coverage "refers to a less comprehensive set of benefits, wherein the beneficiaries are liable for designated amounts of out-of-pocket expenditures in the form of deductibles, copayments, exclusions, limits-of-coverage, and other forms of cost sharing outside of premiums." (Bashshur, Smith and Stiles: 1993) Thus, when applied to the coverage provided by the benefits package of a health insurance plan, the concept of adequacy *simpliciter* is ambiguous. Health insurance plans offering either excessive coverage or full coverage are adequate in ways quite different from a health insurance plan that Bashshur, Smith and Stiles

[14] In this respect, the coverage offered by Clinton's proposed Health Security Act, submitted to Congress in 1993 but not passed, was neither excessive nor full. As noted by Mariner (1994), the comprehensive benefit package that would have been provided specifically excluded "cosmetic orthodontia and cosmetic surgery, in vitro fertilization, sex change surgery, investigational therapies, and most custodial care." This serves to emphasize that characterizations of health insurance coverage as "excessive" or "full" are related to, but different from the characterization of health insurance coverage as "comprehensive".

characterize as “only” adequate. It follows from this that if we understand underinsurance as a health insurance plan whose health benefits package provides inadequate (not adequate) coverage, then we must clearly specify which sense of adequacy it is to which the benefits package is being compared.

The suggestion of Bashshur, Smith and Stiles is that the relevant benchmark comparison is not to either excessive coverage or to full coverage. Instead, they believe that the relevant benchmark comparison is to health insurance plans whose benefits packages offer what they refer to as “only” adequate coverage. They provide two principal arguments for excluding excessive and full coverage as the appropriate benchmarks of comparison. First, as implied in the concept of “moral hazard”, both excessive and full coverage “may encourage excessive and inappropriate use” of health care services. (Bashshur, Smith and Stiles: 1993) In particular, since both excessive and full coverage protect the consumer “against out-of-pocket expenses outside of premiums” for both needed and desired health care services, then there are no real incentives for the consumer to limit his or her use of health care services. This has two consequences. The first consequence is that because such incentives are absent there is no reason to forgo avoidable or unnecessary health care services, and this tends to cause excessive increases in the cost of health care services. The second consequence is that an imbalance is created between “the cost borne by the consumer and moral hazard”. (Bashshur, Smith and Stiles: 1993) Because such incentives are absent, there is an overall social welfare loss (Stokey and Zeckhauser: 1978); the use of many or exceedingly expensive health care services by a few people who have

[15] Often these are referred to as “medically necessary services”. For discussions of what counts as “medical necessity” see Bergthold (1995), Mansheim (1997), and Morreim (2001).

altered their behavior so as to claim the benefits (Daniels: 1996) is being paid for by the many nonusers.[16]

The second argument for excluding excessive and full coverage as the appropriate benchmarks of comparison refers to the fact that the costs of premiums do not figure into characterizations of health insurance benefits packages as either excessive or full. Because premium costs do not figure into the characterizations, Bashshur, Smith and Stiles suggest that the outlay for premiums necessary to provide either excessive or full coverage "could be prohibitive to a large segment of the insured population." (Bashshur, Smith and Stiles: 1993) The implication is that this is objectionable since it would introduce economic inequities into the health insurance system that are unfair, and it would unreasonably inflate the number of people counted as being underinsured.

The conclusion drawn by Bashshur, Smith and Stiles on the basis of these two arguments is that "some level of less than full coverage is not only acceptable on social and economic grounds but is also necessary in the current system of care in the United States." (Bashshur, Smith and Stiles: 1993) Thus, the appropriate benchmark against which the classification of underinsurance ought to be compared is neither health insurance whose benefits package offers excessive coverage nor health insurance whose benefits package offers full coverage. The appropriate benchmark for the comparison is health insurance whose benefits package offers coverage in which there are limits on which benefits are offered and in which "beneficiaries are liable for designated amounts of out-of-pocket expenditures in the form of deductibles, copayments, exclusions, limits-of-coverage, and other forms of cost sharing outside of

[16] Also see Short (1999).

premiums." (Bashshur, Smith and Stiles: 1993) While a health insurance benefits package offering adequate coverage has limitations on its scope of coverage, too many limitations turn adequate coverage into underinsurance. Similarly, while a health insurance benefits package offering adequate coverage imposes some out-of-pocket financial responsibilities, the imposition of too many responsibilities or excessive responsibilities turns adequate coverage into underinsurance.

Part 2: Turning then to the specifics of underinsurance, Bashshur, Smith and Stiles write that underinsurance "refers to one or more conditions: where (a) too few services are covered or the coverage is inadequate; (b) amounts of out-of-pocket expenditures, with or without regard to family income, are excessive; (c) insurance is perceived to be inadequate; or (d) some combination is present." (Bashshur, Smith and Stiles: 1993)[17] Thus, for Bashshur, Smith and Stiles there are four different ways that a person can be underinsured. The first way that a person can be underinsured, corresponding to the limitations in the scope of benefits offered by adequate health insurance coverage, Bashshur, Smith and Stiles refer to as the categorical aspect of the "structural dimension" of underinsurance. From the vantage point of the categorical aspect of the structural dimension, a person is underinsured if the benefits offered by the health insurance plan are not sufficient to meet the health care needs of the person. The reason Bashshur, Smith and Stiles refer to this as a categorical aspect of the structural dimension is because it refers to categories (types) of different benefits. As Bashshur, Smith and Stiles write, the categorical aspect of the structural dimension of underinsurance refers to "elements of the benefit package that are deemed insufficient

[17] Also see Stroupe, Kinney and Kniesner (2000).

to meet the protection needs of the insured population." (Bashshur, Smith and Stiles: 1993)

There are several categorical ways that a benefits package offered by a health insurance plan can be structurally inadequate. These ways include the following:

1. There is at least one benefit not offered by the health insurance plan. Bashshur, Smith and Stiles characterize this as a "total categoric structural inadequacy" because it "refers to a service that is not covered under any circumstance." (Bashshur, Smith and Stiles: 1993) It is clear that the precise sense in which a health insurance plan has a total categoric structural inadequacy will vary depending upon what one takes as the benefits package serving as the benchmark. For example, Short and Banthin (1995) suggest two possible benefits packages to serve as the benchmark: former president Clinton's Health Security Act benefit package, and those minimum benefits provided by the Federal Blue Cross Blue Shield standard option package.[18] Since there are some benefits offered by the first plan that are not offered by the second, it follows that one could be underinsured relative to the second plan but not underinsured relative to the first plan. Another possible benefits package that could serve as the benchmark against which other health insurance packages are compared is discussed in the U.S. Congress, Office of Technology Assessment's 1988 Medical Testing and Health Insurance. There the standard is

[18] The reason for using Clinton's Health Security Act benefits package is because Short and Banthin are writing shortly after the Act failed to pass and because it is the most recent example of a plan purporting to offer "universal coverage". The reason for using the Federal Blue Cross Blue Shield standard option package is because it covers a large number of people throughout the United States. In this respect, the Blue Cross Blue Shield standard option package is the closest *de facto* extant option package to a universal coverage package.

an insurance plan that includes "unlimited hospitalization/surgical benefits and major medical coverage, with a modest deductible, 20 percent coinsurance payments, a stop loss on out-of-pocket expenditures (i.e., medical expenses not covered by the insurance policy), and high maximum lifetime benefits." (U.S. Congress, Office of Technology Assessment: 1988)[19] Thus, whether a person is underinsured according to the total categoric structural dimension will depend upon both the benefits package of the person's health insurance plan and the benchmark health insurance benefits package to which it is being compared.

2. In the past year there was at least one necessary health need[20] for the person that was not covered under the benefits package offered by the person's health insurance plan. (Stone: 2000) The difference between (1) and (2) is that the health insurance benefits package used as the benchmark for comparison in (2) is determined by the specific health needs of the person, while this is not the case in (1). However, (2) introduces a host of complications that, while they may be implicit in (1), are complications with which (2) must directly and explicitly deal. Perhaps the most obvious complication is that (2) makes explicit use of the concept of "necessary health need". The question though, is what shall we count

[19] It is true that the notions of "modest" and "high maximum" are not well defined in this characterization. It is making the concepts well defined that many of the problems associated with underinsurance show themselves. Attempts to add precision rest on normative commitments about what ought to be covered and to what degree. Since normative commitments vary from person to person, and group to group, so too do the resulting characterizations of what it means to be underinsured.

[20] Closely related to the concept of necessary care need is the concept of essential care. As Eddy (1991) writes, in the concept of essential care "we find a compromise between the idealistic view that society should provide everyone with everything free of charge, and the practical fact that, as a society, we cannot pay the price of doing that. It strikes an ethical balance between Society's obligation to the individual and the individual's obligation to Society." Also see Morreim (2001) and Parker (1986). The practical point of making reference to necessary care or essential care is to place needed constraints on

as a “necessary health need”. The Kentucky Cabinet for Health Services, for example, says that children whose insurance specifically excludes immunizations as a covered benefit are underinsured. (Kentucky Cabinet for Health Services, Office of Communications: 2001) If we think of immunizations as necessary for health, and if there is a child needing the immunization during the year in question whose health insurance benefits package does not cover the immunization, then we see how Kentucky’s characterization of the child as being underinsured fits into Bashshur, Smith and Stiles’s typology at this point. However, to whom shall we appeal regarding questions concerning the necessity of specific immunizations and the timeframe during which those immunizations should be provided to children? To answer these sorts of questions, yet retain what seems right in the case of Kentucky – namely that childhood immunizations are a necessary health need – we could, more abstractly, stipulate that that necessary health needs are health needs that would be agreed to as such by a consensus of health care experts. (Rosenbaum, Frankford, Moore and Borzi: 1999) While there is much to be said for this proposal, it would move us in the direction of the Oregon Plan[21] and all its attendant problems.[22] The upshot is that this characterization of underinsurance raises many difficult questions that need to be answered as a necessary condition for the characterization to be precise and unambiguous.

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allocations of limited health care resources. If health care resources were not limited in any way (availability, access, etc.), then the criterion would have no practical purpose.

[21] See Oklahoma Medical Research Foundation (1992)

3. There is at least one benefit that the health insurance plan covers only when specific criteria are satisfied. Bashshur, Smith and Stiles refer to this as a "partial categoric structural inadequacy" because it "refers to the benefit as not covered under specified conditions." (Bashshur, Smith and Stiles: 1993) "For example, in the majority of basic health insurance policies, dental services are not covered … However, in many of these same policies, emergency dental work is covered if related to another injury that is a covered benefit, such as a broken jaw." (Bashshur, Smith and Stiles: 1993) As was the case in (1), it is clear that the precise sense in which a health insurance plan has a partial categoric structural inadequacy will vary depending upon what one takes as the health insurance benefits package serving as the benchmark. Just as health insurance benefits packages vary in terms of what benefits they offer, so too they vary in terms of under what specified conditions a "partially excluded benefit" is offered. Thus, using a partial categoric structural inadequacy characterization of underinsurance, a person could be underinsured relative to one health insurance benefits package benchmark, but not be underinsured relative to another health insurance benefits package benchmark.

A common feature of (1) – (3) is that in each case "underinsurance is determined on the basis of normative criteria" that specify adequate and inadequate (not adequate) levels of coverage. (Bashshur, Smith and Stiles: 1993) In the case of (1) and (3) the normative element comes in through the decision of which health insurance benefits package will serve as the benchmark of comparison when making assessments of

[22] See, for example, Ubel and Goold (1998). A full exploration of these concerns goes beyond the scope of this MPH project.

underinsurance. Those who favor (place a greater value on) generous health insurance benefits packages as the benchmarks of comparison are likely to "discover" a greater number of underinsured people than those who favor more austere health insurance benefits packages.[23] In the case of (2) the normative element comes in through the decision of which health care needs are necessary health care needs. Those who are more generous in their assessments of what to count as a health care need are, in a manner analogous to the case of (1) and (3), more likely to "discover" a greater number of underinsured people than those who are more austere in their assessments of what to count as a health care need.

The second dimension of underinsurance, corresponding to the imposition of some out-of-pocket financial responsibilities for the health care services offered by the health insurance plan on the people covered by the plan, has two aspects. The first Bashshur, Smith and Stiles refer to as the relative "structural dimension" of underinsurance, while the second they refer to as the empirical "experiential dimension" of underinsurance.[24] While both aspects deal with out-of-pocket financial responsibilities, the difference between the two, according to Bashshur, Smith and Stiles, is that the first is "equally applicable to users and nonusers of care" while the second "is based primarily on the actual experience of consumers." (Bashshur, Smith

[23] See Short and Banthin (1995)

[24] There is an important caveat here. In their paper Bashshur, Smith and Stiles also recognize what they refer to as the "temporal experiential dimension" of underinsurance. The idea is that a person is underinsured if, at any point during a specified period of time (usually one year), the person is not insured during some of that time period and is insured during the balance of the time period. This is also a characterization of underinsurance found in Monheit (1994) and Woodward (1987), amongst others. However, this seems to be to be very different from the other characterizations of underinsurance because the inadequacy, in those times when the person is "temporally underinsured", is the inadequacy of not having any health insurance. The problems faced during these times will be the problems faced by people who are uninsured. Thus, it seems preferable to treat these as "spells of uninsurance" rather than as a kind of underinsurance.

and Stiles: 1993)[25] Thus, the ways that the out-of-pocket costs associated with the benefits package of a health insurance plan can be excessive[26], according to the relative structural dimension of underinsurance, include:

1. The coinsurance for insured benefits are excessive.

2. The deductibles for insured benefits are excessive.

Like the case of the categoric structural dimension of underinsurance, both (1) and (2) characterize underinsurance only in comparison to the out-of-pocket costs associated with some benchmark health insurance benefits package. This once again introduces a normative element into the characterization of underinsurance. Those who favor health insurance benefits packages having minimal out-of-pocket costs as the benchmarks of comparison are likely to "discover" a greater number of underinsured people than those who favor health insurance benefits packages having more substantial out-of-pocket costs. Thus, for the categorical structural dimension and the relative structural dimension, the "determination of underinsurance ultimately depends on a social definition of appropriateness" of the benefits package offered by the health insurance plan. (Bashshur, Smith and Stiles: 1993)

As noted above, Bashshur, Smith and Stiles claim that the empirical experiential dimension of underinsurance is concerned with the "actual experiences of consumers" and not indifferently with both consumers and non-consumers. It follows from this that the ways that the out-of-pocket costs associated with the benefits package of a health

[25] Later, in section VII, I will argue that this distinction is not well-defined and that, in reality, what Bashshur, Smith and Stiles call the "empirical experiential" dimension of underinsurance is not different in kind from what they call the "relative structural dimension" of underinsurance.
[26] It is important not to conflate this use of 'excessive' with its use as a modifier of 'coverage'. While the two uses are related, they are not synonymous.

insurance plan can be excessive according to the empirical experiential dimension of underinsurance include:

1. In the past year the out-of-pocket coinsurance expenses for necessary medical care[27] covered under the benefits package of the health insurance plan exceeded some set percentage of the person's (or family's) income. For example, the set percentage of the person's (or family's) income could be tied to what would be financially catastrophic for the person or the family. Coinsurance expenses are financially catastrophic when they "are considered large relative to the patient's ability to pay, as determined by the extent of third-party coverage and other resources available to pay for care." (Wyszewianski: 1986b)[28] According to the Congressional Budget Office (CBO), this would mean that the out-of-pocket coinsurance expenses exceed 15% of the family's annual income. (Congressional Budget Office: 1977)[29] Thus, using the CBO's percentage as the benchmark, a person is underinsured if, during the past year, the person's out-of-pocket coinsurance expenses for necessary medical care covered under the benefits package of the health insurance plan exceeded 15% of the annual family income of the person.

[27] "Necessary medical care" is used here to distinguish this way of characterizing underinsurance from one using the wants and desires (subjective preferences) of the person covered by a health insurance benefits package. This latter characterization is considered later under the heading of the "perceptual/attitudinal dimension" of underinsurance.

[28] Also see Berki (1986).

[29] A more common figure is 10%. For example, see Farley (1984), Feldstein (1971), Kuttner (1999), Salmon (1988), Shearer (2000), Short and Banthin (1995), and Woodward (1987). For a discussion of other criteria, including other percentages, that have been used to define catastrophic expenditures, see Wyszewianski (1986b).

2. In the past year the out-of-pocket deductible expenses for necessary medical care covered under the benefits package of the health insurance plan exceeded some set percentage of the person's (or family's) income.[30]

3. In the past year, the out-of-pocket coinsurance and deductible expenses for necessary medical care covered under the benefits package of the health insurance plan exceeded some set percentage of the person's (or family's) income.

4. There is some set percentage chance that the out-of-pocket coinsurance expenses for necessary medical care covered under the benefits package of the health insurance plan will exceed some set percentage of the person's (or family's) income during the year.

5. There is some set percentage chance that the out-of-pocket deductible expenses for necessary medical care covered under the benefits package of the health insurance plan will exceed some set percentage of the person's (or family's) income.

6. There is some set percentage chance that the coinsurance and out-of-pocket deductible expenses for necessary medical care covered under the benefits package of the health insurance plan will exceed some set percentage of the person's (or family's) income.

[30] Another possibility at this point would be the following: "In the past year the out-of-pocket premium costs for health insurance whose benefits package covered necessary medical care exceeded some set percentage of the person's (or family's) income". However, since the judgment that the coverage provided by the benefits package of a health insurance plan is inadequate is made in comparison to a health insurance plan whose benefits package provides adequate coverage, and because Bashshur, Smith and Stiles explicitly exclude premium responsibilities from determinations of whether a health insurance plan provides adequate coverage, I have not introduced this complexity. It is, though, a complexity that other writers do sometimes consider. See, for example, Shearer (2000), and Sullivan and Rice (1991).

For example, Farley (1985)[31] suggests the following definitions of underinsurance, each of which would fit at one point or another under the empirical experiential dimension of underinsurance:

> A person is underinsured if there is a one percent expectation of out-of-pocket expenses greater than or equal to:
>
> 1. $500
> 2. $1,000
> 3. $2,000
> 4. 3% of family income
> 5. 5% of family income
> 6. 10% of family income
> 7. 20% of family income
>
> A person is underinsured if there is a one percent expectation, unadjusted for risk, of out-of-pocket expenses greater than or equal to
>
> 1. $2,000
> 2. 10% of family income
>
> A person is underinsured if there is a five percent expectation of out-of-pocket expenses greater than or equal to:
>
> 1. $2,000
> 2. 10% of family income

As was the case for the structural (categoric and relative) dimension of underinsurance, so too there is an ineliminable normative element in the empirical experiential dimension of underinsurance. For (1) – (3) the normative element enters in two places. First, it enters in through the reference made to medically necessary care, and second it enters in through the specification of the percentage of the person's (or family's) income exceeded by the relevant out-of-pocket expenses. For (4) – (6) the normative element enters in three places. First, it enters in through the reference made

[31] Bashshur, Smith and Stiles specifically refer to Farley (1985) as an example of someone who adopts the "empirical criterion of the experiential dimension" of underinsurance. Also see Merlis (2002), Shearer (2000), Short and Banthin (1995), Stroupe, Kinney and Kniesner (2000), and Woodward (1987).

to medically necessary care, second through the specification of the percentage of the person's (or family's) income exceeded by the relevant out-of-pocket expenses, and third through the specification of the percentage chance that the out-of-pocket expenses will exceed a certain amount.

The manner in which the concept of "medically necessary care" introduces normative considerations has already been discussed and will not be repeated here. The manner in which specifications of the respective percentages introduces normative considerations is very similar to the case of "medically necessary care". Those who favor, as the benchmarks of comparison, health insurance benefits packages in which the percentage of a person's (or family's) income that is exceeded by out-of-pocket costs (coinsurance or deductible) associated with medically necessary care is quite low, are likely to "discover" a greater number of underinsured people than those who favor health insurance benefits packages in which the percentage is much larger. Similarly, those who favor, as benchmarks of comparison, health insurance benefits packages in which there is a low percentage chance that the out-of-pocket expenses will exceed a certain amount are likely to "discover" a greater number of underinsured people than those who favor a health insurance benefits package in which that percentage chance is much larger.

The final dimension of underinsurance discussed by Bashshur, Smith and Stiles is the "perceptual/attitudinal dimension".[32] They write that the perceptual/attitudinal

[32] Following Berk and Schur (1997), we could refer to this set of criteria as "opinion" criteria since they reflect people's beliefs of what they want or do not want, or what they can afford or cannot afford. Whether or not such "opinions" correspond well to "revealed preferences" is an important, albeit difficult problem. In this connection, Berk and Schur (1997) write that with "the growing role of economics in the study of health policy, analysts are … deducing an individual's preferences from observed choices or behavior." This is tantamount to giving precedence to the structural and experiential dimensions of underinsurance over the perceptual/attitudinal dimension.

dimension "refers to the views of insured individuals regarding the adequacy of the benefit structure of their plans." (Bashshur, Smith and Stiles: 1993) What distinguishes the perceptual/attitudinal dimension of underinsurance from the other dimensions of underinsurance is that the evaluation of whether a person is underinsured is made by the individual him or herself rather than by some third party. As Bashshur, Smith and Stiles write, "[B]oth structural and experiential definitions are views of the insurance policy by a third party to the contract who has full information on coverages. The perceptual/attitudinal definition is based on the view of the insured individual who might have full information." (Bashshur, Smith and Stiles: 1993) Thus, from the vantage point of the perceptual/attitudinal dimension, a person is underinsured if the person believes that the coverage provided by the benefits package of his or her health insurance plan is somehow inadequate. The ways that a person might believe that the coverage provided by the benefits package of a health insurance plan is inadequate include the following:

1. There is at least one health benefit not offered by the benefits package of the health insurance plan[33] that the person would prefer to receive. (Berk, Schur and Cantor: 1995; Davis: 2000)

2. There is at least one health benefit offered by the benefits package of the health insurance plan that the person prefers to receive but is not eligible to receive. (Daly: 2000; Davis: 2000; Johnson, Davidoff and Moon: 2002)

[33] There is an implicit idealization at work here, viz., that the person's knowledge of the benefits package offered by his or her health insurance plan meets some basic standard (in the extreme, that the person knows all there is to know about the benefits package offered by his or her health insurance plan). As Gerst, Rogson and Hetherington (1969) write, where "knowledge of plan benefits is low, in that the subscriber possesses incorrect information, expectations may be unrealistically demanding or undemanding, depending on the direction of the misinformation."

3. There is at least one health benefit offered by the benefits package of the health insurance plan that the person prefers to receive but the person believes that he or she cannot afford the associated out-of-pocket costs. (Centers for Disease Control and Prevention: 1998; Davis: 2000; Donelan, DesRoches and Schoen: 2000; Hanley: 1998; Nelson, Thompson, Bland and Rubinson: 1999; Reis, Sherman, Macon and Friedman: 1990)

4. There is at least one health benefit offered by the benefits package of the health insurance plan that the person does not believe is addressed in a timely manner.[34] (Donelan, Blendon, Schoen, Davis and Binns: 1999; Friedman: 1991; Short: 1999)

5. The majority[35] of people covered by the benefits package of a health insurance plan are not satisfied with at least one feature of the coverage provided by the health insurance plan.[36] (Eddy: 1991; Gerst, Rogson and Hetherington: 1969)

Just as in the case of the structural and experiential dimensions of underinsurance, so too the perceptual/attitudinal dimension of underinsurance

[34] One might argue that this is not really a criterion for being underinsured. This raises the question of how clearly issues of health care coverage can be distinguished from issues of health care availability.

[35] Although the majority of people covered by the benefits package of a health insurance plan is used in the criterion, this only reflects common political sensibilities. One could modify the criterion to specify a simple majority, a two-thirds majority, or some other percentage. For a general discussion of this approach to underinsurance making use of the political theory of John Rawls, see Eddy (1991).

[36] This criterion is a perceptual/attitudinal criterion because it makes use of perceptions/attitudes concerning the adequacy of the benefits package of a health insurance plan. On the other hand, whereas (1) – (4) deal with an individual's perceptions/attitudes, here the criterion makes reference to the perceptions/attitudes of some subset (e.g., the majority) of people covered by the benefits package of a health insurance plan. Thus, a virtue of the criterion is that a person's being underinsured is not wholly a function of the individual's own wants or preferences. On the other hand, there are at least two problems with the criterion. First, it leaves undefined just what the determination of the failure of satisfaction will be based upon. For example, will it be based on uncovered benefits, premiums that are conceived of as being excessive, or something else? Second, it leaves open the possibility that while a majority of members may be satisfied with the benefits package offered by a health insurance plan, the plan may be unsatisfactory, perhaps because of cost, to a minority of the members. In such a case, use of the criterion would not permit us to say that the dissatisfied minority members are underinsured.

introduces an ineliminable normative element. For (1) – (4) the normative element is nothing more than that the judgment of whether a person is underinsured or not depends upon the individual person's value judgments concerning what counts as having adequate coverage and what counts as having inadequate coverage. When the person's own assessment of what constitutes an adequate health insurance benefits package is not satisfied, then the person is underinsured. In the case of (5), the normative element is introduced by the reference to the value judgments, concerning adequate coverage, of a group of people all of whom are covered by the benefits package of a health insurance plan. When a majority (or some specified sub-set) of the group's assessment of what constitutes an adequate health insurance benefits package is not satisfied, then the coverage provided by the health insurance benefits package is an instance of underinsurance.

In summary then, the conceptual typology of underinsurance offered by Bashshur, Smith and Stiles has the following general characteristics:

1. The classification of the coverage offered by the benefits package of a health insurance plan as an instance of underinsurance is a "relative" classification. It is a classification of the coverage as being not adequate, and so is parasitical on the classification of the coverage offered by the benefits package of a health insurance plan as being adequate.

2. There are three principal dimensions of underinsurance: a structural dimension, an experiential dimension and a perceptual/attitudinal dimension.

3. Each of the three principal dimensions of underinsurance has a variety of sub-classifications of different ways that a person can be underinsured.

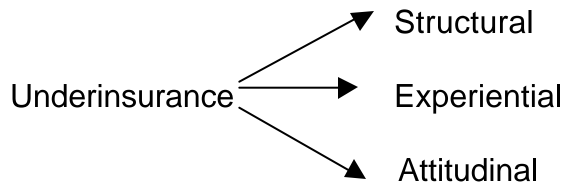
4. All three dimensions of underinsurance, along with the associated sub-classifications, have an ineliminable normative component. This means that any characterization of underinsurance will involve value judgments. It is this normative component of underinsured that, for many writers, is the root cause of the difficulties associated with characterizing what it means for a person to be underinsured.

VI. A Critical Analysis of Bashshur, Smith and Stiles's Typology of Underinsurance

The previous section presented a detailed exposition of Bashshur, Smith and Stiles's typology of underinsurance. This typology has two central tenants. The first tenant is that there are three important dimensions of underinsurance: a structural dimension, an experiential dimension, and a perceptual/attitudinal dimension. The structural dimension of underinsurance refers "to elements of the [health insurance] benefit package that are deemed insufficient to meet the protection needs of the insured population." (Bashshur, Smith and Stiles: 1993) The experiential dimension of underinsurance refers to the out-of-pocket financial responsibilities of the insured population that are excessive, and the perceptual/attitudinal dimension of underinsurance refers to the beliefs of insured individuals regarding the ways that the benefits packages of their health insurance plans are inadequate.

The second tenant of Bashshur, Smith and Stiles's typology is that the three dimensions of underinsurance are distinct from one another. The structural and experiential dimensions differ from the perceptual/attitudinal dimension in that both "are views of the insurance policy by a third party to the contract" whereas the perceptual/attitudinal dimension is based on the views of the insured individuals. (Bashshur, Smith and Stiles: 1993) The structural dimension differs from the experiential dimension in that the former is "equally applicable to users and nonusers" whereas the latter is "based primarily on the actual experience of consumers." (Bashshur, Smith and Stiles: 1993) Thus, glossing over the various subdivisions in each of the three

dimensions[37], Bashshur, Smith and Stiles's "classification scheme" for underinsurance can be represented in the following manner:



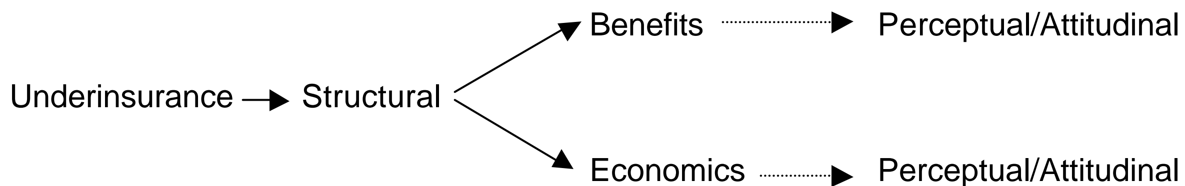
In this section I argue, contrary to Bashshur, Smith and Stiles, that these three dimensions misrepresent the essential characteristics of underinsurance. The argument in support of this claim consists of two steps. In Step 1 I will argue that there is no substantive difference in kind between the empirical experiential dimension of underinsurance and the relative structural dimension of underinsurance. Both dimensions deal with the ways that the benefits package of a health insurance plan can be economically inadequate for the people covered by that plan. For this reason I will suggest that both the empirical experiential dimension of underinsurance and the relative structural dimension of underinsurance should be assimilated into what I will refer to as the "economic dimension" of underinsurance. This new dimension of underinsurance, the economic dimension, will be contrasted with what I shall refer to as the "benefits dimension" of underinsurance. The benefits dimension will incorporate the distinctive elements of Bashshur, Smith and Stiles's "total categoric structural dimension" and "partial categoric structural dimension" of underinsurance. Thus, whereas the benefits dimension is concerned with what benefits the benefits package of a health insurance plan offers and the non-economic characteristics associated with the

[37] For a detailed account of the subdivisions within each of the dimensions of underinsured identified by Bashshur, Smith and Stiles, see Section (V).

delivery of those benefits, the economic dimension is concerned with economic characteristics of the health insurance benefits package.

In Step 2 of the argument that the three dimensions of underinsurance identified by Bashshur, Smith and Stiles misrepresent the essential characteristics of underinsurance, I will argue that Bashshur, Smith and Stiles are wrong to claim that "the views of insured individuals regarding the adequacy of the benefit structure of their plans" (Bashshur, Smith and Stiles: 1993) constitute a <u>dimension</u> of underinsurance. Instead, I will argue that what Bashshur, Smith and Stiles refer to as the perceptual/attitudinal dimension is really a two-fold way of measuring (counting) the number of people who are underinsured relative to one or more features of a benchmark heath insurance benefits package. One measurement is in terms of the "subjective assessment" of the adequacy of what benefits the person's health insurance benefits package covers relative to a benchmark health insurance benefits package. Using the language developed in Step 1 of the argument, this means that it is a perceptual/attitudinal measurement of the "benefits dimension" of underinsurance. The other measurement is in terms of the "subjective assessment" of the adequacy of the out-of-pocket costs associated with the person's health insurance benefits package relative to a benchmark health insurance benefits package. Once again, using the language developed in Step 1 of the argument, this means that it is a perceptual/attitudinal measurement of the "economics dimension" of underinsurance. In both cases the measurement of the number of people who are underinsured is a function of the subjective assessments made of one or more features of the benefits package of the person's health insurance plan relative to a non-subjective, albeit

normative benchmark health insurance benefits package. Thus, the conclusion I will draw from the two-step argument presented below is that the classification scheme for underinsurance offered by Bashshur, Smith and Stiles is incorrect and should be replaced with a classification scheme having the following form:



In this classification schema, the solid “arrowed” lines refer to dimensions of underinsurance[38], and the broken “arrowed” lines refer to ways of measuring (counting) the number of underinsured people relative to one or more features of a dimension of underinsurance. The important difference is that dimensions provide definitions of ‘underinsurance’ and can, but need not, provide numbers of people who are underinsured[39], whereas perceptual/attitudinal measurements provide information about the number of people who are underinsured based upon an acceptance of a definition of ‘underinsurance’. Thus, relative to the new classification scheme, the following points will be argued for in this section:

- The initial arrow from ‘underinsurance’ to ‘structural’ indicates that questions of underinsurance are always based on a comparison to the structure of some benchmark health insurance package. The structure of a health insurance

[38] Thus, there is a general structural dimension of underinsurance, and two more specific dimensions, a benefits structural dimension and an economic structural dimension.

[39] For example, compared to a benchmark health insurance benefits package, another health insurance benefits package may be inadequate because it fails to offer at least one benefit that is offered by the benchmark plan. In this case we may say that people covered by the health insurance plan are underinsured relative to the non-covered benefit in the benchmark health insurance plan. However, this

package, as indicated in the classification schema, has two dimensions – a benefits dimension and an economic dimension. Thus, there are two dimensions of underinsurance , a benefits dimension and an economic dimension.

- The benefits dimension and the economics dimension are the only two dimensions of underinsurance.
- What Bashshur, Smith and Stiles call the "perceptual/attitudinal dimension" of underinsurance is not a dimension of underinsurance. Instead, it is a way of counting the number of underinsured people relative to a dimension of underinsurance.
- As noted above, measuring the perceptions/attitudes of people is one way of measuring the number of people who are underinsured, but it is not the only way. For example, suppose, relative to a benchmark health insurance benefits package, we say that another health insurance package is inadequate because it fails to offer a particular benefit. If we know all the people covered by this inadequate health insurance package, then we will know the number of people covered by that health insurance package who are underinsured relative to the benchmark. Here, it is not necessary to conduct a survey or some other measurement of the perceptions/attitudes of the people covered by the inadequate health insurance package in order to come up with the number of underinsured people.

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still does not tell us how many people are underinsured. To know this we would also have to know how many people are covered by the health insurance plan.

- In the new classification scheme, the benefits dimension is separated from economics dimension. This separation is not an exclusive "either-or" separation. People who are interested in questions of underinsurance may want to connect the dimensions in various ways. The separation only means that there is nothing, in principle, that precludes considering each dimension in isolation from the other.

Step 1: Let us begin with a simple table in which the characterizations Bashshur, Smith and Stiles give of the relative structural dimension of underinsurance and the empirical experiential dimension of underinsurance are set side-by-side with one another.

Bashshur, Smith and Stiles' Relative Structural Dimension Of Underinsurance	**Bashshur, Smith and Stiles' Empirical Experiential Dimension Of Underinsurance**
"The relative [structural] criterion for underinsurance refers to cost-sharing clauses, such as coinsurance and deductibles for insured benefits, that render the client liable for part of the expense." The liability due to these cost-sharing clauses is considered excessive "on the basis of normative standards." (Bashshur, Smith and Stiles: 1993)	The empirical experiential dimension "is based primarily on the actual experiences of consumers … reflecting the out-of-pocket expenditures" of consumers. Based on out-of-pocket expenditures "for a specified pattern of experience, one can compare these dollars with some specified maximal expenditures for health care that should not be exceeded." (Bashshur, Smith and Stiles: 1993)

As the table indicates, both dimensions of underinsurance identified by Bashshur, Smith and Stiles deal with excessive out-of-pocket costs associated with the benefits package of a health insurance plan. In this respect, both dimensions are economic dimensions of underinsurance. In addition, both dimensions refer to some benchmark health insurance benefits package against which the out-of-pocket costs associated with the benefits package of a health insurance plan are compared. When the out-of-pocket costs associated with the benefits package of a health insurance plan

exceed the out-of-pocket costs associated with the relevant benchmark health insurance benefits package, then the coverage provided by the benefits package is inadequate. In such a case, any person covered by the health insurance plan is underinsured. When the out-of-pocket costs associated with the benefits package of a health insurance plan do not exceed the out-of-pocket costs associated with the relevant benchmark health insurance benefits package, then the coverage provided by the benefits package is adequate. In such a case, any person covered by the health insurance plan is adequately insured (not underinsured). Thus, both dimensions refer to a specific structural element of a benchmark health insurance benefits package, viz. its economic structural element.[40] At this point then, there seem to be good reasons for not treating the relative structural dimension and the empirical experiential dimension as two different dimensions of underinsurance. Instead, given their shared characteristics, there seem to be good reasons for assimilating both under the heading of an "economic dimension" of underinsurance. Therefore, the question is: "Why do Bashshur, Smith and Stiles claim that the relative structural dimension of underinsurance is distinct from the empirical experiential dimension of underinsurance?"

Unfortunately, Bashshur, Smith and Stiles do not present an argument whose intent is to demonstrate that the relative structural dimension of underinsurance is different from the empirical experiential dimension of underinsurance. Instead, they simply remark that whereas the relative structural dimension of underinsurance is "ascertained" according to the economic attributes of the benefits package of a health

[40] One might here raise the question: "What exactly is meant by 'structural' when referring to a health insurance plan?" In this MPH Project I am assuming that it is reasonable to mean, by 'structure', the set of benefits offered by the health insurance plan and their economic and non-economic relations to one another and to the people covered by the health insurance plan.

insurance plan, the empirical experiential dimension "is based primarily on the actual experiences of consumers". (Bashshur, Smith and Stiles: 1993) However, since I am arguing that Bashshur, Smith and Stiles are mistaken in claiming that these are two different dimensions of underinsurance, it is important to try to get at what might have led them to make such a separation. In doing this, we will discover that there is no good reason for the distinction and that, instead, there are good reasons for collapsing the two into the more comprehensive economics dimension of underinsurance.

As noted in Section (V), the example Bashshur, Smith and Stiles explicitly cite as an approach to questions about underinsurance using the empirical criterion of the experiential dimension of underinsurance is the definition of 'underinsurance' given in Farley (1985). Pamela Farley, in her 1985 article, considers a variety of different ways to define 'underinsurance'. However, the central idea, reiterated again in her 1995 article co-authored with Jessica Banthin (Short and Banthin: 1995), is that a person is underinsured if he or she has a 1-in-100 chance of incurring a medical bill for a necessary medical expense requiring out-of-pocket expenditures that are greater than or equal to 10% of the yearly family income of the person. Thus, in the present context, the question is: "How does Farley's 1985 definition of 'underinsurance', one that Bashshur, Smith and Stiles explicitly claim uses an empirical criterion of the experiential dimension of underinsurance, differ from a definition that uses a relative criterion of the structural dimension of underinsurance?" In what follows I will argue that there is no difference between Farley's 1985 definition and a definition that uses a relative criterion of the structural dimension of underinsurance. On the basis of this argument, I will conclude that, using the very example provided by Bashshur, Smith and Stiles, there is

good reason for not separating the relative structural dimension of underinsurance from the empirical experiential dimension of underinsurance. Instead, I will argue that the Farley's 1985 definition suggests that both dimensions of underinsurance should be collapsed into the more comprehensive "economics dimension" of underinsurance.

If we break down Farley's 1985 definition of 'underinsurance', we discover that it has the following three elements:

(i) The out-of-pocket expenses for medical (health) care are compared to a certain percentage, 10%, of a family's yearly income.

(ii) There is a risk adjustment[41] in terms of the percentage chance, 1-in-100, that a person has of incurring excessive (greater than or equal to 10% of a family's yearly income) out-of-pocket expenses.

(iii) The out-of-pocket expenses are associated with medically necessary care.

Thus, if Farley's definition of 'underinsurance' is a genuine example of a definition using an empirical criterion of the experiential dimension of underinsurance, but not a relative criterion of the structural dimension of underinsurance, then it must due to one of (i) through (iii). More precisely, it must be because at least one of (i) through (iii) uses the empirical criterion of the experiential dimension of underinsurance but does not use the relative criterion of the structural dimension of underinsurance. However, I will argue that none of the three elements permits Bashshur, Smith and Stiles to separate the relative structural dimension of underinsurance from the empirical experiential dimension of underinsurance.

[41] An interesting question here is what difference there is, if any, between a risk adjustment and a risk assessment. Farley (1985) uses 'adjustment', but for all intents and purposes, we can, in the present context, treat this as synonymous with 'assessment'.

It is not the first element of Farley's definition that, on Bashshur, Smith and Stiles's account, entails that it is a definition using the empirical criterion of the experiential dimension of underinsurance but not the relative criterion of the structural dimension of underinsurance. In their discussion of the relative structural dimension of underinsurance, Bashshur, Smith and Stiles write that cost sharing may be "calculated as a percentage of income" (Bashshur, Smith and Stiles: 1993), and the economic adequacy or inadequacy of a health insurance benefits package determined using this calculated amount. Although the language is a bit different, this amounts to the first element in Farley's definition. Indeed, Bashshur, Smith and Stiles go on to write that when determining the economic adequacy or inadequacy of a health insurance benefits package, "expenditures that amount to 10 percent of family income may be considered … rather high for [a family with] an income of $300,000." (Bashshur, Smith and Stiles: 1993) The implication of what Bashshur, Smith and Stiles write is that the coverage provided by the benefits package of the health insurance plan is, in such a case, inadequate, and that people having a yearly family income of $300,000 with that health insurance plan are underinsured. Thus, the first element in Farley's definition cannot be what makes her definition an instance of the empirical experiential dimension of underinsurance but not an instance of the relative structural dimension of underinsurance. This means that it cannot be the first element of Farley's 1985 definition that justifies Bashshur, Smith and Stiles' claim that the relative structural dimension of underinsurance is different from the empirical experiential dimension of underinsurance.

The second element of Farley's definition says that the determination of whether a person is underinsured is made on the basis of the person's "age, sex, race, income, perceived health status" and other such factors, together with the relevant medical expenses (e.g., inpatient medical care) members of that group have a particular probability of incurring. (Farley: 1985) However, when discussing the relative structural dimension of underinsurance, Bashshur, Smith and Stiles, like Farley, claim that "factors such as age" and "the specific health benefit in question" are important determinants of "whether or not cost-sharing amounts" are excessive. (Bashshur, Smith and Stiles: 1993) But this just means that the relative structural dimension of underinsurance is sensitive to risk adjustments in terms of the percentage chance a person having a particular set of characteristics has of incurring excessive out-of-pocket expenses, which is Farley's second element. Thus, it cannot be this element that makes Farley's definition an instance of the empirical experiential dimension of underinsurance but not an instance of the relative structural dimension of underinsurance. This means that it cannot be the second element of Farley's 1985 definition that justifies Bashshur, Smith and Stiles' claim that the relative structural dimension of underinsurance is different from the empirical experiential dimension of underinsurance.

This seems to leave only the third element as that part of Farley's definition of 'underinsurance' sufficient to make it an instance of the empirical experiential dimension of underinsurance but not an instance of the relative structural dimension of underinsurance. Unfortunately though, this element also fails to permit Bashshur, Smith and Stiles to make the distinction they want. In discussing the structural dimension of underinsurance generally, Bashshur, Smith and Stiles write that not "even the

proponents of radical health care reform short of a national health service advocate full coverage for all benefits with no controls on use of service". (Bashshur, Smith and Stiles: 1993) Some "level of less than full coverage is," according to Bashshur, Smith and Stiles, "not only acceptable on social and economic grounds but is also necessary in the current system of care in the United States." (Bashshur, Smith and Stiles: 1993) The implication is that Bashshur, Smith and Stiles accept the distinction, discussed in Section (V), between "services or interventions meant to prevent or cure (or otherwise ameliorate) conditions that we view as diseases or disabilities", and interventions that we view as a desirable function or feature of members of our species. (Daniels: 2000) In other words, both the categoric structural dimension of underinsurance and the relative structural dimension of underinsurance are sensitive to the distinction between services and interventions required to administer medically necessary care and services or interventions associated with care that is not medically necessary. Thus, the appropriate benchmark comparison for both the categoric and relative structural dimensions of underinsurance is to health insurance benefits packages covering only medically necessary care. This, though, is just the third element of Farley's definition, and so it cannot be this element that makes Farley's definition an instance of the empirical experiential dimension of underinsurance while excluding it as an instance of the relative structural dimension of underinsurance. It follows from this that it cannot be the third element of Farley's 1985 definition that justifies Bashshur, Smith and Stiles' claim that the relative structural dimension of underinsurance is different from the empirical experiential dimension of underinsurance.

It follows from the arguments presented above that Farley's 1985 definition of 'underinsurance' is not one that uses only the empirical criterion of the experiential dimension of underinsurance. Thus, contrary to Bashshur, Smith and Stiles' own claim, Farley's 1985 definition of 'underinsurance' is not one that either exemplifies or demonstrates that there is a difference between the relative structural dimension of underinsurance and the empirical experiential dimension of underinsurance. Instead, Bashshur, Smith and Stiles's use of Farley's definition seems to lead to a very different conclusion; namely, that there is no substantive difference in kind between the empirical experiential dimension of underinsurance and the relative structural dimension of underinsurance. Thus, by carefully and systematically examining Farley's 1985 definition of 'underinsurance', we discover that the definition gives added reason for assimilating both the empirical experiential dimension of underinsurance and the relative structural dimension of underinsurance under the more general heading "economic dimension".

Before moving on to Step 2, it is worthwhile to consider one other possible interpretation of Bashshur, Smith and Stiles's claim that, whereas the relative structural dimension of underinsurance is "ascertained" according to the economic attributes of the benefits package of a health insurance plan, the empirical experiential dimension "is based primarily on the actual experiences of consumers. (Bashshur, Smith and Stiles: 1993) What they could mean is that the empirical experiential dimension not only provides a definition of 'underinsurance', it also provides a measurement (count) of the number of underinsured people. The idea behind this interpretation is that if the empirical experiential dimension is based on the actual experiences of consumers, then

presumably we will have information about which of those consumers have health insurance benefits packages that are economically inadequate when compared to a benchmark health insurance benefits package. In this case though, we also have enough information to calculate the number of underinsured people relative to one or more economic characteristics of the benchmark health insurance benefits package. If we interpret Bashshur, Smith and Stiles's empirical experiential dimension in this manner, then we can contrast it with a more restrictive interpretation of the relative structural dimension of underinsurance. According to this more restrictive interpretation, the relative structural dimension of underinsurance provides information only of the economic responsibilities required of people covered by a health insurance benefits package relative to some benchmark health insurance benefits package. What the relative structural dimension does <u>not</u> do is provide any information of who is, in fact, covered by that health insurance benefits package. Since the relative structural dimension of underinsurance does not provide this information, it follows that it does not contain the information necessary to calculate the number of people who are underinsured relative to one or more economic characteristics of the benchmark health insurance benefits package. Thus, on this interpretation of Bashshur, Smith and Stiles, the difference between the empirical experiential dimension of underinsurance and the relative structural dimension of underinsurance is that the former, but not the latter, provides sufficient information to calculate the number of underinsured people.

If this is what Bashshur, Smith and Stiles intend, then their claim that the empirical experiential dimension of underinsurance is distinct from the relative structural dimension of underinsurance is based on a confusion. When Bashshur, Smith and

Stiles talk about different “dimensions” of underinsurance, what they mean is that there are distinct classes of definitions of ‘underinsurance’[42] corresponding to these distinct dimensions of underinsurance.[43] However, the distinction captured by the contrast between the empirical experiential dimension of underinsurance and the relative structural dimension of underinsurance is not a distinction of classes of definitions, but is rather a distinction of how to apply a single definition. Thus, what Bashshur, Smith and Stiles have done is to confuse the claim that there are two different classes of definitions, and so two distinct dimensions of underinsurance, with the claim that it is possible to apply single definition in two different ways, depending upon what information is available.

Expanding on the final claim of the previous paragraph, as we have already seen, treated as classes of definitions of ‘underinsurance’, the empirical experiential dimension of underinsurance is no different from the relative structural dimension of underinsurance. Every definition of ‘underinsurance’ that is an instance of the empirical experiential dimension of underinsurance is also an instance of the relative structural dimension of underinsurance. Conversely, every definition that is an instance of the relative structural dimension of underinsurance is also an instance of the empirical experiential dimension of underinsurance. Thus, contrary to the claim of Bashshur, Smith and Stiles, we have one dimension of underinsurance – the economic dimension – and not two. In turn, this means that we have only one economic definition of ‘underinsurance, not two different economic definitions. Still, it is important to recognize

[42] More technically, corresponding to each dimension of underinsurance there is a distinct class of definition tokens, where each token in the class has the same extension.
[43] Saying this is consistent with the claim that a fully adequate definition of ‘underinsurance’ will incorporate all three of the more restrictive definitions.

that it is possible to apply this single definition, capturing the economic dimension of underinsurance, in two different ways, depending upon what information is available.

The first application of the definition of ‘underinsurance’ capturing the economic dimension will not provide us any information about the number of people who are underinsured. For example, suppose that we know all the economic characteristics of a particular health insurance benefits package, but do not have any information concerning who is covered by that benefits package. In this case, it is possible to apply a definition capturing the economic dimension of underinsurance to a health insurance benefits package to tell us whether any person covered by that benefits package is underinsured. However, when applied in this way, the definition will not provide us with any information concerning the number of people are underinsured. All this application will give us is a conditional statement: If a person is economically covered by the health benefits package, then that person is economically underinsured relative to the benchmark health insurance plan. That this application of the definition does not provide us with a count of underinsured people is not a deficiency of the definition. The application only reflects the fact that we lack sufficient additional information to apply the definition in such a way as to be able to calculate the number of underinsured people.

This leads to the second application of the definition of ‘underinsurance’ capturing the economic dimension. Suppose that we really are interested in the actual number of underinsured people (not adequately insured) relative to one or more economic characteristics of some benchmark health insurance benefits package. What we need is some additional information; namely, the number of people referred to by the

definition capturing the economic dimension of underinsurance.[44] What is important to emphasize is that the addition of this information does not entail a change in definition. To suppose that determining the number of underinsured people relative to one or more economic characteristics of some benchmark health insurance benefits package requires (or entails) a new definition of 'underinsurance' is to confuse definitions with the applications of definitions.

It follows from the above that, once again, we have good reason for rejecting the claim of Bashshur, Smith and Stiles that the empirical experiential dimension of underinsurance is distinct from the relative structural dimension of underinsurance. What we have is a single definition, capturing a single dimension of underinsurance that can be applied in two different ways depending on the available information. Thus, we have one more reason for assimilating the empirical experiential dimension of underinsurance and the relative structural dimension of underinsurance under the more general heading of the economic dimension of underinsurance.

Finally then, before turning to Step 2 of the argument that the three dimensions of underinsurance identified by Bashshur, Smith and Stiles misrepresent the essential characteristics of underinsurance, we need to say something about what I have referred to as the benefits dimension of underinsurance. As noted in Section (V), Bashshur, Smith and Stiles divide the structural dimension of underinsurance into the categoric structural dimension and the relative structural dimension. We should assimilate the latter, I have argued, together with the empirical experiential dimension, into what I have referred to as the "economic dimension" of underinsurance. However, the categoric

[44] This is a measurement question. How do we go about determining all the people who are referred to by a definition of underinsurance capturing the economic structural dimension of underinsurance? It is at this

structural dimension of underinsurance cannot be assimilated into the economic dimension of underinsurance because the categoric structural dimension is not concerned with the economic characteristics of a health insurance benefits package. The categoric structural dimension of underinsurance is concerned with what benefits are offered by a health insurance benefits package, together with the non-economic characteristics associated with the delivery of those benefits, relative to some benchmark health insurance benefits package. Thus, this constitutes a dimension of the overall structure of underinsurance that is distinct from the economic dimension, and because it concerns itself with the non-economic characteristics of a health insurance benefits package, I will refer to this dimension as the "benefits dimension".

As was the case for the economic dimension of underinsurance, so too a definition of 'underinsurance' making use of the benefits criterion of underinsurance will not, without additional information, tell us anything about the number of people who are underinsured. For example, suppose that we use the idea presented in Short and Banthin (1995) that a person is underinsured if the health insurance benefits package covering the person lacks one or more of the benefits offered by the Federal Blue Cross and Blue Shield standard option insurance plan. The definition of 'underinsurance' exemplified by this idea makes use of the benefits criterion of underinsurance because it is concerned only with the benefits offered by the plan, and not with any economic characteristics (e.g., out-of-pocket responsibilities) of the plan. The limitation though, is that the most we can determine from this definition is that any person whose health insurance benefits package lacks one or more of the benefits in the benchmark health insurance benefits package is underinsured. In other words, we end up with a

point that the discussion turns to various survey methods.

conditional statement: If a person has benefits offered by the health benefits package, then that person is underinsured, in terms of benefits, relative to the benchmark health insurance plan. Using only the benefit criterion of underinsurance, what we cannot determine the number of people underinsured relative to the benchmark health insurance benefits package. In order to determine the number of underinsured people we would need additional information.

Just what additional information we need in order to determine the number of underinsured people depends upon what question we are asking. This is an important point because there are at least two different questions embedded in the question: "How many people are underinsured, relative to a benchmark health insurance benefits package, using a benefit criterion of underinsurance?"

- The first embedded question is: "How many people, within a specified health insurance plan, are underinsured, relative to a benchmark health insurance benefits package, using a benefit criterion of underinsurance?"
- The second embedded question is: 'How many people, <u>independent of the specification of any particular health insurance plan</u>, are underinsured, relative to a benchmark health insurance benefits package, using a benefit criterion of underinsurance?"

In the case of the first embedded question, the additional information needed to determine the number of underinsured people is the number of people enrolled in the specified health insurance plan. Once we know this, then we will know the number of underinsured people in that specified health insurance plan. In the case of the second question, the additional information needed to determine the number of underinsured

people is how many people, regardless of the particular health insurance plan that covers them, are covered by a health insurance plan whose benefit package lacks one or more of the benefits offered by the benchmark health insurance benefits package.

At this point we can bring together the various conclusions about the economic and benefits dimensions of underinsurance. It follows from the arguments that have been presented that the question "How many people are underinsured?" is multiply ambiguous. There are four different questions, two for each of the two dimensions of underinsurance, embedded in this question:

I. The Economic Dimension of Underinsurance

Question 1: How many people, within a specified health insurance plan, are underinsured, relative to a benchmark health insurance benefits package, using an economic criterion of underinsurance?

Question 2: How many people, independent of the specification of any particular health insurance plan, are underinsured, relative to a benchmark health insurance benefits package, using an economic criterion underinsurance?

II. The Benefits Dimension of Underinsurance

Question 3: How many people, within a specified health insurance plan, are underinsured, relative to a benchmark health insurance benefits package, using a benefit criterion of underinsurance?

Question 4: How many people, independent of the specification of any particular health insurance plan, are underinsured, relative to a benchmark

health insurance benefits package, using a benefit criterion of underinsurance?

There are at least three features about these four questions worth emphasizing. The first feature meriting emphasis is that a common element to all four questions is the reference to a benchmark health insurance benefits package. Because the determination of what will count as the benchmark health insurance benefits package involves value judgments about necessary benefits and economic responsibilities of people covered by health insurance plans, it is here that normative considerations enter into questions about the number of underinsured people. In particular, the benchmark health insurance benefits package establishes what constitutes adequate coverage. However, as noted by the University of Minnesota Center for Bioethics, there "is no generally agreed upon understanding of precisely what constitutes an adequate level of care. The range of health care deemed adequate will reflect the values we expect our health care system to embody and promote, and what consensus there is about these values remains incomplete." (University of Minnesota Center for Bioethics: 1997) Thus, the benchmark health insurance benefits package will itself reflect whatever values we expect our health care system to embody and promote.

The second feature meriting emphasis is that often when people ask about the number of underinsured, they do not have just one of the four questions in mind. More commonly what they have in mind is some sort of mixture of the four questions. For example, one might ask: "How many people lack a prescription drug benefit and are required to pay more than $500 per year in coinsurance out-of-pocket payments?" If, as seems natural, we understood this to be a general question and not a question about

people covered by a specific health insurance plan, then it is an amalgamation of questions 4 and 2, respectively. This shows that the separation of the benefit dimension of underinsurance from the economic dimension of underinsurance is not an exclusive "either-or" separation. People who are interested in questions of underinsurance often make use of characterizations incorporating aspects of both dimensions.

The third feature meriting emphasis is that none of the four questions should be confused with two other questions that people sometimes ask. These two other questions are:

> Question 5: Is it the case that a person covered by a particular health insurance benefits package is underinsured, relative to a benchmark health insurance benefits package, using a criterion of the economic dimension of underinsurance?
>
> Question 6: Is it the case that a person covered by a particular health insurance benefits package is underinsured, relative to a benchmark health insurance benefits package, using a criterion of the benefits dimension of underinsurance?

Neither of these is a question about how many people are underinsured. Instead, both are questions about the adequacy of a particular health insurance benefits package relative to some benchmark health insurance benefits package.[45]

Step 2: Up to this point I have been concerned with critically evaluating Bashshur, Smith and Stiles's account of the structural dimension of underinsurance and

[45] More technically, as was argued in Step 1, it is possible to answer questions (5) and (6) without being able to answer any of questions (1) through (4). On the other hand, the ability to answer either question (1) or question (2) entails that one is able to answer question (5), while the ability to answer either question (3) or question (4) entails that one is able to answer question (6).

the experiential dimension of underinsurance. However, as noted in Section (V), Bashshur, Smith and Stiles also claim that there is a third dimension of underinsurance, the perceptual/attitudinal dimension, that is distinct from both the structural dimension of underinsurance and the experiential dimension of underinsurance. They write that the "perceptual/attitudinal dimension of underinsurance refers to the views of insured individuals regarding the adequacy of the benefit structure of their plans." (Bashshur, Smith and Stiles: 1993) This dimension is "essentially subjective in nature" because it focuses on the value judgments of individuals regarding the adequacy of one or more features of their health insurance benefits package. Thus, according to Bashshur, Smith and Stiles, the key difference between the perceptual/attitudinal dimension of underinsurance and the other two dimensions of underinsurance "lies in who makes the evaluation of the insurance policy." (Bashshur, Smith and Stiles: 1993) "Both structural and experiential definitions[46] are views of the insurance policy by a third party who has full information on coverages," write Bashshur, Smith and Stiles, while "perceptual/attitudinal definitions" reflect the beliefs of the people who are insured about the adequacy of their coverage. While it is possible that the people who are insured have "full information" on the coverage provided by their health insurance benefits package, there is no requirement that they have such information, and the possibility of their having "full information" is, generally, quite low. (Nelson, Thompson, Davenport and Penaloza: 2000)

In order to sort out the problems with Bashshur, Smith and Stiles's claims about the so-called perceptual/attitudinal dimension of underinsurance, let us begin with a

[46] This is just one of the many instances where Bashshur, Smith and Stiles move back and forth between talk of definitions of 'underinsurance' and dimensions of underinsurance.

clarification. From Step 1 we know that there are two ways a health insurance benefits package can be inadequate. First, compared to some benchmark health insurance benefits package, it can lack the benefits offered by the benchmark plan or it can lack the non-economic characteristics associated with the delivery of those benefits. This is the benefits dimension of underinsurance. Second, compared to some benchmark health insurance benefits package, it can require at least some out-of-pocket costs of those insured greater than those required by the benchmark health insurance benefits package. This is the economic dimension of underinsurance.

It follows from this that there are two ways that a person may believe that his or her health insurance benefits package coverage is inadequate. On the one hand, a person may believe that his or her health insurance benefits package coverage is inadequate from the perspective of the benefits dimension of underinsurance. On the other hand, a person may believe that his or her health insurance benefits package coverage is inadequate from the perspective of the economics dimension of underinsurance.

The problem with Bashshur, Smith and Stiles's account of the perceptual/attitudinal dimension of underinsurance emerges right at this point. While the distinction that I have presented between the ways a person may believe that his or her health insurance benefits package coverage is inadequate is analogous to the distinction implicit in Bashshur, Smith and Stiles, it is <u>not</u> strictly analogous. To see what the difference is, consider the following table in which the distinctions are set side-by-side with one another:

Distinction Between the Two Ways a Person May Believe that His or Her Health Insurance Benefits Package is Adequate Using the New Typology	**Distinction Between the Two Ways a Person May Believe that His or Her Health Insurance Benefits Package is Adequate Using Bashshur, Smith and Stiles's**
Relative to some benchmark health insurance benefits package, a person may believe that the coverage provided by his or her health insurance benefits package is either inadequate because of the economic characteristics of the benefits package or inadequate because of the non-economic characteristics of the benefits package.	A person may believe that the coverage provided by his or her health insurance benefits package is either inadequate because of the economic characteristics of the benefits package or inadequate because of the non-economic characteristics of the benefits package.

As the table makes clear, the difference between the two distinctions is that there is no reference to a benchmark health insurance benefits package in Bashshur, Smith and Stiles's distinction. Although this may seem like a minor omission, it is not. If we do not include any reference to a benchmark health insurance benefits package, there are no constraints placed on what economic or non-economic characteristics of a health insurance benefits package a person might believe to be inadequate. If there are no constraints placed on what economic or non-economic characteristics of a health insurance benefits package a person might believe to be inadequate, then there are no constraints placed on the perceptual/attitudinal definitions of 'underinsurance'. Without any constraints placed on the perceptual/attitudinal definitions of 'underinsurance', permitting the perceptions and attitudes of insured people to constitute a dimension of underinsurance entails a collapse of Bashshur, Smith and Stiles's distinction between adequate coverage on the one hand, and full and excessive coverage on the other. Thus, if there is no reference to a benchmark health insurance benefits package in the distinction between the ways a person may believe that his or her health insurance

benefits package coverage is inadequate, then adequate health insurance coverage is no different from either full or excessive health insurance coverage.

To understand how this happens and why it is unacceptable, it suffices to consider two simple examples. What these examples will demonstrate is that we should not focus on just any economic responsibilities, benefits or delivery of benefits when examining the perceptions/attitudes of people who are covered by the benefits package of a health insurance plan. Instead, we must begin with a clearly defined benchmark heath insurance benefits package. For the first example, suppose that we ask a person whose yearly income exceeds $100,000 whether his or her health insurance benefits package is adequate. The person responds negatively and, by way of an explanation, says that it is because the maximal yearly out-of-pocket costs associated with the insurance are $100 per year that the health insurance benefits package is inadequate. If the value judgment of the person is, by itself, sufficient to justify classifying the health insurance benefits package as inadequate, then a health insurance benefits package whose maximal yearly out-of-pocket expenditures exceeds .1% of his or her family income is inadequate. Of course, it is quite likely that not everyone will share this belief; most people will probably set a much higher percentage limit for adequate maximal yearly out-of-pocket costs. However, without some principled way to exclude cases such as the .1% case as instances of underinsurance, then there is no way to exclude some beliefs as unreasonable, *qua* adequacy of economic responsibilities, while retaining others. Thus, it follows that the perceptual/attitudinal definition of 'underinsurance' lacks all specificity and really amounts to saying that a person is underinsured if there is at least one out-of-pocket cost required by the person's health

insurance benefits package that the person would not want to pay. However, given a choice between having no out-of-pocket cost requirements or some out-of-pocket cost requirements, rational people will choose no out-of-pocket cost requirements. Thus, the perceptual/attitudinal definition of 'underinsurance' finally becomes, relative to the economic characteristics of the health insurance benefits package: "A person is underinsured if there are any out-of-pocket costs associated with the person's health insurance benefits package." The problem is that this is tantamount to collapsing Bashshur, Smith and Stiles's distinction between adequate health insurance coverage and health insurance coverage that is either full or excessive. In particular, since inadequacy of health insurance coverage (underinsurance) is a comparative notion, it entails that the proper benchmark comparison for judging whether health insurance coverage is adequate is either full or excessive health insurance coverage. As was shown in Section (V), not only is this not what Bashshur, Smith and Stiles want as the benchmark comparison (they want adequate health insurance coverage as the benchmark), there are, in addition, good reasons for not using either full or excessive coverage as the benchmark.

The second example is due to Norman Daniels, who refers to it as "the case of the cranky victim". Daniels writes:

> CV is a lonely, unhappy single man in his forties. He feels that he has been treated unfairly since childhood, when for reasons unclear to him he was frequently picked on in school. He acknowledges that he has acted in a demanding and irascible manner all of his adult life, and that these barriers have contributed to an unhappy love life and tendency to lose friends. He believes, however, that his actions represent a natural response to the way the world has treated him. His brother, father, and an uncle are also irascible.

> Although a slow learner, CV completed high school and a vocational program in audiovisual technologies. Because he prefers to work independently, he does free-lance work, which barely provides adequate income.
>
> In the past CV has had several courses of psychotherapy. The most helpful was eighteen months of group treatment ten years ago. CV, however, preferred individual therapy. Even though it had not led to any identifiable changes, he felt happier while the therapy was going on and stated that individual therapy had helped him to understand himself better. Now a member of the HMO, CV requested individual treatment because of his ongoing unhappiness and isolation. (Daniels: 1996)[47]

Now, however much sympathy (or empathy) we may feel for CV, CV's medical history suggests that individual psychotherapy is not efficacious for bringing about any substantive change. Thus, suppose that CV's HMO[48] refuses to cover any individual psychotherapy for CV, and instead authorizes, based on past effectiveness, group psychotherapy. If we were now to ask CV about his health insurance coverage, it is likely that he would claim that the coverage was inadequate precisely because it failed to provide a benefit he wanted – the individual psychotherapy. Should we then, because CV believes that his health insurance coverage is inadequate, be willing to say that any health insurance benefits package is inadequate if is fails to provide individual psychotherapy coverage for anyone desiring such coverage? The answer, I believe, is "no".

The reason we should resist making such a definition is that it would entail the elimination of any boundaries on what will count as an underinsured person. Just as CV wanted individual psychotherapy, so too another person might want a hair transplant,

[47] Also see Daniels (2000).
[48] Nothing of importance for the argument turns on the fact that the insurance is being provided through an HMO.

LASIK surgery or some other treatment. If CV's wanting individual psychotherapy leads to our saying that a person is underinsured if the person wants individual psychotherapy and his or her health insurance fails to provide such coverage, then the same will be true of hair transplants and LASIK surgery. More generally, we are left with the position that if a person wants a particular benefit, no matter how trivial or unnecessary, and the health insurance package does not include that benefit, then the person is, according to the perceptual/attitudinal definition of 'underinsurance', underinsured. What this means is that the perceptual/attitudinal definition of 'underinsurance' lacks all specificity, and really amounts to saying that a person is underinsured if there is at least one benefit the person wants that is not covered by the person's health insurance benefits package. However, as in the first example, this is tantamount to collapsing Bashshur, Smith and Stiles's distinction between adequate health insurance coverage and health insurance coverage that is either full or excessive. In particular, it entails that the proper benchmark comparison for judging whether health insurance coverage is adequate is either full or excessive health insurance coverage. As was shown in Section (V), this is not what Bashshur, Smith and Stiles want as the benchmark comparison (they want adequate health insurance coverage as the benchmark) and there are good reasons for not using either full or excessive coverage as the benchmark.

As previously stated, what both of these examples demonstrate is that we should not focus on just any economic responsibilities, benefits or delivery of benefits when examining the perceptions/attitudes of people who are covered by the benefits package of a health insurance plan. Instead, we must begin with a clearly defined benchmark heath insurance benefits package. This benchmark should specify what economic

responsibilities, what benefits, and what kinds of delivery of those benefits constitute adequate coverage. Once this is done, we can examine the perceptions and attitudes of people who have health insurance coverage, relative to the benchmark health insurance benefits package, to determine the number of underinsured people. What this means though, is that the perceptions/attitudes of insured people do not carve out a distinct dimension of underinsurance. Discovering the perceptions and attitudes of people regarding their health insurance coverage does not provide a definition of 'underinsurance'. Bashshur, Smith and Stiles are right that the perceptions and attitudes of insured people play an important role in the story of underinsurance, but they are wrong about what that role is.

In conclusion, based on Step 1 and Step 2 above, we have good reason to reject the classification scheme of underinsurance offered by Bashshur, Smith and Stiles. Their classification scheme misrepresents the essential characteristics of underinsurance. Instead, what this section proposes is a classification scheme for underinsurance having the following characteristics:

(1) Definitions of 'underinsurance' as well as measurements of the number of people who are underinsured are both comparative; they are both made relative to a benchmark health insurance benefits package.

(2) Specifying the benchmark health insurance benefits package is a process that involves value judgments as well as empirically based beliefs about what health benefits are medically necessary. Thus, Bashshur, Smith and Stiles are correct to write that "the determination of underinsurance use normative criteria and empirical standards." (Bashshur, Smith and Stiles: 1993)

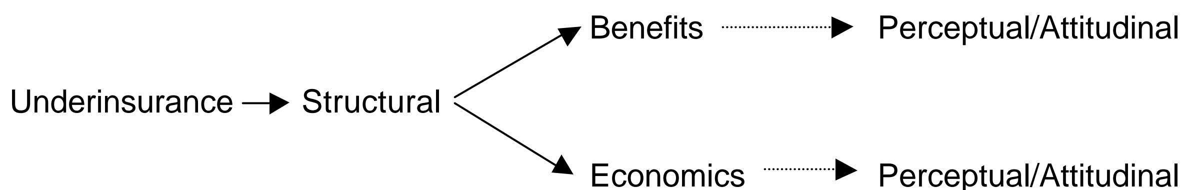
(3) The structure of a health insurance benefits package is constituted by two characteristics: the economic out-of-pocket cost responsibilities of the people insured, and the non-economic characteristics of the health insurance benefits package, including both the benefits offered and the delivery of those benefits. It follows from this that there are only two dimensions of underinsurance, an economics dimension and a benefits dimension. Thus, Bashshur, Smith and Stiles are wrong both in the number of dimensions of underinsurance they identify and the essential characteristics of the dimensions of underinsurance.

(4) The perceptions and attitudes of people who are insured do not, by themselves, constitute a “dimension” of underinsurance. Instead, determining such attitudes and perceptions is a way of measuring the number of underinsured people relative to some benchmark health insurance benefits package.

VII. Conclusion

I have argued in the previous sections that the topic of underinsurance is important to health care policy makers. I have also critically examined the single typology of underinsurance presented in the health care literature, the typology of Bashshur, Smith and Stiles, and argued that the account it offers misrepresents the essential elements of underinsurance. Based on this critique I have suggested a new typology of underinsurance. What remains to do is to flesh out the new typology in a bit more detail, link the typology to extant data sources, and offer a general "conceptual flowchart" for answering questions about underinsurance.

Let me begin the tasks of this section by recalling the new typology offered and argued for in Section (VI):



As argued in the previous two sections, questions of underinsurance do not occur in a vacuum. Because underinsurance is health insurance coverage that is inadequate, we can only understand underinsurance as compared to some standard of adequate health insurance coverage. As noted by the U.S. Congress, Office of Technology Assessment, "[C]alling something inadequate implies that there is a standard against which it can be judged." (the U.S. Congress, Office of Technology Assessment: 1988) In the previous two sections, I referred to this standard of adequate health insurance coverage as "the

benchmark health insurance benefits package". Thus, we can answer questions of underinsurance only if we first specify a benchmark health insurance benefits package.

There are two ways to specify a benchmark health insurance benefits package. A benchmark health insurance benefits package can be totally specified or it can be partially specified. Totally specifying a benchmark health insurance package requires that all its economic and non-economic characteristics be defined. Short and Banthin (1996) provide two examples of totally specified benchmark health insurance benefits packages. The first example is "the fee-for-service benefit package proposed by the Clinton administration is the Health Security Act". The second example is "the plan with the largest enrollment in the federal employee program (the Blue Cross and Blue Shield Standard option)." (Short and Banthin: 1996)[49] In both cases, the economic characteristics as well as the full range of benefits offered by the plans are totally characterized. A third example, offered by Harriette Fox, Margaret McManus, Ruth Almeida and Regina Graham, is that "any health insurance that provided a lesser benefit package or required more cost-sharing than its CHIP coverage would be considered underinsurance." (Fox, McManus, Almeida and Graham: 1997) In this case, it is the CHIP health insurance benefits package that provides the benchmark against which the adequacy of other health insurance benefits packages are judged. A fourth example is the health insurance benefits package recommended by the 1990 U.S. Bipartisan Commission on Comprehensive Health Care – the Pepper Commission. (Rockefeller: 1991; The Pepper Commission: 1990) This benefits package included, amongst other benefits, hospital care, surgical and other inpatient services, as well as a

variety of preventive services. In addition, the Commission recommended limits on out-of-pocket expenditures based on the ability of the insured person to pay.[50]

In contrast with total specifications, partial specifications of a benchmark health insurance package require that at least one, but not all of its economic or non-economic characteristics be defined. This sort of specification is much more common than total specifications. Wisconsin's 1999 Family Health Survey is an example of a survey that incorporates the partial specification of a benchmark health insurance benefits package. The survey (Wisconsin Department of Health and Family Services: 2001) asks respondents having health insurance the following questions:

(a) "Does this health insurance plan pay for all, some, or none of the costs of general check-ups and other preventive services, when you are sick?"

(b) "For health care at a doctor's office or health care clinic when you are sick or injured, does your health insurance cover all, some, or non of the expenses?"

(c) "For overnight hospital stays, does this health insurance cover all, some, or none of the expenses?"

Using the Family Health Survey, the state of Wisconsin says that an adequate health insurance benefits package is one to which the respondent would, in each of the three cases, answer either "some" or "all" when asked about his or her health insurance plan.[51] While the use of (a) through (c) does not provide a full specification of a

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[49] Also see Glied, Callahan, Mays and Edwards (2002) who use the "out-of-network coverage package offered to federal employees insured under the Blue Cross/Blue Shield standard option plan" as their "benchmark plan".

[50] Also, see Rockefeller (1990). See Callahan (1990) and Eddy (1991) for examples of general recommendations about the sorts of principles to incorporate in a fully specified benchmark health insurance benefits package.

[51] It is worth noting that Wisconsin does not seem to draw a principled distinction between full (or excessive) health insurance coverage and "only" adequate health insurance coverage.

benchmark health insurance benefits package, it does provide a partial specification.[52] The Behavioral Risk Factor Surveillance System (BRFSS) provides a second example of a partial specified health insurance benefits package. The BRFSS defines 'adequate health insurance' as "being insured and reporting no problems because of cost, and underinsurance [is defined] as being insured but failing to see a doctor because of cost." (Centers for Disease Control and Prevention: 1995)[53] A third example can be gleaned from the 2002 National Public Radio, Kaiser Family Foundation, and Harvard University Kennedy School of Government National Survey on Health Care. Although the survey does not incorporate a definition of 'underinsurance', some of the questions in the survey included (National Public Radio, Kaiser Family Foundation, and Harvard University Kennedy School of Government: 2002):

(a) "In the past twelve months, have you or another family member living in your household postponed health care you felt you needed?"

(b) "In the past twelve months, have you or another family member living in your household felt you needed a prescription drug but did not get it?"

From the information provided by the survey one could, in effect, "work backwards" and partially specify a health insurance benefits package as adequate only if people covered by the package answered "no" to the two questions above.[54]

[52] The Wisconsin Department of Health and Family Services specifically says that the State has not "attempted to develop a single definition of what it means" to be underinsured. (Wisconsin Department of Health and Family Services: 2001).

[53] The case of BRFSS is interesting partly because it provides both a definition of 'underinsurance' and a measurement of the number of underinsured people based on the perceptions/attitudes of the insured person. More precisely, BRFSS incorporates a definition of 'underinsurance' and then attempts to count the number of underinsured people, according to that definition, using a survey about the perceptions/attitudes of insured people. The state of Georgia (Warner, Stroup and Pledger: 1996) makes use of this "double characteristic" of the BRFSS.

[54] There were other questions asked by the survey that one might use either in addition to these two or instead of these two.

The last example of a partially specified health insurance benefits package exemplifies an important dynamic between definitions of 'underinsurance' and measurements of the number of underinsured people. Although measurements of the number of underinsured presupposes a definition of 'underinsurance', sometimes measurements of the number of people whose insurance coverage has a certain characteristic will suggest a definition of 'underinsurance'. This is what happens in the case of the 2002 National Public Radio, Kaiser Family Foundation, and Harvard University Kennedy School of Government National Survey on Health Care. Once the definition of 'underinsurance' is (partially) specified, it is then possible to read that definition back into the survey in order to come up with a measurement of the number of underinsured people. Other surveys which exemplify the same kind of dynamic include the 1996 Medical Expenditure Panel Survey (MEPS) (Committee on the Changing Market, Managed Care, and the Future Viability of Safety Net providers: 2000; Hanley: 1998; Merlis: 2002; Shearer: 2000; and Short: 1999) and the 1994 Robert Wood Johnson Foundation National Access to Health Care Survey (Baker, Shapiro, and Schur: 1994; Berk, Schur and Cantor: 1995).[55]

As noted in previous sections, it is in the specification of a benchmark health insurance benefits package that the normative element of underinsurance emerges. This is especially evident when the definition of 'underinsurance' is gleaned from a survey containing data about the characteristics of health insurance plans, and then read back into the survey to come up with a measurement of the number of underinsured people. Which characteristics of insurance coverage revealed by the

[55] These examples are intended to be suggestive, not exhaustive. For other surveys whose data could be used to derive a definition of 'underinsurance', see Appendix 2.

survey are chosen to be elements in the definition of the benchmark health insurance benefits package reflect the values of the people making use of the survey for this purpose.

Moreover, a pragmatic question emerges here. It is interesting and valuable, from an academic point of view, to spend time and resources coming up with a total specification of a benchmark health insurance benefits package.[56] However, as noted by the University of Minnesota Center for Bioethics, there "is no generally agreed upon understanding of precisely what constitutes an adequate level of care." (University of Minnesota Center for Bioethics: 1997)[57] This suggests that total specifications are likely to be difficult. At the same though, while disagreements "exist at the margins", there is considerable agreement "that many medical interventions are … needed for [health] care to be adequate." (University of Minnesota Center for Bioethics: 1997) For example, there is consensus that coverage of immunizations and well-child visits are necessary for health insurance coverage to be adequate. Thus, the pragmatic question is: "How much time, and how many resources should be used to seeking a total specification of a benchmark health insurance plan?" This is especially true if it is a state making the specification with no implications beyond the health policy of the state. State resources are limited and it may be possible to partially specify a benchmark health insurance benefits package in terms of the specific interests and needs of the state, even though there is no state-level consensus on a totally specified health insurance benefits

[56] This remark is not intended to preclude the possibility of the exercise having more than just academic value. Arguably, any attempt to institute national (universal) health coverage will need to undertake this exercise.
[57] Gary Garland and Richard Ludtke have an even more pessimistic assessment. They write that "no acceptable and generally recognized definition of under-insurance is available." (Garland and Ludtke: 1991).

package. Moreover, since other states may come up with different partial specifications of benchmark health insurance benefits packages, it is not clear what importance there is in demanding nothing other than a total specification. Of course, an important limitation of partial specifications at the state level is that it makes state-to-state comparisons of the number of underinsured people difficult. Thus, a compromise position is to use a well-recognized national benchmark as a total specification – e.g., the benefits provided by, and out-of-pocket responsibilities required by Medicare Plan A – but focus on only some subset of the characteristics depending on the interests of the state. The important point is that partial and total specifications of benchmark health insurance benefits packages have both advantages and limitations. The choice of specifications will depend on how much consensus there is on the characteristics of the benchmark health insurance benefits package, and the interests and resource limitations of those investigating the question of underinsurance.

After totally specifying or partially specifying some benchmark health insurance benefits package, it is possible to raise questions about underinsurance. As argued in Section VI and noted above, questions about underinsurance need to be divided into two classes: questions about definitions of 'underinsurance' and questions about the number of underinsured people given a particular definition of 'underinsurance'. The important point here is that providing a definition of 'underinsurance' must occur before it is possible to ask questions about the number of underinsured people. Thus, if we focus on definitions of 'underinsurance', then the arguments in Section (VI) demonstrate that there are two general types of definitions, each corresponding to one of the two dimensions of underinsurance: benefits definitions and economics definitions.

The benefits dimension of underinsurance incorporates the essential elements of Bashshur, Smith and Stiles's total categoric structural dimension of underinsurance and their partial categoric structural dimension of underinsurance. For this reason, we can make distinctions analogous to those made in Section (V) for the benefits definitions of 'underinsurance'. In particular, there are at least four different ways to characterize the benefits dimension of underinsurance:

1. There is at least one necessary health benefit not offered by the health insurance plan. (Boodman: May 5, 1992; Fox, McManus, Almeida and Graham: 1997; Garland and Ludtke: 1991; Kentucky Medical Association: 2000; Rockefeller: 1991)
2. There was at least one necessary health need for the person during the past year not covered under the benefits package offered by the person's health insurance plan. (Davis, Rowland, Altman, Collins and Morris: 1995)
3. There is at least one necessary health benefit covered by the health insurance plan only when specific criteria are satisfied. (Bartlett: 2000; Boodman: May 5, 1992; Cotton: 1991; Rockefeller: 1990)
4. There is an inadequate delivery of necessary health benefits offered by the person's health insurance plan. (Baker, Shapiro, Schur and Freeman: 1998; St. Peter: 1997; Short: 1999)

In each case, the use of 'necessary health benefit' is what links the sub-division to a benchmark health insurance benefits package. In other words, the implicit condition for each of the four definitional sub-divisions of 'underinsurance' listed above is: "Relative to a benchmark health insurance benefits package".

Just as the benefits dimension of underinsurance incorporates essential elements of Bashshur, Smith and Stiles's total and partial categoric structural dimensions of underinsurance, a similar situation exists for the economics dimension of underinsurance. The economics dimension of underinsurance incorporates elements of Bashshur, Smith and Stiles's relative structural dimension of underinsurance and their empirical experiential dimension of underinsurance. Thus, it is possible to incorporate at least some of the distinctions made in Section (V) into the economics benefits definitions of 'underinsurance'. This results in at least eight different ways to characterize the economic dimension of underinsurance:

1. In the past year the out-of-pocket coinsurance expenses for necessary medical care covered under the benefits package of the health insurance plan exceeded some set percentage of the person's or family's income. (Bodenheimer: 1992; Farley: 1985; Monheit: 1994; Short and Banthin: 1995)

2. In the past year the out-of-pocket deductible expenses for necessary medical care covered under the benefits package of the health insurance plan exceeded some set percentage of the person's or family's income. (Farley: 1985; Monheit: 1994)

3. In the past year, the out-of-pocket coinsurance and deductible expenses for necessary medical care covered under the benefits package of the health insurance plan exceeded some set percentage of the person's (or family's) income.[58] (Bartlett: 2000; Farley: 1985; Fox, McManus, Almeida and Graham: 1997; Monheit: 1994)

[58] A variation of this would be something like: "In the past year the out-of-pocket expenses for necessary medical care covered under the benefits package of the health insurance plan prevented one or more

4. In the past year, the out-of-pocket premium expenses[59] for necessary medical care covered under the benefits package of the health insurance plan exceeded some set percentage of the person's (or family's) income.

5. There is some set percentage chance that the out-of-pocket coinsurance expenses for necessary medical care covered under the benefits package of the health insurance plan will exceed some set percentage of the person's (or family's) income during the year. (Farley: 1985)

6. There is some set percentage chance that the out-of-pocket deductible expenses for necessary medical care covered under the benefits package of the health insurance plan will exceed some set percentage of the person's (or family's) income. (Farley: 1985)

7. There is some set percentage chance that the coinsurance and out-of-pocket deductible expenses for necessary medical care covered under the benefits package of the health insurance plan will exceed some set percentage of the person's (or family's) income. (Farley: 1985; Short and Banthin: 1995; The Work Group for Health Care Access for the Uninsured: 1996)

8. The actuarial value of the person's health insurance plan is at least as great as the actuarial value of some benchmark health insurance plan. As Short and Banthin write, actuarial value "is an indicator of overall plan generosity, defined as the average claims paid per policyholder. Because policies with different provisions can have the same actuarial value, this definition of underinsurance

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physician visits." This variation is captured by the BRFSS. (Centers for Disease Control and Prevention: 1995) Also see Hanley (1998) and Nelson, Thompson, Bland and Rubinson (1999).

[59] Recall that Bashshur, Smith and Stiles exclude the case of premium out-of-pocket expenses from their relative structural dimension and empirical experiential dimension of underinsurance.

does not demand adherence to specific policy provisions." (Short and Banthin: 1995; U.S. Congress, Office of Technology Assessment: 1988)[60]

There are at least two objections that one might raise here. The first objection is that the various characterizations of the two kinds of definitions of 'underinsurance' are not exhaustive. It is possible to make a variety of other distinctions under each of the two general definitions of 'underinsurance'. The second objection is that with all the detail and analysis that has been provided in this and the previous sections, we still do not have any straightforward answers to the questions: "What is underinsurance and how do you measure it?" Interestingly, the answers to both objections are related.

The answer to the first objection is to remember that there are value judgments in any specification of a health insurance benefits package. Individuals, organizations and societies may (and will likely) have many different views about what characteristics a benchmark health insurance benefits package must have. Depending on those views, different distinctions of the two general definitions will emerge or be emphasized. This means that there is no single benchmark health insurance benefits package. The benchmark will vary depending on the socio-political contexts in which questions about adequate health insurance coverage arise. Thus, the distinctions I have provided are only intended to be representative of the health policy literature on underinsurance in the United States during the last 20 years of the 20th century, and the first 2 years of the 21st century.[61] In this respect, a definition of 'underinsurance' is very different from the

[60] Also see The Work Group for Health Care Access for the Uninsured in Connecticut (1996).
[61] Therefore, if asked what it means to be underinsured, my "quick" answer would be something of the form: Here (making reference to the various sub-definitions of 'underinsurance') is a variety of characteristics that people have linked with underinsurance. If then pushed and asked which were the most important, I would say that many people believe that excessive out-of-pocket costs are important (the economics structural dimension) and that many people believe that preventive services such as immunizations (Kentucky Medical Association: 2000) are important (the benefits structural dimension).

definition of ‘uninsurance’. Because there is no normative element in the definition of ‘uninsurance’, even if measuring the number of uninsured people is challenging, the definition of ‘underinsurance’ is not variable.

The answer to the second objection is an implication of the answer to the first objection. Since any specification of a benchmark health insurance benefits package will vary depending on the socio-political contexts in which questions about adequate health insurance coverage arise, then there is no single answer to the question “What is underinsurance?” For exactly the same reason, there is no single answer to the question “How do we measure underinsurance?” Since measurements of the number of underinsured people depends on what definition of ‘underinsurance’ is used, and because there is no single definition of ‘underinsurance’, it follows that there is no single answer to the question of how many people are underinsured. Although this may seem like a bleak conclusion, it is no worse than the acknowledgement of political theorists that there is no single (best) political system, or of economists that there is no single (best) form of capitalism. Moreover, there are at least six guidelines[62] that come out of this analysis that, together, constitute a kind of “conceptual flowchart” for questions about underinsurance:

(1) Before counting the number of underinsured people, you must first have a definition of ‘underinsurance’.

(2) Definitions of ‘underinsurance’ require the (total or partial) specification of a benchmark health insurance benefits package.

[62] These are general guidelines. More specific guidelines can be developed on a case-by-case basis depending on the interests and resource limitations of those interested in questions of underinsurance.

(3) There is no single correct benchmark health insurance benefits package, though there may be greater consensus on some benchmarks than on others. Benchmark health insurance benefits packages reflect the values of those interested in questions of health insurance coverage.

(4) It is sometimes possible to (totally or partially) specify a benchmark heath insurance benefits package before making any measurements of the number of people whose health insurance coverage has particular characteristics.

(5) In contrast with (4), sometimes the (total or partial) specification of a benchmark heath insurance benefits package will proceed after making any measurements of the number of people whose health insurance coverage has particular characteristics. When this happens, before gleaning a definition of 'underinsurance' from the measurements one must make certain that the measurements are accurate.[63]

(6) It is important to be clear about what one is interested in. For example, do you want to know the number of underinsured people covered by one or more specific health insurance plans? If so, then it may not be necessary to directly survey the people. If you know the specifics of the plans relative to a benchmark health insurance benefits package and the number of people in each of the plans, then it may be possible to look directly at the plans and the people they cover.[64]

[63] This leads to questions about the reliability and validity of surveys, as well as their usefulness. In this connection, see Brown, Bindman and Lurie (1998).
[64] Here information from the Medical Expenditure Panel Survey – Insurance Component may be relevant.

The upshot is that it is only in the process of clarifying their own interests and resource limitations that health policy makers and researchers will succeed in clarifying the questions and issues that surround underinsurance.

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Appendix 1: Definitions of Underinsurance

Baker, Shapiro, and Schur (2000)	While the authors' paper does not deal directly with underinsurance, the data (from the 1994 National Access to Care Survey) did look at whether insured people did not receive the care they thought they needed for the 15 serious or morbid symptoms. An inference that can be drawn from this is that a person is underinsured if the person has insurance, had at least one of the 15 serious or morbid symptoms, and did not receive care thought necessary for the symptom.
Bartlett (2000)	Concerning the underinsured, Bartlett writes that the extent of the problem posed by the underinsured is less well documented "partly because there is no consensus definition of what constitutes underinsurance. Conceptually, the term suggests health insurance, which is so limited in its coverage of medical expenses that it leaves an insured individual with expected out-of-pocket expenses that are a substantial portion of total expenses, even in the event of catastrophic incurrals of such expenses. Such limitations can take various forms, such as excluded medical conditions, high deductibles and copays, or low maximum benefits." Bartlett then cites the study by Short and Banthin (1995) and their definition of underinsurance as a health benefits package that "would leave a covered individual incurring catastrophic medical expenses with out-of-pocket expenses exceeding ten percent of his/her annual income."
Bashshur, Smith and Stiles (1993)	In a general sense, underinsurance refers to inadequate health insurance coverage. However, "not every limitation in benefit, in terms of exclusion, deductible, or copayment, constitutes "underinsurance"." (p. 201) This leads Bashshur, *et.al.* to distinguish four basic kinds of insurance coverage: excessive coverage, full coverage, adequate coverage, and underinsurance. Excessive coverage, the authors write, "refers to dual or multiple coverage for the same set of services, which does not provide any true financial benefits over full coverage." (p. 201) Full coverage "refers to truly comprehensive benefits that provide full protection against out-of-pocket expenses outside of premiums." (p. 201) Adequate coverage "refers to a less comprehensive set of benefits, wherein the beneficiaries are liable for designated amounts of out-of-pocket expenditures in the form of deductibles, copayments, exclusions, limits of coverage, and other forms of cost-sharing outside of premiums." (p. 202) Finally, underinsurance refers to "one or more conditions: where (a) too few services are covered or the coverage is inadequate; (b) amounts of out-of-pocket expenditures, with or without regard to family income, are excessive; (c) insurance is perceived to be inadequate; or (d) some combination is present." (p. 202) The first condition the authors refer to as the "structural" dimension of underinsurance. The second condition the authors refer to as the "experiential" dimension of underinsurance. The third condition the authors refer to as the "attitudinal" or "perceptual" dimension of underinsurance. While offering a typology of underinsurance, the authors do not use any data sources to calculate the number of underinsured as captured by each of the three dimensions.

Berk, Schur, Cantor (1995)	The authors do not directly define underinsurance/characterize, but they do report data from the 1994 Robert Wood Johnson Foundation National Access to Care Survey concerning people who do have insurance but still have unmet health care needs. Thus, the implication from the authors report is that a person is underinsured just in case he or she has insurance and the person still has one or more unmet health care needs. Possible unmet health care needs include: ▪ Medical care (physician visits) ▪ Surgical care ▪ Prescription drugs ▪ Dental care ▪ Eyeglasses and eye care ▪ Mental health care
Blendon, Donelan, Hill, Carter, Beatrice, and Altman (1994)	The authors do not directly define/characterize underinsurance, but it is possible to cull a definition from the report: A person is underinsured if he or she is insured and one of the following conditions is satisfied: ▪ The person had problems paying medical bills (within the last year) ▪ The insurance had some sort of gaps in coverage (e.g., did not cover needed immunizations or other preventive services) ▪ The insurance lacked catastrophic illness protection ▪ The insurance lacked stop-gap provisions
Bodenheimer (1992)	Bodenheimer is interested in explicating the various senses in which a person who has insurance may still be considered to have inadequate insurance. The various ways in which the insurance may be inadequate are the various sense of underinsurance. The various sense of underinsurance include: ▪ Health insurance that leaves the person covered at risk of spending more than 10 percent of income on health care in the event of a costly illness. (The Pepper Commission (1990); Farley (1985)) ▪ A low lifetime benefit (e.g., $250,000 or less). ▪ Limited benefits due to pre-existing medical conditions. (Cotton (1991)) ▪ Exclusion of prevention health services such as childhood vaccinations. (National Vaccine Advisory Committee; Shulman, *et.al.* (1986)) ▪ Failure to provide coverage for long-term care for the elderly. (The Pepper Commission (1990)) Excessive out-of-pocket costs in the form of deductibles or copayments. Concerning this sense of underinsurance, Bodenheimer writes that the "primary feature of underinsurance is high out-of-pocket expenditures for medical care." (p. 277) Later, he reiterates this point and writes that although "there are many varieties of underinsurance in America, it's essence remains high out-of-pocket expenditures for medical care." (p. 277) (1977 National Medical Care Expenditure Survey; Rand Health Insurance Experiment; 1986 Robert Wood Johnson Foundation Access to Health Care Survey)

Burgess and Stefos (1991)	The authors begin their discussion of underinsurance by characterizing it as those people who are inadequately insured. (p. 365) The authors then go on to link inadequate insurance with the inability to pay insurance premiums (p. 366), though later they change this characterization and write that "measurements of insufficient insurance are best made by assessing the risk of out-of-pocket expenses." (p. 370; here the authors make reference to Farley (1985))
Centers for Disease Control and Prevention (1998)	The report seeks to "determine state-specific estimates of the prevalence of persons aged 18 – 64 years who are either uninsured or underinsured using an experiential definition of underinsurance" (p. 51) using the Behavioral Risk Factor Surveillance System (BRFSS) survey. The presence "of health insurance was based on responses to the question "Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?"" (P. 51) If the answer was "no", then the person was uninsured. If the answer was yes, then the person was asked "Was there a time during the past 12 months when you needed to see a doctor, but could not because of cost?" "Adequate insurance was defined as being insured and reporting no problems because of cost, and underinsurance was defined as being insured but failing to see a doctor because of cost." (p. 51)
Committee on the Changing Market, Managed Care, and the Future Viability of Safety Net Providers (2000)	Within the context of an examination of the U.S. "health care safety net", the committee writes that demand for uncompensated care comes not only from the uninsured but also from "those whose insurance is inadequate to cover the costs of their health care needs." (p. 91) Thus, the committee uses a financial criterion to define the underinsured. The committee refers to Shearer (1998) and Short and Banthin (1995) and their definitions of the underinsured in terms of excessive health-related costs.
Committee on the Consequences of Uninsurance (2001)	The committee writes that "[B]y underinsurance is meant families whose health insurance policy or benefits package offers less than adequate coverage. Most people would consider themselves uninsured if their health plan required extensive out-of-pocket payments in the form of deductibles, coinsurance or copayments, or maximum benefit limits. Many policies also exclude specific services such as mental health treatment, long-term care, or prescription drugs." (Chapter 1)

Davis (2000)	Although Davis does not use the word 'underinsured' (or 'underinsurance'), his principal goal is to present various ways in which adequacy and inadequacy of health insurance coverage can be characterized. In this context, he considers cases in which the person has health insurance coverage but for whom the coverage is adequate – viz., the underinsured. The characterizations offered by Davis include: ▪ A person is underinsured if there are some health benefits in a health insurance plan that the person would prefer to receive but is not eligible to receive. (p. 58) ▪ A person is underinsured if the person is insured but there are some health benefits offered by the plan that the person would prefer to receive but cannot afford to receive. As Davis writes, "individuals may be able to afford limited insurance on individual plans … but be unable to afford a higher level of insurance that they prefer." (p. 58) ▪ A person is underinsured if the person is insured but has some pre-existing condition for which they are unable to acquire health insurance coverage. ▪ A person is underinsured if the person is insured but the coverage provided by the insurance results in "health capability deprivation".
Davis and Rowland (1983)	The authors do not specifically talk about the "underinsured". Nevertheless, making use of 1997 National Medical Care Expenditure Survey data, they offer various characterizations of groups of people, one of which can be considered to be characterizations of underinsurance. In particular, individuals who have health insurance but whose coverage is "very limited". (p. 151) For example, "individuals classified [by the NMCES data] as insured …for inpatient hospital care, but … not covered … for primary care in a physician's office." (p. 151; also see pp. 160 - 161)
Donelan, Blendon, Schoen, Davis and Binns (1999)	The authors do not directly discuss underinsurance, but they do offer characterizations of inadequate health care coverage (as reported by people in five nations) in terms of: ▪ Insufficient money to pay for health care (e.g., physician visits or prescriptions) ▪ Excessive out-of-pocket costs ▪ (In managed care contexts) difficulty in seeing specialists or getting referrals

Donelan, DesRoches, and Schoen (2000)	The "few measures of underinsurance that can be found in the literature might be broadly classified as either economic measures or experiential measures." Thus, there are at least two kinds of measures/definitions of underinsurance: ▪ Economic (Farley - NMCES; Short and Banthin – NMES) ▪ Experiential (using "access to care and actual problems paying medical bills to estimate the number of underinsured Americans".) In their paper the authors focus on the experiential definition and estimate the number of underinsured using data from the Commonwealth Fund 1999 Survey of Workers' Health Insurance. The two general categories the authors examined to measure the number of underinsured were: ▪ Reported medical cost burdens (e.g., inability to pay medical bills) ▪ Going without needed healthcare due to costs
Eddy (1991)	Eddy discusses various issues involved in defining the "minimum set of services to which everyone should have access, regardless of ability to pay." (p. 782) This set of services, according to Eddy, "would form a floor for insurance policies, health plans, and government programs." (p. 782) Thus, while Eddy doesn't use the expressions 'underinsured' or 'underinsurance', he is attempting to find a definition for that set of services which, if not supplied by a person's health insurance policy, would entail that the person is underinsured. With respect to what this minimum set of services is, Eddy writes that it is that set of services that the majority of representative "average patients" (people who actually receive the benefits and harms of health care and bear the costs of that health care) would accept as constituting the minimum set. More precisely, Eddy writes that the steps necessary for identifying the minimum set are: (1) Estimate the harms and benefits of the intervention; (2) Estimate the costs in real dollars; (3) Convert the costs into an equivalent wage with the median (U.S.) wage as the reference point; (4) Ask each person (who is a patient of the intervention – e.g., people receiving mammograms) if he or she is willing to pay that equivalent wage to receive the intervention; (5) Define a service/benefit as a part of the minimum set of health services/benefits only if a majority of a representative selection of such patients would want that benefit for him or herself. (p. 787)

Farley (1985)	For Farley, the question of underinsurance concerns people who have health insurance but whose insurance is in some way inadequate. For Farley, adequacy is measured by the degree of "catastrophic protection" the insurance provides – "insurance against the small possibility of large uninsured expenses from a costly illness". (p. 477) In other words, Farley's definition of underinsurance looks at adequacy in terms of the probability of out-of-pocket expenses exceeding a certain threshold. This gives rise to several possible characterizations of the underinsured: ▪ Total expected value of out-of-pocket expenses greater than or equal to: 1. $100 (pp. 482 – 483) 2. $200 (pp. 482 – 483) 3. 3% of family income (pp. 482 – 483) 4. 5% of family income (pp. 482 – 483) ▪ One percent expectation of out-of-pocket expenses greater than or equal to: 1. $500 (pp. 482 – 484) 2. $1,000 (pp. 482 – 484) 3. $2,000 (pp. 482 – 484) 4. 3% of family income (pp. 482 – 484) 5. 5% of family income (pp. 482 – 484) 6. 10% of family income (pp. 482 – 484) 7. 20% of family income (pp. 482 – 484) ▪ One percent expectation, unadjusted for risk, of out-of-pocket expenses greater than or equal to: 1. $2,000 (pp. 482 – 484) 2. 10% of family income (pp. 482 – 484) ▪ Five percent expectation of out-of-pocket expenses greater than or equal to: 1. $2,000 (pp. 482 – 484) 2. 10% of family income (pp. 482 – 484) ▪ No out-of-pocket limit for hospital expenses (where these expenses include room and board and miscellaneous charges) 1. Year 1977 (pp. 482 – 487) 2. Year 1984 estimate (pp. 482 – 487) ▪ No out-of-pocket limit for both hospital and medical expenses (where medical expenses include inpatient physician and surgical fees, outpatient office visits, and outpatient tests) 1. Year 1977 (pp. 482 – 487) 2. Year 1984 estimate (pp. 482 – 487) Farley then goes on to compute the numbers of underinsured using each of the above characterizations using data from the 1977 National Medical Care Expenditure Survey (and for characterizations in terms of no out-of-pocket limits, using 1984 estimates derived from the 1977 data). The definition that Farley believes best is the one that characterizes the underinsured in terms of a one percent expectation of out-of-pocket expenses greater than or equal to 10% of the family income (12.6 % using 1977 National Medical Care Expenditure Survey data). This characterization, Farley claims, "is in keeping with expected utility theory and society's interest in having individuals insure themselves against extraordinarily expensive illness." (p. 486) However, the choice of 10% seems only to reflect the "generally accepted view" (then and now) that expenditures in excess of 10% are excessive.

Freeman, Blendon, Aiken, Sudman, Mullinix and Corey (1987)	The authors report results from the 1986 Robert Wood Johnson Foundation Access to Health Care Survey. The 1986 "study consisted of interviews with 10,130 people in the continental United States". (p. 8) "People with chronic and serious illnesses were oversampled; the study group was weighted, however, so that the findings represent the U.S. population." (p. 8) Although the authors do not explicitly address the issue of underinsurance, certain results of the survey are relevant to a measurement of the underinsured. (1) "Those surveyed were … asked if they had ever failed to obtain needed medical care for economic reasons." (p. 13) (2) "The survey … asked respondents whether, over the past thirty days, they had experienced one or more symptoms judged by a panel of physicians to warrant care in most instances, and if so, whether they sought medical attention." (p. 14) From this one can glean the following definition of the underinsured: A person is underinsured just in case the person failed to obtain needed medical care for economic reasons.
Freedman, Klepper, Duncan, and Bell (1988)	The authors begin with a general characterization of who, amongst Americans, are inadequately insured. They break this group into two sub-groups: those who are uninsured and those who are underinsured. For the uninsured, the authors consider a variety of characteristics of and reasons for the people who are uninsured. For the underinsured, the authors use the criteria of "inadequate health insurance against large medical bills" (p. 844) and the serious financial impact imposed by "serious illness". (p. 844) In both cases, the authors reference Farley (1985).
Friedman (1991)	Concerning the underinsured, Friedman writes that if the policy debate concerning the uninsured "is to be framed accurately in terms of coverage and access, a second group, the underinsured, must also be mentioned." (p. 2492) Friedman characterizes the underinsured generally as those people whose health insurance coverage is inadequate. Friedman notes that this group is difficult to define precisely, but then offers various specifications of inadequate health insurance coverage: ▪ Whether required treatment is available (e.g., physician reluctance to treat Medicaid clients) ▪ Whether there is a dollar limit to the coverage ▪ Whether there is a time limit to the coverage ▪ Inadequate protection against the possibility of large medical bills (here Friedman cites Farley (1985)) ▪ Whether the insurance precludes coverage of a given condition ▪ Whether the insurance imposes a waiting period before a given condition is covered (Friedman uses the example of pregnancy) Friedman uses data from the 1987 National Medical Expenditure Survey.

Hanley (1998)	The AMA report offers definitions for both the uninsured and underinsured. Regarding the underinsured, Hanley reports that the Council "believes the concept of underinsurance is inherently normative, meaning that it contains value judgements, and cannot be precisely measured." (p. 4) Hanley makes reference to Monheit (1994) who defines the underinsured as those without adequate coverage, and to the typology offered by Bashshur, Smith and Stiles (1993) who identify three dimensions to underinsurance – structural, attitudinal and experiential. Hanley writes (making implicit reference to Farley (1985) and Short and Banthin (1995) that the "empirical-experiential variation on the latter dimension has been developed where persons with inadequate coverage are defined as those having a certain percentage (e.g., 1%) chance of spending at least 10% of family income on medical care." (p. 4) Hanley suggests MEPS data could be used to make an estimate based on this definition. Finally, Hanley suggests that the Behavioral Risk Factor Surveillance System (BRFSS) can also be used in an experiential definition of the underinsured. Hanley writes that the "BRFSS questions on type of insurance coverage are followed by the question "Was there a time during the last 12 months when you needed to see a doctor, but could not because of costs?" Researchers at the CDC have defined underinsurance as being uninsured but failing to see a doctor because of costs." (See Centers for Disease Control and prevention (1998))
Harkin (1991)	Harkin writes that "[A]ccess to affordable and quality health is a fundamental right that should be extended to and enjoyed by all Americans." (p. 1692) In this connection Harkin focuses on preventive health care. Within this context, the implication is that for Harkin the underinsured are people having health insurance but whose insurance coverage is inadequate in that basic health needs such as prenatal care, immunizations and preventive screenings (e.g., mammographies) are not part of the coverage.
Hayward, Shapiro, Freemen and Corey (1988)	The authors did not discuss underinsurance *per se*, but they did discuss inadequate health insurance and an implication that the inadequacy is either because needed coverage was not provided or because of financial difficulties associated with the insurance. Data was taken from the 1986 Robert Wood Johnson Foundation Access to Health Care Survey.

Hill, Lutzky and Schwalberg (2001)	Concerning the issue of underinsurance, the authors write that "simply possessing insurance dos not necessarily mean that the needs of a chronically ill or disabled child are adequately met". (p. 6) The reason is that such families may be underinsured. The authors write that underinsurance "generally refers to a situation in which families possess coverage that is expensive to use or limited in scope, and therefore does not fully meet their needs." (p.6) The authors go on to provide some specificity to this general characterization and write that underinsurance occurs when: ▪ A person under age 65, if faced with a catastrophic illness that the person has one chance in 100 of experiencing, would incur out-of-pocket health care expenditures in excess of 10% of family income. (p. 6; Here the authors make use of and reference to Short and Banthin (1995) ▪ The health insurance of the individual is inadequate to meet the health care needs of the individual. (p. 6) ▪ There are high deductible and coinsurance rates. (p. 29; the authors do not make it more precise than this and may or may not be referring to Short and Banthin (1995))
Himmelstein and Woolhandler (1995)	The authors do not specifically define/characterize underinsurance, but it is possible to cull a definition from the report: A person is underinsured if he or she is insured and did not obtain a needed medical or health service because of excessive cost or because of some other barrier (e.g., inaccessible services). Another facet of the definition is that a person is underinsured if he or she is insured but the insurance did not cover important preventive care services (e.g., mammogram). It is important to note that the NMES, whose data the authors used, "inquired about the availability of only seven services". Thus, the needed medical or health services were limited to these seven plus immunizations for children and important preventive services.
Hoffman, Schoen, Rowland, and Davis (2001)	The authors examine health coverage and access to care among working age adults using the 1997 Kaiser/Commonwealth National Survey of Health Insurance. The authors do not offer any explicit definition or characterization of underinsurance, but it is possible to cull a definition from the report: A person is underinsured if he or she is insured and did not obtain needed medical care (e.g., postponed care, did not fulfill a prescription) due to costs.
Hogan and Goddeeris (1992)	Concerning underinsurance, the authors write that they "identify as "underinsured" those whose family income was less than 200 percent of the poverty level standard and who purchased nongroup health insurance or a group plan for which no employer made a contribution. Our expectation is that insurance coverage is usually quite limited in these cases." (p. 59) The authors focus their attention on Michigan, and the data they use comes from the 1988 Current Population Survey and its supplement on health insurance.

Johnson, Davidoff and Moon (2002)	The authors write that the near elderly (62 – 64) are underinsured if they do not have job-related health benefits, do have private nongroup health coverage, and that coverage offers limited coverage with high deductibles and coinsurance. (pp. 1 – 2)
Kuttner (1999)	With regards to underinsurance, Kuttner writes that underinsurance, in the paper, refers to "medical needs that either are not covered by health plans at all or are covered but with high copayments that force beneficiaries to forego treatment." (p. 165) Kuttner cites the following as sources of information about the number of underinsured: Studies by the Employee Benefit Research Institute, a study conducted by the Lewin Group for Consumer's Union (reported by Gail Shearer in her 1998 Hidden from View: The Growing Burden of Health Care Costs), and several private consultants. (pp. 165 – 166)
Lurie, Manning, Peterson, Goldberg, Phelps and Lillard (1987)	There is no specific mention of underinsurance in the report. Making use of data from the Rand Health Insurance Experiment, the authors do, however, suggest (a) that people's use of preventive services is much lower than is recommended by professional organizations such as the American Cancer Society, the American College of Physicians, etc.; (b) costs associated with preventive services lead to decreased use. Thus, the implication is that a person is underinsured if that person has health insurance but the out-of-pocket costs associated with preventive services deters the individual from making use of the preventive services.
Merlis (2002)	Merlis is clear that the "simple dichotomy "insured/uninsured" does not capture the varying burdens of different families" with respect to the out-of-pocket costs associated with medical care. (p. 15) Thus, Merlis believes that policies to "address underinsurance" must be developed. (pp. 15ff) However, apart from associating underinsurance with excessive out-of-pocket costs (as measured by the 1996 Medical Expenditure Panel Survey, the 1998 Consumer Expenditure Survey and the 1987 National Medical Expenditures Survey), Merlis does not provide a precise definition of underinsurance. Instead, the implication seems to be that the sorts of data that will be relevant in giving precision to a definition of underinsurance will be: ▪ Out-of-pocket expenditures ▪ Cost of premiums ▪ Family income ▪ Type of medical or health care service ▪ Type of insurance ▪ Health status

Monheit (1994)	Monheit writes that although "empirical research has provided a finely etched portrait of the *uninsured*, far less is known about those with inadequate coverage…" (p. 462) Thus, as a general characteristic, the underinsured are those who have health insurance but whose insurance coverage is somehow inadequate. Monheit goes on to write that there are difficulties in "defining what is meant by inadequate coverage." (p. 469) These difficulties, Monheit writes, "arise because value judgments are required regarding the socially acceptable level of risk that an individual should bear. As a result, definitions of inadequate coverage directly confront alternative views of the purpose of health insurance: should coverage be structured to protect individuals from low-probability/high-cost medical events or should insurance finance predictable kinds of medical care or care that society wishes to encourage (e.g., preventive health services)." (p. 469) Thus, there are at least two ways to approach underinsurance: ▪ People are underinsured if they have a 1% chance of spending 10% of family income on medical care. (Monheit uses Farley (1985) here, and the data for such estimates comes from the 1977 National Medical Care Expenditure Survey) ▪ People are underinsured if their insurance does not provide coverage for basic medical needs and services (e.g., immunizations)
National Public Radio/Kaiser Family Foundation/Harvard University Kennedy School of Government (2002)	There is no specific mention of the underinsured in any of the three reports (see references). However, the study did report people having specific problems by insurance status. For those having health insurance, there were problems reported in each of the following areas: ▪ Postponed seeking medical care ▪ Problem paying bills ▪ Did not get prescription drug ▪ Contacted by collection agency ▪ Did not get needed medical care ▪ Perceived quality of medical care was inadequate On the basis of the data, one may infer that a person is underinsured just in case the person has health insurance but the insurance fails to cover some essential health care need or some health care need is unmet because of cost.
New York State Association of County Health Officials (1996)	The report notes that while there is reliable information concerning the numbers of uninsured, it is more "difficult to quantify the magnitude of the underinsured population." "As benefits offered by employers and insurance companies become more stringent, the number of persons who delay care because they cannot afford the out-of-pocket expenses of copayments, deductibles and exclusions will increase." Thus, the NYSACH committee implicitly defines the underinsured as those people having health insurance who, because of the out-of-pocket expenses of copayments, deductibles and exclusions associated with that insurance, delay needed medical care or health services.

Reis, Sherman, Macon and Friedman (1990)	The authors conducted a survey of 146 patients at "an inner-city community health center over a two-week period." (p. 17) The authors do not identify the city, though they write that the clinic is located "in a low income urban neighborhood of approximately 150,000 people." (p. 17) "Only those without Medicaid or Medicare insurance were eligible for participation in the survey." (p. 17) When first making use of the expression "medically underinsured" (p. 16) the authors make reference to Michael R. Cousineau, E. Richard Brown, and Jonathan E. Freedman, "Access to Free Care for Indigent Patients in Los Angeles: County Policy Implementation and Barriers to Use," Journal of Ambulatory Care Management, v. 10, n. 1 (February, 1987), pp. 78 – 89. In this paper the authors discuss Los Angeles county policy concerning payment options for low-income, uninsured patients who are not eligible for Medi-Cal and who could not afford the fixed fee prepayment amount. From this we may infer that Reis, *et.al.* intend to use a concept of underinsurance related to the person's ability to pay. Unfortunately, the authors seem to conflate the uninsured, who are unable to pay for needed care, with people who are insured but unable to pay for needed care. As the authors write, "[O]ne hundred of the 150 people identified as medically underinsured reported having no health insurance of any kind."
Rockefeller (1991) - Also see Rockefeller (1990) and The Pepper Commission: (1990)	Within the context of their advocation of universal access and coverage, The Pepper Commission attempted to articulate an "adequate minimum standard of coverage." (p. 2509) This minimum standard of coverage is relevant to the issue of underinsurance. In particular, anyone with health insurance whose coverage is less than the minimum standard established by The Pepper Commission is underinsured. This minimum coverage includes "hospital care, surgical and other inpatient services, physician office visits, diagnostic tests, and limited mental health benefits (45 inpatient days and 25 outpatient visits). In addition, benefits would include preventive services – prenatal care, well-child care (including immunization), mammograms, Papanicolaou smears, colorectal and prostate screening procedures, and other preventive services that evidence shows are effective to costs." (p. 2509) The Pepper Commission also includes constraints on spending, recognizing that excessive costs would be a deterrent to universal coverage. However, the specifics do not translate well into specifics for defining underinsurance since the constraints are artifacts of the Commission's own proposal for funding universal coverage. However, it is an implication of the Commission's position that excessive out-of-pocket costs (including premium costs) for health services are a sufficient condition for an insured person to be underinsured.

Salmon (1988)	Salmon characterizes both the uninsured and the underinsured. He cites Farley (1985) and the data that she used in that article from the 1977 NMCES. This leads Salmon to write that an "accepted definition is that the underinsured incur out-of-pocket expenses equal to at least 10 percent of their family income." (p. 9) Salmon also mentions "insurance exclusions for the mostly costly diagnostic and treatment procedures" (p. 9) with the implication that these too are an aspect of underinsurance.
Schoen and DesRoches (2000)	The authors refer to the idea that the number of underinsured can be estimated by determining gaps in health insurance coverage. In this connection, the authors refer to articles by Farley (1985) and Short and Banthin (1995). Although the authors are not concerned with determining rates of underinsurance, they note that the Kaiser/Commonwealth 1997 National Survey of Health Insurance included a question "about not having a prescription filled due to costs" (pp. 198 – 199) as well as a question "about problems paying medical bills in the past year." (p. 200) This suggests that the survey contains information that could be used in determining rates of underinsurance.

Shearer (2000)	Shearer offers various characterizations of the underinsured (again using 1996 MEPS data and the Lewin Group's imputations from the 1996 MEPS data): ▪ Individuals who have private health insurance "yet run the risk of incurring out-of-pocket expenses (not including premiums) that exceed 10 percent of income in the event they faced catastrophic illness." (p. 14; Shearer derives this definitions from, and makes reference to Short and Banthin (1995)) ▪ Families (head of household under 65 years-of-age) whose health care costs exceed 10 percent of family income, where the included health care costs are: 1. Out-of-pocket costs 2. Out-of-pocket costs and direct premiums 3. Out-of-pocket costs, direct premiums and indirect premiums (wage loss) ▪ Families (head of household 55 to 64) whose health care costs exceeded 10 percent of family income, where the included health care costs are: 1. Out-of-pocket costs 2. Out-of-pocket costs and direct premiums 3. Out-of-pocket costs, direct premiums and indirect premiums (wage loss) ▪ Families (head of household over 65) whose health care costs exceeded 10 percent of family income, where the included health care costs are: 1. Out-of-pocket costs 2. Out-of-pocket costs and direct premiums Concerning the 10 percent figure used in her characterizations of the underinsured, Shearer writes that "while researchers have used 10 percent as a benchmark figure (for out-of-pocket expenditures alone), there has not been extensive consideration by health policy experts about what the appropriate percent of income that should be devoted to health care is." (p. 14) In addition, since the characterizations make use of data concerning actual health care spending, as opposed to expected health care spending, Shearer cautions that the numbers derived from such characterizations "substantially understate the number of underinsured since many more people are *at risk* of burdensome health expenditures if serious illness strikes." (p. 14)

Short (1999)	The paper mentions several different ways of defining the underinsured: ▪ Using actuarial values from the 1987 NMES, people were compared to the actuarial standard of the Clinton 1994 comprehensive insurance plan. ▪ Using actuarial values from the 1987 NMES, people were compared to the actuarial standard of the "largest plan available to federal employees". (p. 79) ▪ Using an idea of catastrophic illness and 1987 NMES data (originally using 1977 NMCES data), "people are underinsured if, in the event of large medical bills that they have a 1-in-100 chance of incurring, they would incur out-of-pocket expenses exceeding 10 percent of family income." (p. 79) Short also claims that with the "widespread introduction of managed care plans", definitions of the underinsured "that evaluate plans strictly in terms of covered services and cost-sharing provisions … are no longer relevant". (pp. 86 – 87) The reason for this lack of relevancy, according to Short, is that the "60 percent of the population that is enrolled in managed care plans … is more concerned about administrative barriers to covered services (such as approval for referrals to specialists) than about barriers caused by cost-sharing and uncovered services." (p. 87) This suggests defining the underinsured as: ▪ People who are dissatisfied with their health care plan (e.g., people who have difficulty getting a referral to see a specialist). (Short suggests that the NMES/MEPS Household Survey might be appropriate for determining this.)

<table>
<tr><td>Short and Banthin (1995)</td><td>Short and Banthin offer several definitions of underinsurance and then calculate the number of underinsured using each definition based on data from the 1987 National Medical Expenditure Survey. The definitions considered by Short and Banthin are:
▪ Out-of-pocket expenses that a person has one chance in 100 of experiencing exceeding 10% of family income (a catastrophic illness). (p. 1303 – 1304)
▪ The actuarial value of the health insurance policy less than the actuarial value of the federal employee standard (the Blue Cross and Blue Shield standard option for federal employees). (pp. 1302 – 1304)
▪ The actuarial value of the health insurance policy less that the actuarial value of the Health Security Act (HAS) standard. (pp. 1303 – 1304)
▪ Lacking specific benefits offered by the federal employee standard and by the HAS benefits package. In particular:
1. Unlimited lifetime benefits
2. Out-of-pocket expenses limited to $1,500 per person
3. Bo cost sharing for well-child care
4. Greater than or equal to 30 days of inpatient mental health benefits
5. Greater than or equal to 30 outpatient mental health visits
6. Prescription drug coverage</td></tr>
<tr><td>Shulman, Martinez, Brogan, Carr and Miles (1986)</td><td>The authors did not discuss underinsurance per se, but they did discuss the effects of low-income on the ability of people to receive medical treatment for hypertension. The implication is that a person is underinsured if that person is unable, because of the associated costs (e.g., out-of-pocket costs), to obtain needed medical care (e.g., hypertension medicine, physician office visits). The authors used data from a home health interview of 4,688 adults representing the noninstitutionalized population of Georgia.</td></tr>
<tr><td>Stone (2000)</td><td>Stone writes that to say a person is underinsured means that “they lack insurance coverage for essential care such as prescription drugs, long-term residential care, home health care, or essential medical equipment.” (p. 955)</td></tr>
</table>

Stroupe, Kinney, and Kniesner (2000)	The authors provide s definition of underinsurance that has three parts (each of whose satisfaction is sufficient for an individual to be considered underinsured): ▪ The individual has health insurance coverage "that could not prevent a medical event from becoming financially catastrophic, requiring substantial out-of-pocket expenditures." (p. 314) ▪ The individual has a health insurance policy with characteristics "that might leave them exposed to unlimited medical expenses." (p. 314) Such characteristics include: 1. A permanent preexisting condition exclusion 2. No stop-loss limit 3. A lifetime maximum payout of no more than $50,000 ▪ A low-income individual (a family income of $15,000 or less) has health insurance that requires a large degree of cost sharing due to: 1. A yearly deductible greater than $1,000 2. Coinsurance rates for hospitalization, physician services, or prescription drugs greater than 20 percent or coinsurance rates for outpatient mental health services greater than 50 percent 3. An exclusion of coverage for hospitalization, physician services, prescription drugs, or out patient mental health services
Weiner (2001)	A patient having health insurance is underinsured if the insurance does not cover needed services or the person seeking health care cannot afford to pay a deductible or copayment required by the health insurance. (p. 413) No surveys are mentioned and no numbers of underinsured are provided.
Weissman (1996)	The underinsured are those people with inadequate private insurance. Weissman uses figures from Short and Banthin (1995) and writes that "[T]he number of Americans under 65 years of age with private insurance who were underinsured in 1994 is estimated to be 25 million to 48 million, or 10% to 20% of the population." (p. 823) However, Weissman then goes on to write that "there is no commonly accepted definition of underinsurance". (p. 823)
Wilensky (1989)	Although no direct definition of 'underinsurance' is provided, Wilensky does mention that a growing number of people lack basic health coverage. (p. 70) The implication is that a person is underinsured if the person has health insurance that fails to provide coverage for important (basic) health needs.

Woodward (1987)	Woodward writes that persons "who are inadequately insured in the U.S. comprise three groups: those always uninsured during a year or similar period of time, those sometimes uninsured during the period, and those who are underinsured with respect to expected healthcare expenses." (p. 3; Woodward makes reference to Farley (1985) here) Later Woodward writes that among "the underinsured, there is some group health insurance at the work place, but it is inadequate to prevent the possibility of incurring expenditures of more than 10 percent of income on medical expenses." (p. 4) Thus, following Farley (1985), Woodward seems accept either of two definitions of the underinsured: ▪ One percent expectation of out-of-pocket expenses greater than or equal to 10% of family income. (p. 5) ▪ Total expected value of out-of-pocket expenses greater than or equal to 10% of family income. (p. 7)

Appendix 2: Surveys Used to Measure the Number of Uninsured People

Survey	Study
Current Population Survey (CPS)	Hogan and Goddeeris (1992)
Current Population Survey, Supplement on Health Insurance	Hogan and Goddeeris (1992)
Behavioral Risk Factor Surveillance System (BRFSS)	Centers for Disease Control and Prevention (1998); Hanley (1998)
Commonwealth Fund International Health Policy Survey - 1998	Donelan, Blendon Schoen, Davis and Binns (1999)
Commonwealth Fund Survey of Workers' Health Insurance - 1999	Donelan, DesRoches and Schoen (2000)
Consumer Expenditure Survey - 1998	Merlis (2002)
Kaiser/Commonwealth National Survey of Health Insurance - 1997	Hoffman, Schoen, Rowland and Davis (2001); Schoen and DesRoches (2000)
Kaiser/Commonwealth State Low-Income Survey – 1995 - 1997	Schoen and DesRoches (2000)
Medical Expenditure Panel Survey (MEPS) - 1996	Committee on the Changing Market, Managed Care, and the Future Viability of Safety Net Providers (2000); Hanley (1998); Merlis (2002); Shearer (2000)
Medical Expenditure Panel Survey (MEPS), Access to Care Supplement - 1996	Merlis (2002)
National Medical Care Expenditure Survey (NMCES) - 1977	Bodenheimer (1992); Burgess and Stefos (1991); Davis and Rowland (1983); Farley (1977); Monheit (1977); Freedman, Klepper, Duncan, Bell (1988); Salmon (1988); Short and Banthin (1995); Stroupe, Kinney and Kniesner (2000); Woodward (1987)

National Medical Expenditure Survey (NMES) - 1987	Bartlett (2000); Committee on the Changing Market, Managed Care, and the Future Viability of Safety Net Providers (2000); Friedman (1987); Hill, Lutzky, and Schwalberg (2001); Himmelstein and Woolhandler (1995); Merlis (2002); Short (1999); Short and Banthin (1995); Stroupe, Kinney and Kniesner (2000); Weissman (1996)
National Public Radio/Kaiser Family Foundation/Harvard University Kennedy School of Government National Survey on Health Care - 2002	National Public Radio/Kaiser Family Foundation/Harvard University Kennedy School of Government (2002)
Rand Health Insurance Experiment	Bodenheimer (1992); Lurie, Manning, Peterson, Goldberg, Phelps and Lillard (1987)
Robert Wood Johnson Foundation Access to Health Care Survey - 1986	Bodenheimer (1992); Freeman, Blendon, Aiken, Sudman, Mullinix, and Corey (1987); Hayward, Shapiro, Freemen, and Corey (1998)
Robert Wood Johnson Foundation Community Tracking Survey – 1996 - 1997	Schoen and DesRoches (2000)
Robert Wood Johnson Foundation National Access to Health Care Survey - 1994	Baker, Shapiro and Schur (1994); Berk, Schur and Cantor (1995)

Appendix 3: Annotated Bibliography for Definitions of 'Underinsured'

Baker, David W., Shapiro, Martin F., and Schur, Claudia L., "Health Insurance and Access to Care for Symptomatic Conditions," Archives of Internal Medicine, v. 160, n. 9 (May 8, 2000), pp. 1269 – 1274.

> The authors write that the "uninsured receive less medical care than the insured. However, it is not known whether the uninsured are less likely to seek medical care for highly "serious" or "morbid" symptoms." (p. 1269) To determine the answer to this question the authors looked at data from the 1994 Robert Wood Johnson Foundation National Access to Care Survey (fielded as a follow-up component to the 1993 National Health Interview Survey) for 15 serious or morbid symptoms "that a national sample of physicians had rated as being highly serious or having a large negative effect on quality of life". (pp. 1270 – 1271)
>
> While the paper does not deal directly with underinsurance, the survey did look at whether insured people did not receive the care they thought they needed for the 15 serious or morbid symptoms. An inference that can be drawn from this is that a person is underinsured if the person has health insurance, had at least one of the 15 serious or morbid symptoms, and did not receive care thought necessary for the symptom. (Also see Baker, David W., Shapiro, Martin F., Schur, Claudia L., and Freeman, Howard, "A Revised Measure of Symptom-Specific Health Care Use," Social Science and Medicine, v. 47, n. 10 (November, 1998), pp. 1601 – 1609)

Bartlett, Dwight K. III, "The Growth of the Uninsured and Underinsured," Journal of Financial Services Professionals, v. 54, n. 5 (September, 2000), pp. 62 – 66. Online at <http://special.northernlight.com/healthextras/underinsured.htm>. Last accessed 07/19/2001.

> Bartlett writes that the "growing extent of health uninsurance and underinsurance among the non-elderly in the United States is increasingly recognized as a major public policy issue." Regarding measurement of the number of uninsured, Bartlett refers to data from the Current Population Surveys (CPS). Concerning the underinsured, Bartlett writes that the extent of the problem posed by the underinsured is less well documented "partly because there is no consensus definition of what constitutes underinsurance. Conceptually, the term suggests health insurance, which is so limited in its coverage of medical expenses that it leaves an insured individual with expected out-of-pocket expenses that are a substantial portion of total expenses, even in the event of catastrophic incurrals of such expenses. Such limitations can take various forms, such as excluded medical conditions, high deductibles and copays, or low maximum benefits." Bartlett then cites the study by Short and Banthin (1995) and their definition of underinsurance as a health benefits package that "would leave a covered individual incurring catastrophic medical expenses with out-of-pocket expenses exceeding ten percent of his/her annual income."

Bashshur, Rashid, Smith, Dean G., and Stiles, Renee A., "Defining Underinsurance: A Conceptual Framework for Policy and Empirical Analysis," Medical Care Review, v. 50, n. 2 (Summer, 1993), pp. 199 – 218.

> Bashshur, *et.al.* write that while there has been considerable attention given to the problem of who the uninsured are and how many people are uninsured, problems of the underinsured have been subject to far less examination." (p. 200) However, the problem of underinsurance is important because "in a zero-sum situation, as more people are

covered by health insurance, there may well be less actual coverage to go around." (p. 200) Thus, decreasing the number of uninsured may result in a growth in the number of underinsured.

According to Bashshur, *et.al.*, underinsurance refers generally to inadequate health insurance coverage. However, "not every limitation in benefit, in terms of exclusion, deductible, or copayment, constitutes "underinsurance"." (p. 201) This leads Bashshur, *et.al.* to distinguish four basic kinds of insurance coverage: excessive coverage, full coverage, adequate coverage, and underinsurance. Excessive coverage, the authors write, "refers to dual or multiple coverage for the same set of services, which does not provide any true financial benefits over full coverage." (p. 201) Full coverage "refers to truly comprehensive benefits that provide full protection against out-of-pocket expenses outside of premiums." (p. 201) Adequate coverage "refers to a less comprehensive set of benefits, wherein the beneficiaries are liable for designated amounts of out-of-pocket expenditures in the form of deductibles, copayments, exclusions, limits of coverage, and other forms of cost-sharing outside of premiums." (p. 202) Finally, underinsurance refers to "one or more conditions: where (a) too few services are covered or the coverage is inadequate; (b) amounts of out-of-pocket expenditures, with or without regard to family income, are excessive; (c) insurance is perceived to be inadequate; or (d) some combination is present." (p. 202) The first condition the authors refer to as the "structural" dimension of underinsurance. The second condition the authors refer to as the "experiential" dimension of underinsurance. The third condition the authors refer to as the "attitudinal" or "perceptual" dimension of underinsurance.

While offering a typology of underinsurance, the authors do not use any data sources to calculate the number of underinsured as captured by each of the three dimensions.

Berk, Marc L., Schur, Claudia L., and Cantor, Joel C., "Ability to Obtain Health Care: Recent Estimates from the Robert Wood Johnson Foundation National Access to Care Survey," Health Affairs, v. 14, n. 3 (Fall, 1995), pp. 139 – 146.

The authors report results from the 1994 Robert Wood Johnson Foundation National Access to Care Survey. Unlike earlier access surveys (in 1976, 1982 and 1986), the 1994 survey asked specific questions about "supplementary health care services such as prescription drugs, eyeglasses, dental care, and mental health care or counseling". (p. 139) The 1994 data suggest that earlier studies have underestimated the access problems faced by Americans because they did not ask these questions about supplementary health care services. (Also see Berk, Marc L., and Schur, Claudia L., "A Review of the National Access-to-Care Surveys," in To Improve Health and Health Care, 1997: The Robert Wood Johnson Foundation Anthology, edited by Stephen L. Isaacs and James R. Knickman (San Francisco, CA: Jossey-Bass Publishers, 1997), online at <http://www.rwjf.org/publications/publicationsPdfs/library/oldhealth/chap3.htm>. Last accessed 03/21/2002.

Although not concerned with underinsurance *per se*, the implication of the authors' paper is that (a) there are many people who are insured who are unable to obtain needed care, and (b) that such people, because they do have unmet health care needs measured by their insurance not covering health services such as prescription drugs, have health insurance that is inadequate.

Blendon, Robert J., Donelan, Karen, Hill, Craig A., Carter, Woody, Beatrice, Dennis, and Altman, Drew, "Paying Medical Bills in the United States: Why Health Insurance Isn't Enough," The Journal of the American Medical Association, v. 271, n. 12 (March 23/30, 1994), pp. 949 – 951.

In this paper the authors use data from "a survey designed and conducted for the Henry J. Kaiser Family Foundation by the Harvard School of Public Health and the National Opinion Research Center (NORC) at the University of Chicago (IL)" (p. 949) during February through June 1992. The authors used data from this study "to look directly, rather than at proxy measures, at who reports actual problems paying medical bills." (p. 949) The authors also "examine the insurance status of people in this group and, in addition, ask what other financial stresses they face and how they cope with the realities of illness and disability in their households." (p. 949)

An important conclusion of the paper is that "of the approximately one in five (19.4%) Americans who have problems paying medical bills in the last year", 56.3% are employer-provided or self-paid plans while 8.5% have Medicare and 10.4% have Medicaid. (p. 950) This conclusion was the result of the authors' analysis of their construction of a composite measure of problems paying medical bills that contained a question that asked "Did you have any of the following problems since [date 1 year ago]?" and then listed, among other items, the following four:

1. Having enough money to pay doctor or hospital bills
2. Having enough money to pay for prescription drugs
3. Having enough money to pay for nursing home services for yourself or another family member
4. Having enough money to pay for home health care services (pp. 949 – 950)

Bodenheimer, Thomas, "Underinsurance in America," The New England Journal of Medicine, v. 327, n. 4 (July 23, 1992), pp. 274 – 278.

Bodenheimer is interested in explicating the various senses in which a person who has insurance may still be considered to have inadequate insurance. The various ways in which the insurance may be inadequate are the various sense of underinsurance. The various sense of underinsurance include:

- Health insurance that leaves the person covered at risk of spending more than 10 percent of income on health care in the event of a costly illness. (The Pepper Commission (1990); Farley (1985))
- A low lifetime benefit (e.g., $250,000 or less).
- Limited benefits due to pre-existing medical conditions. (Cotton (1991))
- Exclusion of prevention health services such as childhood vaccinations. (National Vaccine Advisory Committee; Shulman, *et.al.* (1986))
- Failure to provide coverage for long-term care for the elderly. (The Pepper Commission (1990))
- Excessive out-of-pocket costs in the form of deductibles or copayments. Concerning this sense of underinsurance, Bodenheimer writes that the "primary feature of underinsurance is high out-of-pocket expenditures for medical care." (p. 277) Later, he reiterates this point and writes that although "there are many varieties of underinsurance in America, its essence remains high out-of-pocket expenditures for medical care." (p. 277) (1977 National Medical Care Expenditure Survey; Rand Health Insurance Experiment; 1986 Robert Wood Johnson Foundation Access to Health Care Survey)

Bodenheimer concludes that public attention "has focused on the blight of lack of health insurance, with underinsurance receiving far less consideration. Our nation must confront both of these problems in our quest for equitable and affordable medical care." (p. 277)

Burgess, James F., and Stefos, Theodore, "Federal Provision of Health Care: Creating Access for the Underinsured," Journal of Health Care for the Poor and Underserved, v. 1, n. 4 (Spring, 1991), pp. 364 – 385.

The authors write that access "to health care for the underinsured in America is a major current policy issue" and that the federal provision of health care "has not been evaluated seriously as part of the solution to the problem". (p. 364) The authors consider various arguments – referring to Rawls, Nozick and Hayek (all of whom can be considered neo-liberals in their political theorizing), amongst others – for and against universal access. The authors then use the federal health care system for veterans "as a model for exploring problems that must be solved in a universal access plan." (p. 364)

The authors begin their discussion of underinsurance by characterizing it as those people who are inadequately insured. (p. 365) The authors then go on to link inadequate insurance with the inability to pay insurance premiums (p. 366), though later they change this characterization somewhat and write that "measurements of insufficient insurance are best made by assessing the risk of out-of-pocket expenses." (p. 370; here the authors make reference to Farley (1985))

Centers for Disease Control and Prevention, "State-Specific Prevalence Estimates of Uninsured and Underinsured Persons – Behavioral Risk Factor Surveillance System, 1995," Morbidity and Mortality Weekly Report, v. 47, n. 3 (January 30, 1998), pp. 51 – 55.

The paper seeks to "determine state-specific estimates of the prevalence of persons aged 18 – 64 years who are either uninsured or underinsured using an experiential definition of underinsurance" (p. 51) using the Behavioral Risk Factor Surveillance System (BRFSS) survey. The presence "of health insurance was based on responses to the question "Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?"" (P. 51) If the answer was "no", then the person was uninsured. If the answer was yes, then the person was asked "Was there a time during the past 12 months when you needed to see a doctor, but could not because of cost?" "Adequate insurance was defined as being insured and reporting no problems because of cost, and underinsurance was defined as being insured but failing to see a doctor because of cost." (p. 51; Also see Nelson, David E., Thompson, Betsy L., Bland, Shayne D., and Rubinson, Richard, "Trends in Perceived Cost as a Barrier to Medical Care, 1991 – 1996," American Journal of Public Health, v. 89, n. 9 (September, 1999), pp. 1410 - 1413) The paper, making reference to Bashshur, Stiles and Smith (1993) writes that the definition used was "based on a relatively simple definition of underinsurance that differs from the econometric and perceptual terms used previously." (p. 55)

Committee on the Changing Market, Managed Care, and the Future Viability of Safety Net Providers, America's Health Care Safety Net: Intact but Endangered, edited by Marion Ein Lewin and Stuart Altman (Washington, D.C.: National Academy Press, 2000).

The committee writes that in the "absence of universal health insurance, a health care "safety net" is the default system of care for many of the 44 million low-income Americans with no or limited health insurance as well as many Medicaid beneficiaries and people who need special services." However, the "safety net" has never been financially robust, and the "changes in the structure and financing of the health care system in the United States has inadvertently caused serious problems for the safety net system". The committee's report "outlines the effects of these structural and coverage changes and offers a number of recommendations that address the support of the safety net system".

Within this context, the committee writes that demand for uncompensated care comes not only from the uninsured but also from "those whose insurance is inadequate to cover the costs of their health care needs." (p. 91) Thus, the committee uses a financial criterion to define the underinsured. The committee refers to Shearer (1998) and Short and Banthin (1995) and their definitions of the underinsured in terms of excessive health-related costs.

Committee on the Consequences of Uninsurance, Coverage Matters: Insurance and Health Care (Washington, DC: National Academy Press, 2001). Online at <http://books.nap.edu/html/coverage_matters/notice.html>. Last accessed 06/03/2002.

The report "responds to popular misperceptions about uninsured persons and populations and synthesizes recent findings regarding the dynamics of health insurance coverage and the causes of uninsurance." The report "addresses the extent to which Americans are without coverage, identifies social, economic, and policy factors that contribute to the existence and persistence of an uninsured population in the United States, and reports the probability for members of various populations groups of being uninsured. In addition, it introduces a conceptual framework that models how health insurance affects access to health care services and, through such access, affects health and economic well-being."

Concerning the issue of underinsurance, the Committee does not attempt in the report "to address the condition of "underinsurance." By underinsurance is meant families whose health insurance policy or benefits package offers less than adequate coverage. Most people would consider themselves uninsured if their health plan required extensive out-of-pocket payments in the form of deductibles, coinsurance or copayments, or maximum benefit limits. Many policies also exclude specific services such as mental health treatment, long-term care, or prescription drugs. The problems faced by the *under*insured are in some respects similar to those faced by the *un*insured, although they are generally less severe."

Davis, John B., "Conceptualizing the Lack of Health Insurance Coverage," Health Care Analysis, v. 8, n. 1 (2000), pp. 55 – 64.

Davis writes that the purpose of his paper is to examine "the lack of health insurance in the US as a public policy issue." (p. 55) The paper has four parts. In the first part, Davis "compares the problem of health insurance coverage to the problem of unemployment to show that … the numbers of individuals affected by lack of health insurance is a problem comparable in importance to the problem of unemployment." (p. 55) The second part of the paper discusses various definitions of health insurance coverage, while the third part of the paper introduces Amartya Sen's "functionings and capabilities framework" (p. 60) as a way of representing adequacy and inadequacy of health insurance. In the fourth part of the paper, Davis "sketches a means of operationalizing the Sen representation of the uninsured in terms of the disability-adjusted life year (DALY) measure." (p. 55)

Although Davis does not use the word 'underinsured' (or 'underinsurance'), his principal goal is to present various ways in which adequacy and inadequacy of health insurance coverage can be characterized. In this context, he considers cases in which the person has health insurance coverage but for whom the coverage is adequate – viz., the underinsured. The characterizations offered by Davis include:

- A person is underinsured if there are some health benefits in a health insurance plan that the person would prefer to receive but is not eligible to receive. (p. 58)
- A person is underinsured if the person is insured but there are some health benefits offered by the plan that the person would prefer to receive but cannot

afford to receive. As Davis writes, “individuals may be able to afford limited insurance on individual plans … but be unable to afford a higher level of insurance that they prefer.” (p. 58)

- A person is underinsured if the person is insured but has some pre-existing condition for which they are unable to acquire health insurance coverage.
- A person is underinsured if the person is insured but the coverage provided by the insurance results in “health capability deprivation”.

Davis, Karen, and Rowland, Diane, “Uninsured and Underserved: Inequities in Health Care in the United States, “ Milbank Memorial Fund Quarterly, v. 61, n. 2 (Spring, 1983), pp. 149 – 176.

The authors write that while the United States “has one of the highest quality and most sophisticated systems of medical care in the world”, there is a “surprisingly large segment of the United States population” for whom ease of access to health and medical care “does not exist”. (p. 149) Writing in the early 1980s, the authors worry that increasing unemployment, reductions in funding for health services for the poor and uninsured, and a deepening economic recession will all converge “to strain the fabric of our social life even more seriously.” (p. 150) Given this context, the authors review what is known, in 1983, about “the consequences of inadequate health insurance coverage” for various segments of the population. (p. 150) The data used by the authors for their examination and analysis came from the 1977 National Medical Care Expenditure Survey (NMCES).

The authors do not specifically talk about the “underinsured”. Nevertheless, they offer various characterizations of groups of people, one of which can be considered a characterization of people who are underinsured. In particular, individuals who have health insurance but whose coverage is “very limited”. (p. 151) For example, “individuals classified [by the NMCES data] as insured …for inpatient hospital care, but … not covered … for primary care in a physician’s office.” (p. 151; also see pp. 160 - 161)

Donelan, Karen, Blendon, Robert J., Schoen, Cathy, Davis, Karen, and Binns, Katherine, “The Cost of Health System Change: Public Discontent in Five Nations,” Health Affairs, v. 18, n. 3 (May/June, 1999), pp. 206 – 216.

The authors present data from “surveys of about 1,000 adults conducted during April – June 1998 in each of five countries – Australia, Canada, New Zealand, the United Kingdom, and the United States – to measure public satisfaction with health care.” (p. 206) The data comes from the Commonwealth Fund’s 1998 International Health Policy Survey, conducted by the Harvard School of Public Health and Louis Harris and Associates in collaboration with the Commonwealth Fund.

Concerning underinsurance, the surveys were not designed to measure underinsurance *per se*, but rather to measure “public perceptions of and experiences with the health care systems of the United States, the United Kingdom, Canada, Australia, and New Zealand.” (pp. 206 – 207) Nevertheless, there is information reported that is relevant to questions of underinsurance. For example, one of the principal measures of satisfaction was in terms of access to care. Although countries varied on the source of access difficulties, the authors report that access problems “in the United States were reported to be largely financial, with more than half of respondents citing insufficient money or insurance to pay for care”. (p. 209) The study also looked at access in terms of out-of-pocket expenses and discovered that “[O]ut-of-pocket costs are much higher in the United States than in all four other countries”. (p. 210) Finally, the authors report that people in “traditional insurance” are significantly less likely “to report difficulties seeing specialists and consultants.” (p. 213) (With regards to this latter point, compare what the authors write

with Short (1999) who claims that with the increase in managed care, the best way to measure the underinsured is in terms of their satisfaction (e.g., using MEPS Household) with their managed care health care provider.)

Donelan, Karen, DesRoches, Catherine M., and Schoen, Cathy, "Inadequate Health Insurance: Costs and Consequences," Medscape General Medicine, v. 2, n. 3 (August 11, 2000). Online at <http://www.medscape.com/viewarticle/408069>. Last accessed 04/17/2002.

The authors write that the objective of their study "was to examine the experiences of insured adults as they try to get needed healthcare and balance the payment for these services against other basic needs." Data from the Commonwealth Fund 1999 Survey of Workers' Health Insurance was used in the study. The authors conclude that there are "substantial proportions of low- and modest-income, insured adults who struggle to afford insurance premiums". In addition, the authors found that the insurance plans of these adults "do not provide them with either access to care when needed or financial protection from the cost of that care."

The "few measures of underinsurance that can be found in the literature might be broadly classified as either economic measures or experiential measures." Thus, there are at least two kinds of measures/definitions of underinsurance:

- Economic (Farley - NMCES; Short and Banthin – NMES)
- Experiential (using "access to care and actual problems paying medical bills to estimate the number of underinsured Americans". – Here the authors make reference to the study reported by Donelan, Blendon, Schoen, Davis and Binns (1999))

In their paper the authors focus on the experiential definition and estimate the number of underinsured using data from the Commonwealth Fund 1999 Survey of Workers' Health Insurance. The two general categories the authors examined to measure the number of underinsured people were:

- Reported medical cost burdens (e.g., inability to pay medical bills)
- Going without needed healthcare due to costs

Eddy, David M., "What Care is 'Essential'? What Services are 'Basic'?," The Journal of the American Medical Association, v. 265, n. 6 (February 13, 1991), pp. 782, 786 – 788.

Eddy discusses various issues involved in defining the "minimum set of services to which everyone should have access, regardless of ability to pay." (p. 782) This set of services, according to Eddy, "would form a floor for insurance policies, health plans, and government programs." (p. 782) Thus, while Eddy doesn't use the expressions 'underinsured' or 'underinsurance', he is attempting to find a definition for that set of services which, if not supplied by a person's health insurance policy, would entail that the person is underinsured. With respect to what this minimum set of services is, Eddy writes that it is that set of services that the majority of representative "average patients" (people who actually receive the benefits and harms of health care and bear the costs of that health care) would accept as constituting the minimum set. More precisely, Eddy writes that the steps necessary for identifying the minimum set are: (1) Estimate the harms and benefits of the intervention; (2) Estimate the costs in real dollars; (3) Convert the costs into an equivalent wage with the median (U.S.) wage as the reference point; (4) Ask each person (who is a patient of the intervention – e.g., people receiving mammograms) if he or she is willing to pay that equivalent wage to receive the intervention; (5) Define a service/benefit as a part of the minimum set of health services/benefits only if a majority

of a representative selection of such patients would want that benefit for him or herself. (p. 787)

Farley, Pamela J., "Who are the Underinsured?," Milbank Memorial Fund Quarterly, v. 63, n. 3 (Summer, 1985), pp. 476 – 503.

Farley begins her paper by writing that the "question of the adequacy of health insurance in the United States is as much a public concern as is the number and percentage of Americans who have no insurance from any private or public source at all." (p. 476) Thus, the question of underinsurance concerns people who have health insurance but whose insurance is in some way inadequate. For Farley, adequacy is measured by the degree of "catastrophic protection" the insurance provides – "insurance against the small possibility of large uninsured expenses from a costly illness". (p. 477) In other words, Farley's definition of underinsurance looks at adequacy in terms of the probability of out-of-pocket expenses exceeding a certain threshold. This gives rise to several possible characterizations of the underinsured:

- Total expected value of out-of-pocket expenses greater than or equal to:
    1. $100 (pp. 482 – 483)
    2. $200 (pp. 482 – 483)
    3. 3% of family income (pp. 482 – 483)
    4. 5% of family income (pp. 482 – 483)
- One percent expectation of out-of-pocket expenses greater than or equal to:
    1. $500 (pp. 482 – 484)
    2. $1,000 (pp. 482 – 484)
    3. $2,000 (pp. 482 – 484)
    4. 3% of family income (pp. 482 – 484)
    5. 5% of family income (pp. 482 – 484)
    6. 10% of family income (pp. 482 – 484)
    7. 20% of family income (pp. 482 – 484)
- One percent expectation, unadjusted for risk, of out-of-pocket expenses greater than or equal to:
    1. $2,000 (pp. 482 – 484)
    2. 10% of family income (pp. 482 – 484)
- Five percent expectation of out-of-pocket expenses greater than or equal to:
    1. $2,000 (pp. 482 – 484)
    2. 10% of family income (pp. 482 – 484)
- No out-of-pocket limit for hospital expenses (where these expenses include room and board and miscellaneous charges)
    3. Year 1977 (pp. 482 – 487)
    4. Year 1984 estimate (pp. 482 – 487)
- No out-of-pocket limit for both hospital and medical expenses (where medical expenses include inpatient physician and surgical fees, outpatient office visits, and outpatient tests)
    3. Year 1977 (pp. 482 – 487)
    4. Year 1984 estimate (pp. 482 – 487)

Farley then goes on to compute the numbers of underinsured using each of the above characterizations using data from the 1977 National Medical Care Expenditure Survey (and for characterizations in terms of no out-of-pocket limits, using 1984 estimates derived from the 1977 data).

The definition that Farley believes best is the one that characterizes the underinsured in terms of a one percent expectation of out-of-pocket expenses greater than or equal to 10% of the family income (12.6 % using 1977 National Medical Care Expenditure Survey data). This characterization, Farley claims, "is in keeping with expected utility theory and society's interest in having individuals insure themselves against extraordinarily

expensive illness." (p. 486) However, the choice of 10% seems only to reflect the "generally accepted view" (then and now) that expenditures in excess of 10% are excessive.

Freeman, Howard E., Blendon, Robert J., Aiken, Linda H., Sudman, Seymour, Mullinix, Connie F., and Corey, Christopher R., "Americans Report on their Access to Health Care," Health Affairs, v. 6 (Spring, 1987), pp. 6 – 18.

The authors report results from the 1986 Robert Wood Johnson Foundation Access to Health Care Survey. The 1986 "study consisted of interviews with 10,130 people in the continental United States". (p. 8) "People with chronic and serious illnesses were oversampled; the study group was weighted, however, so that the findings represent the U.S. population." (p. 8) In their paper the authors write that six findings "are of particular significance: (1) Between 1982 and 1986, American's overall use of medical care declined in terms of hospitalizations and per capita physician visits. (2) Access to physician care for individuals who were poor, black, or uninsured decreased between 1982 and 1986, particularly for those in poor health. (3) Hospitalizations have also declined for these disadvantaged groups, but the reduction is comparable to that experienced by the entire population … (4) Though much has been written about the overuse of medical care, this study found signs of underuse of important health services among key population groups. (5) The long-standing gap in receipt of medical care between rural and urban residents appears to have been eliminated. (6) Most Americans continue to be highly satisfied with their physician and inpatient hospital care." (p. 7)

Although the authors do not explicitly address the issue of underinsurance, certain results of the survey are relevant to a measurement of the underinsured. (1) "Those surveyed were … asked if they had ever failed to obtain needed medical care for economic reasons." (p. 13) (2) "The survey … asked respondents whether, over the past thirty days, they had experienced one or more symptoms judged by a panel of physicians to warrant care in most instances, and if so, whether they sought medical attention." (p. 14)

Freedman, Steve A., Klepper, Brian R., Duncan, R. Paul, and Bell, Samuel P., III, "Coverage of the Uninsured and Underinsured: A Proposal for School Enrollment-Based Family Health Insurance," The New England Journal of Medicine, v. 318, n. 13 (March 31, 1988), pp. 843 – 847.

The authors begin with a general characterization of who, amongst Americans, are inadequately insured. They break this group into two sub-groups: those who are uninsured and those who are underinsured. For the uninsured the authors consider a variety of characteristics of and reasons for the people who are uninsured. For the underinsured, the authors use the criteria of "inadequate health insurance against large medical bills" (p. 844) and the serious financial impact imposed by "serious illness". (p. 844) In both cases, the authors reference Farley (1985). Finally the authors argue that a family health insurance plan based on school enrollment would be an effective way to meet the health care needs of the uninsured and underinsured.

Friedman, Emily, "The Uninsured: From Dilemma to Crisis," The Journal of the American Medical Association, v. 265, n. 19 (May 15, 1991), pp. 2491 – 2495.

The focus of the paper is on "access to acute care for Americans who lack coverage for the cost of that care" (p. 2491); viz., the uninsured. Friedman looks at the numbers of uninsured (principally based on data from the 1987 National Medical Expenditure Survey), and reasons why the problem of the uninsured have reached "crisis" proportion.

There are 5 reasons identified by Friedman for why the problem of uninsurance has reached crisis proportion: (1) Coverage affects health status (p. 2493); (2) Inability to provide uncompensated care is damaging the health care system (pp. 2493 – 2494); (3) Decreasing number of employers offering health insurance (p. 2494); (4) Increasing numbers of uninsured increases health care costs (p. 2494); (5) Issues of equity and ethics. (pp. 2494 – 2495)

Concerning the underinsured, Friedman writes that if the policy debate concerning the uninsured "is to be framed accurately in terms of coverage and access, a second group, the underinsured, must also be mentioned." (p. 2492) Friedman characterizes the underinsured generally as those people whose health insurance coverage is inadequate. Friedman notes that this group is difficult to define precisely, but then offers various specifications of inadequate health insurance coverage:

- Whether required treatment is available (e.g., physician reluctance to treat Medicaid clients)
- Whether there is a dollar limit to the coverage
- Whether there is a time limit to the coverage
- Inadequate protection against the possibility of large medical bills (here Friedman cites Farley (1985))
- Whether the insurance precludes coverage of a given condition
- Whether the insurance imposes a waiting period before a given condition is covered (Friedman uses the example of pregnancy)

Hanley, Kay K., "Report of the Council on Medical Service: Defining the Uninsured and Underinsured," Council of Medical Services Report 15 – I-98 (December, 1998). Online at <http://www.ama-assn.org/meetings/public/int1998/reports/cmsrpts/rtf/cms15.rtf>. Last accessed 06/18/2002.

The AMA report offers definitions for both the uninsured and underinsured. The report indicates that the surveys most often used to measure the uninsured are: March Current Population Survey (CPS), the Survey of Income and Program Participation (SIPP), that National Health Interview Survey (NHIS), and the Medical Expenditure Panel Survey (MEPS). Concerning each of the surveys, Hanley writes that "[T]he estimates of insurance coverage from each of the surveys contains valuable information. The CIPS data provides an estimate of the uninsured throughout the year prior to the survey. The data in SIPP can be used to construct estimates of the duration of spells without coverage, as well as point-in-time, monthly, and annual estimates. Estimates of the uninsured based on the NHIS refer to coverage in a "average" month during the year. MEPS data can be used to calculate point-in-time, monthly, and annual estimates of health insurance coverage.

Regarding the underinsured, Hanley reports that the Council "believes the concept of underinsurance is inherently normative, meaning that it contains value judgements, and cannot be precisely measured." (p. 4) Hanley makes reference to Monheit (1994) who defines the underinsured as those without adequate coverage, and to the typology offered by Bashshur, Smith and Stiles (1993) who identify three dimensions to underinsurance – structural, attitudinal and experiential. Hanley writes (making implicit reference to Farley (1985) and Short and Banthin (1995) that the "empirical-experiential variation on the latter dimension has been developed where persons with inadequate coverage are defined as those having a certain percentage (e.g., 1%) chance of spending at least 10% of family income on medical care." (p. 4) Hanley suggests MEPS data could be used to make an estimate based on this definition. Finally, Hanley suggests that the Behavioral Risk Factor Surveillance System (BRFSS) can also be used in an experiential definition of the underinsured. Hanley writes that the "BRFSS questions

on type of insurance coverage are followed by the question "Was there a time during the last 12 months when you needed to see a doctor, but could not because of costs?" Researchers at the CDC have defined underinsurance as being uninsured but failing to see a doctor because of costs." (See Centers for Disease Control and Prevention (1998))

Harkin, Tom, "Caring for the Uninsured and Underinsured: Another Pound of Cure," The Journal of the American Medical Association, v. 266, n. 12 (September 25, 1991), pp. 1692 – 1693.

Harkin writes that "[A]ccess to affordable and quality health care is a fundamental right that should be enjoyed by all Americans." (p. 1692) At the same time though, Harkin notes that there are various anomalies in the health care system "that will not be reconciled merely by improved access to treatment services." (p. 1692) For example, 9 months of prenatal care is "not part of many basic health insurance packages" (p. 1692) and some children are not covered for immunizations by their health insurance.

Within this context, the implication is that for Harkin the underinsured are people having health insurance but whose insurance coverage is inadequate in that basic health needs such as prenatal care, immunizations and preventive screenings (e.g., mammographies) are not part of the coverage.

Hayward, Rodney A., Shapiro, Martin F., Freemen, Howard E., and Corey, Christopher R., "Inequities in Health Services Among Insured Americans: Do Working-Age Adults Have Less Access to Medical Care Than the Elderly?," The New England Journal of Medicine, v. 318, n. 23 (June 9, 1988), pp. 1507 – 1512.

The authors made use of data from the 1986 Robert Wood Johnson Foundation Access to Health Care Survey to determine whether groups other than the elderly and the uninsured have difficulty in obtaining access to medical care. Findings by the author include:

- Being uninsured predicted lower access to medical care. (p. 1510)
- Poverty was an independent predictor of lower access to health/medical care even after controlling for age, health status and other potential confounding variables. (p. 1510)
- Insured, nonpoor, working age adults have less access to care then the elderly. (p. 1511)
- Insured adults of working age were 3.5 times as likely as the elderly to have needed supportive medical services but not to have received them, and 3.4 times as likely to have had major financial difficulties because of illness.

The authors did not discuss underinsurance *per se*, but they did discuss inadequate health insurance and an implication that the inadequacy is either because needed coverage was not provided or because of financial difficulties associated with the insurance. In terms of the financial aspects of "access", the authors write:

> The telephone survey included a number of items concerning access to care, including whether respondents had medical insurance (government or private); whether they had seen a doctor in the past year; whether they usually went to "one person or place" when they were "sick or want[ed] medical advice"; what type of ambulatory setting was used for such care (for respondents without a regular source of care); or why they did not have one (for respondents without a regular source of care). For the last question, the interviewer recorded the respondent's answer verbatim and coded it as "financial" or "nonfinancial". The 2927 respondents with chronic or serious medical illnesses were asked whether a situation had arisen in which they needed, but had been unable to obtain, physical therapy, nursing care, medical equipment, or nursing home care; and

whether they had "been unable to buy a prescription drug because of lack of money." (p. 1508)

Hill, Ian, Lutzky, Amy Westpfahl, and Schwalberg, Renee, Are We Responding to Their Needs? States' Early Experiences Serving Children with Special Health Care Needs Under SCHIP (Washington, D.C.: The Urban Institute, 2001).

The authors write that while "the primary goal of the State Children's Health Insurance Program (SCHIP) is to extend health insurance coverage to the estimated 10 million uninsured low-income children in America, SCHIP also presents an opportunity to insure one of our nation's most vulnerable groups: children with special health care needs (CSHCN)." (p. vii) To this end, one of the specific aims of the authors' study "was to discern how, and to what degree, SCHIP programs have responded to the needs of CSHCN by designing special programs and policies." (p. viii)

Concerning the issue of underinsurance, the authors write that "simply possessing insurance does not necessarily mean that the needs of a chronically ill or disabled child are adequately met". (p. 6) The reason is that such families may be underinsured. The authors write that underinsurance "generally refers to a situation in which families possess coverage that is expensive to use or limited in scope, and therefore does not fully meet their needs." (p.6) The authors go on to provide some specificity to this general characterization and write that underinsurance occurs when:

- A person under age 65, if faced with a catastrophic illness that the person has one chance in 100 of experiencing, would incur out-of-pocket health care expenditures in excess of 10% of family income. (p. 6; Here the authors make use of and reference to Short and Banthin (1995)
- The health insurance of the individual is inadequate to meet the health care needs of the individual. (p. 6)
- There are high deductible and coinsurance rates. (p. 29; the authors do not make it more precise than this and may or may not be referring to Short and Banthin (1995))
- There are small (the authors do not make it more precise than this) annual and lifetime benefits. (p. 29)

Himmelstein, David U., and Woolhandler, Steffie, "Care Denied: U.S. Residents Who are Unable to Obtain Needed Medical Services," American Journal of Public Health, v. 85, n. 3 (March, 1995), pp. 341 – 344.

Making use of data from the 1987 National Medical Expenditure Survey (NMES), the authors' study "analyzed data on U.S. residents reporting that they were unable to obtain needed care." (p. 341) Inadequately immunized children and women inadequately screened for breast or cervical cancer were also examined. The general conclusion of the authors is that "[M]illions of Americans, including many with insurance, cannot obtain needed care. Indeed, three quarters of those unable to obtain services have coverage; nearly half have private insurance. Cost is the major barrier to care for both the insured and the uninsured." (p. 343)

It is important to note that the NMES "inquired about the availability of only seven services, notably excluding physicians' visits for adults". (p. 343) The seven services about which the survey asked "whether any household member needed but did not receive" those services during the previous year (p. 341) were:

1. Emergency care
2. An overnight hospital stay
3. Home care such as a visiting nurse, doctor or therapist

4. Mental health services
5. A pediatrician's care
6. Prescription medications
7. Medical equipment such as eyeglasses, diabetic supplies, and orthopedic items

If the respondents had not received any of these specific services, they "were asked why and whether they had actually tried to obtain the service." (p. 341)

Hoffman, Catherine, Schoen, Cathy, Rowland, Diane, and Davis, Karen," Gaps in Health Coverage Among Working-Age Americans and the Consequences," Journal of Health Care for the Poor and Underserved, v. 12, n. 3 (August, 2001), pp. 272 – 289.

The paper "examines health coverage and access to care among working-age adults using the Kaiser/Commonwealth 1997 National Survey of Health Insurance." (p. 272) In this context, the paper is more interested in the uninsured and the characteristics of those who are uninsured, than it is with the underinsured. Although the authors' don't use the expression "underinsured", they do write that even "when they had continuous health coverage, 15 to 20 percent of low-income working-age adults postponed care, had difficulty getting needed care, or did not fill a prescription due to cost." (p. 284)

Hogan, Andrew J., and Goddeeris, John H., "Universal Health Insurance Coverage Through a Single Public Payer," in Improving Access to Health Care: What Can the States Do?, edited by John Goddeeris and Andrew Hogan (Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 1992), pp. 51 – 76.

Hogan and Goddeeris discuss the "issue of providing access to basic health services for all citizens." (p. 51) They argue that a single-payer universal health insurance plan "could reduce the administrative and transaction costs associated with the current health insurance market and could provide a mechanism through which public health goals could be given some ascendancy over individual medical consumerism." (p. 53) More specifically, they make this argument while discussing "the implications for health care costs of a state-initiated program of universal coverage." (p. 53)

Concerning underinsurance, the authors write that they "identify as "underinsured" those whose family income was less than 200 percent of the poverty level standard and who purchased nongroup health insurance or a group plan for which no employer made a contribution. Our expectation is that insurance coverage is usually quite limited in these cases." (p. 59) The authors focus their attention on Michigan, and the data they use comes from the 1988 Current Population Survey and its supplement on health insurance.

Johnson, Richard W., Davidoff, Amy J., Moon, Marilyn, "Insuring the Near Elderly: The Potential for Medicare Buy-In Plans," Assessing the New Federalism: Policy Brief No. 13 (Washington, D.C.: The Urban Institute, 2002). Online at <www.urban.org/UploadedPDF/310419_Brief13.pdf>. Last accessed 05/20/2002.

The paper deals with problems of health insurance coverage faced by the non-elderly (62 – 64) who lack job-related health benefits. Such people have limited public insurance options because they qualify for Medicare or Medicaid only if disabled, and Medicaid benefits are subject to strict income and asset limits. These people are underinsured if they have private, nongroup health insurance that offers limited coverage and carries high deductibles and coinsurance. As the authors write: "[T]o offset the high price of private nongroup coverage, many individuals [aged 62 – 64] purchase plans that offer

limited coverage, but carry high deductibles and coinsurance. For those with low incomes, the lack of comprehensive coverage can limit access to care. Many insurers also exclude coverage for pre-existing health conditions, further limiting the comprehensiveness of benefit packages. We estimate that about 12 percent of Americans aged 55 to 64 with private nongroup coverage have restricted policies because of pre-existing conditions. Consequently, many near-elderly persons with nongroup coverage may be underinsured, leaving them vulnerable to high out-of-pocket costs if they become seriously ill."

Kuttner, Robert, "The American Health Care System: Health Insurance Coverage," The New England Journal of Medicine, v. 340, n. 2 (January 14, 1999), pp. 163 – 168.

Kuttner discusses "several trends that account for the erosion of health insurance coverage." (p. 163) For example, Kuttner claims that a "few employers have eliminated coverage entirely because of escalating costs of premiums. Most employers have narrowed the choice of plans and shifted costs to employees by capping the employer's contribution, choosing plans with higher out-of-pocket costs, or both. These changes, in turn, have caused some employers to forgo coverage for themselves and their families and have also led to underinsurance, since many employees, especially those who receive low wages, cannot afford the out-of-pocket charges." (p. 163)

More specifically, with regards to underinsurance, Kuttner writes that underinsurance, in the paper, refers to "medical needs that either are not covered by health plans at all or are covered but with high copayments that force beneficiaries to forego treatment." (p. 165)

Kuttner cites the following: Studies by the Employee Benefit Research Institute, a study conducted by the Lewin Group for Consumer's Union (reported by Gail Shearer in her 1998 Hidden from View: The Growing Burden of Health Care Costs), and several private consultants. (pp. 165 – 166)

Lurie, Nicole, Manning, Willard G., Peterson, Christine, Goldberg, George A., Phelps, Charles A., and Lillard, Lee, "Preventive Care: Do We Practice What We Preach?," American Journal of Public Health, v. 77, n. 7 (July, 1987), pp. 801 – 804.

The authors used "data from the Rand Health Insurance Experiment to estimate the frequency of preventive care and to determine whether cost-sharing was an important determinant of compliance with preventive care recommendations." (p. 801) The authors discovered that higher levels of cost sharing "were associated with fewer immunizations for children under age seven; adults on the free plan received more immunizations than those in the cost-sharing plans; women in both age groups enrolled in the free care plan received more Pap smears than those on cost-sharing plans." (p. 803)

There is no specific mention of underinsurance in the report. Making use of data from the Rand Health Insurance Experiment, the authors do, however, suggest (a) that people's use of preventive services is much lower than is recommended by professional organizations such as the American Cancer Society, the American College of Physicians, etc.; (b) costs associated with preventive services lead to decreased use. Thus, the implication is that a person is underinsured if that person has health insurance but the out-of-pocket costs associated with preventive services deters the individual from making use of the preventive services.

Merlis, Mark, Family Out-of-Pocket Spending for Health Services: A Continuing Source of Financial Insecurity (New York, NY: The Commonwealth Fund, June 2002). Online at <http://www.cmwf.org/programs/insurance/merlis_oopspending_509.pdf>. Last accessed 06/19/2002.

> Merlis writes that the "shift to managed care plans in the 1990s brought changes in health insurance benefits that included less stringent cost-sharing requirements for most families with insurance. Despite growth in overall medical care spending, direct out-of-pocket (OOP) spending by families was the same in 1996 as in 1987, and average spending as a share of family income declined. Nonetheless, there remain millions of families who face high OOP costs." (p. vii) With this as context, Merlis writes that his "report uses data from the 1996 Medical Expenditure Panel Survey (MEPS) household component and several additional data sources to examine trends in OOP spending, the components of that spending, and the characteristics of families with high OOP costs." (p. vii) The other data sources include the 1998 Consumer Expenditure Survey (CES), the 1996 MEPS Access to Care supplement, and the 1987 National Medical Expenditures Survey (NMES). Merlis concludes that "OOP spending on health care services remains a major source of financial insecurity for people with inadequate health insurance coverage." (p. vii) Moreover, at "the bottom of the economic ladder, some families may be forced to forego spending on necessities to meet the out-of-pocket cost of health care." (p. vii)
>
> Merlis is clear that the "simple dichotomy "insured/uninsured" does not capture the varying burdens of different families" with respect to the out-of-pocket costs associated with medical care. (p. 15) Thus, Merlis believes that policies to "address underinsurance" must be developed. (pp. 15ff) However, apart from associating underinsurance with excessive out-of-pocket costs, Merlis does not provide a precise definition of underinsurance. Instead, the implication seems to be that the sorts of data that will be relevant in giving precision to a definition of underinsurance will be:
>
> - Out-of-pocket expenditures
> - Cost of premiums
> - Family income
> - Type of medical or health care service
> - Type of insurance
> - Health status

Monheit, Alan C., "Underinsured Americans: A Review," Annual Review of Public Health, v. 15 (1994), pp. 461 – 485.

> Monheit writes that informed "public policy initiatives to expand health insurance coverage and estimates of their costs require knowledge of the size, demographic composition, and economic circumstances of the underinsured, and therefore, an understanding of how such estimates are derived. Although empirical research has provided a finely etched portrait of the *uninsured*, far less is known about those with inadequate coverage…" (p. 462) Thus, as a general characteristic, the underinsured are those who have health insurance but whose insurance coverage is somehow inadequate.
>
> Monheit goes on to write that there are difficulties in "defining what is meant by inadequate coverage." (p. 469) These difficulties, Monheit writes, "arise because value judgments are required regarding the socially acceptable level of risk that an individual should bear. As a result, definitions of inadequate coverage directly confront alternative views of the purpose of health insurance: should coverage be structured to protect individuals from low-probability/high-cost medical events or should insurance finance

predictable kinds of medical care or care that society wishes to encourage (e.g., preventive health services).” (p. 469) Thus, there are at least two ways to approach underinsurance:

- People are underinsured if they have a 1% chance of spending 10% of family income on medical care. (Monheit uses Farley (1985) here, and the data for such estimates comes from the 1977 National Medical Care Expenditure Survey)
- People are underinsured if their insurance does not provide coverage for basic medical needs and services (e.g., immunizations)

National Public Radio/Kaiser Family Foundation/Harvard University Kennedy School of Government, National Survey on Health Care (Menlo Park, CA: The Henry J. Kaiser Family Foundation, 2002). Online at <http://www.kff.org/content/2002/3239/Health_Care_Summary_Final.pdf>. Last accessed 06/06/2002.

-----, National Survey on Health Care: Chartpack (Menlo Park, CA: The Henry J. Kaiser Family Foundation, 2002). Online at <http://www.kff.org/content/2002/3238/Health_Care_Chartpack_Final.pdf>. Last accessed 06/06/2002.

-----, National Survey on Health Care: Toplines (Menlo Park, CA: The Henry J. Kaiser Family Foundation, 2002). Online at <http://www.kff.org/content/2002/3237/Health_Care_Toplines_Final.pdf>. Last accessed 06/06/2002.

The National Survey on Health Care reports that a “new survey by NPR, the Kaiser Family Foundation, and Harvard’s Kennedy School of Government points to a significant medical divide in the United States along socio-economic lines.” The lowest-income Americans, as well as many Americans in the middle class, report various problems with paying for or receiving appropriate medical and health care.

There is no specific mention of the underinsured in any of the three reports (see references). However, the study did report people having specific problems by insurance status. For those having health insurance, there were problems reported in each of the following areas:

- Postponed seeking medical care
- Problem paying bills
- Did not get prescription drug
- Contacted by collection agency
- Did not get needed medical care
- Perceived quality of medical care was inadequate

On the basis of the data, one may infer that a person is underinsured just in case the person has health insurance but the insurance fails to cover some essential health care need or some health care need is unmet because of cost.

New York State Association of County Health Officials, “Serving the Uninsured and Underinsured in New York,” (July, 1996). Online at <http://www.nysacho.org/Policies/Serving_the_Under__Uninsured_/serving_the_under__uninsured_.html>. Las accessed 07/19/2001.

This is a report created by an ad hoc committee of The New York State Association of County Health Officials. (NYSACHO) The report “summarizes current support for indigent

care and presents NYSACHO's recommendations for a comprehensive and coordinated response to the growing numbers of uninsured and underinsured in the context of the reconfiguration of the health care system." The report notes that while there is reliable information concerning the numbers of uninsured, it is more "difficult to quantify the magnitude of the underinsured population." "As benefits offered by employers and insurance companies become more stringent, the number of persons who delay care because they cannot afford the out-of-pocket expenses of copayments, deductibles and exclusions will increase." Thus, the NYSACH committee implicitly defines the underinsured as those people having health insurance who, because of the out-of-pocket expenses of copayments, deductibles and exclusions associated with that insurance, delay needed medical care or health services.

Reis, Janet, Sherman, Sandra, Macon, JoAnn, and Friedman, Bernard, "Care for the Underinsured: Who Should Pay?," The Journal of Nursing Administration, v. 20, n. 3 (March, 1990), pp. 16 – 20.

The authors conducted a survey of 146 patients at "an inner-city community health center over a two-week period." (p. 17) The authors do not identify the city, though they write that the clinic is located "in a low income urban neighborhood of approximately 150,000 people." (p. 17) "Only those without Medicaid or Medicare insurance were eligible for participation in the survey." (p. 17) Although the authors refer to Farley (1985) and the number of underinsured reported there (33 million), this is not the definition of underinsured the authors make use of in their paper. Instead, when first making use of the expression "medically underinsured" (p. 16) the authors make reference to Michael R. Cousineau, E. Richard Brown, and Jonathan E. Freedman, "Access to Free Care for Indigent Patients in Los Angeles: County Policy Implementation and Barriers to Use," Journal of Ambulatory Care Management, v. 10, n. 1 (February, 1987), pp. 78 – 89. In this paper the authors discuss Los Angeles county policy concerning payment options for low-income, uninsured patients who are not eligible for Medi-Cal and who could not afford the fixed fee prepayment amount. From this we may infer that Reis, *et.al.* intend to use a concept of underinsurance related to the person's ability to pay. Unfortunately, the authors seem to conflate the uninsured, who are unable to pay for needed care, with people who are insured but unable to pay for needed care. As the authors write, "[O]ne hundred of the 150 people identified as medically underinsured reported having no health insurance of any kind."

Rockefeller, John D. IV, "A Call for Action: The Pepper Commission's Blueprint for Health Care Reform," The Journal of the American Medical Association, v. 265, n. 19 (May 15, 1991), pp. 2507 – 2510.

The paper is a summary of the Pepper Commission's recommendations concerning the U.S. health care system. (Also see Rockefeller's "The Pepper Commission Report on Comprehensive Health Care," The New England Journal of Medicine, v. 323, n. 14 (October 4, 1990), pp. 1005 – 1007, and The Pepper Commission (U.S. Bipartisan Commission on Comprehensive Health Care), A Call for Action (Washington, D.C.: U.S. Government Printing Office, 1990). Rockefeller begins with a statement of the problems facing U.S. citizens at the end of the 1980s and beginning of the 1990s in terms of health insurance access and coverage. He then notes the "four fundamental conclusions" (p. 2508) of the Pepper Commission: (1) "Health Coverage must be universal." (p. 2508); (2) "Simply patching the current system – for example, with Medicaid expansions – cannot achieve universal coverage." (p. 2508); (3) "Replacing the current system with government-run national health insurance is simply not practical." (p. 2508); (4) "Expanding access and controlling costs must proceed hand in hand." (p. 2508)

Within the contexts of access and coverage, The Pepper Commission also attempted to articulate an "adequate minimum standard of coverage." (p. 2509) This minimum standard of coverage is relevant to the issue of underinsurance. In particular, anyone with health insurance whose coverage is less than the minimum standard established by The Pepper Commission is underinsured. This minimum coverage includes "hospital care, surgical and other inpatient services, physician office visits, diagnostic tests, and limited mental health benefits (45 inpatient days and 25 outpatient visits). In addition, benefits would include preventive services – prenatal care, well-child care (including immunization), mammograms, Papanicolaou smears, colorectal and prostate screening procedures, and other preventive services that evidence shows are effective to costs." (p. 2509) The Pepper Commission also includes constraints on spending, recognizing that excessive costs would be a deterrent to universal coverage. However, the specifics do not translate well into specifics for defining underinsurance since the constraints are artifacts of the Commission's own proposal for funding universal coverage. However, it is an implication of the Commission's position that excessive out-of-pocket costs (including premium costs) for health services are a sufficient condition for an insured person to be underinsured.

Salmon, J. Warren, "The Uninsured and the Underinsured: What Can We Do?," The Internist, v. 29, n. 4 (April, 1988), pp. 8 – 13.

Salmon characterizes both the uninsured and the underinsured. He cites Farley (1985) and the data that she used in that article from the 1977 NMCES. This leads Salmon to write that an "accepted definition is that the underinsured incur out-of-pocket expenses equal to at least 10 percent of their family income." (p. 9) Salmon also mentions "insurance exclusions for the mostly costly diagnostic and treatment procedures" (p. 9) with the implication that these too are an aspect of underinsurance.

Schoen, Cathy, and DesRoches, Catherine, "Uninsured and Unstably Insured: The Importance of Continuous Insurance Coverage," Health Services Research, v. 35, n. 1, Part II (April, 2000), pp. 187 – 206.

The objective of the paper was to "examine the importance of continuous health insurance for access to care by comparing the access and cost experiences of insured adults with a recent time uninsured to experiences of currently uninsured adults and experiences of adults with no time uninsured within a reference time period (continuously insured)." (p. 187) The data sources used were the Robert Wood Johnson Foundation 1996 – 1997 Community Tracking Survey, the Kaiser/Commonwealth 1997 National Survey of Health Insurance, and the 1995 – 1997 Kaiser/Commonwealth State Low Income Surveys.

Concerning the issue of underinsurance, the authors write that although "analysts have long recognized that spells uninsured are likely to matter for access to care and financial production and, in fact, have used gaps in coverage in estimating the percent of the population "underinsured" (Farley 1985; and Short and Banthin 1995), few access studies have used information on gaps in coverage to broaden the definition of the uninsured to those with a recent spell uninsured." (p. 189) Although the authors are not concerned with determining rates of underinsurance, they note that the Kaiser/Commonwealth 1997 National Survey of Health Insurance included a question "about not having a prescription filled due to costs" (pp. 198 – 199) as well as a question "about problems paying medical bills in the past year." (p. 200) This suggests that the survey contains information that could be used in determining rates of underinsurance.

Shearer, Gail, <u>The Health Care Divide: Unfair Financial Burdens</u> (Washington, D.C.: Consumers Unions, 2000).

Shearer writes that our "health care system is characterized by divisions." (p. i) These "divisions – of insured and uninsured, healthy and sick, and high incomes and modest incomes – shape the choices made by sellers of health insurance, the choices made by consumers of health care, and the equity of paying for health care." (p. i) Within this context, Shearer considers a number of divisions in health care, the extent of such divisions, and what can be done to make "health care more accessible and affordable." (p. i) The principal data sources for Shearer's report are the 1996 Medical Expenditure Panel Survey (MEPS) together with the Lewin Group's microsimulation model adjusting the MEPS 1996 data to the year 2000.

One of the divisions in the health care system with which Shearer is interested is the division between the insured, the uninsured and the underinsured. Shearer offers various characterizations of the underinsured (again using 1996 MEPS data and the Lewin Group's imputations from the 1996 MEPS data):

- Individuals who have private health insurance "yet run the risk of incurring out-of-pocket expenses (not including premiums) that exceed 10 percent of income in the event they faced catastrophic illness." (p. 14; Shearer derives this definitions from, and makes reference to Short and Banthin (1995))
- Families (head of household under 65 years-of-age) whose health care costs exceed 10 percent of family income, where the included health care costs are:
    1. Out-of-pocket costs
    2. Out-of-pocket costs and direct premiums
    3. Out-of-pocket costs, direct premiums and indirect premiums (wage loss)
- Families (head of household 55 to 64) whose health care costs exceeded 10 percent of family income, where the included health care costs are:
    1. Out-of-pocket costs
    2. Out-of-pocket costs and direct premiums
    3. Out-of-pocket costs, direct premiums and indirect premiums (wage loss)
- Families (head of household over 65) whose health care costs exceeded 10 percent of family income, where the included health care costs are:
    1. Out-of-pocket costs
    2. Out-of-pocket costs and direct premiums

Concerning the 10 percent figure used in her characterizations of the underinsured, Shearer writes that "while researchers have used 10 percent as a benchmark figure (for out-of-pocket expenditures alone), there has not been extensive consideration by health policy experts about what the appropriate percent of income that should be devoted to health care is." (p. 14) Moreover, since the characterizations make use of data concerning actual health care spending, as opposed to expected health care spending, Shearer cautions that the numbers derived from such characterizations "substantially understate the number of underinsured since many more people are *at risk* of burdensome health expenditures if serious illness strikes." (p. 14)

Short, Pamela Farley, "Examining Health Insurance Differences: Issues of Public Equity and Cost Efficiency," in <u>Informing American Health Care Policy: The Dynamics of Medical Expenditure and Insurance Surveys, 1977 – 1996</u>, edited by Alan C. Monheit, Renate Wilson, and Ross H. Arnett III (San Francisco, CA: Jossey-Bass Publishers, 1999), pp. 69 – 94.

In terms of context for her paper, Short writes that in addition "to being unfair, the maldistribution of health insurance is wasteful and inefficient. On one side, the uninsured and underinsured who forgo needed services may eventually requires even more costly

and intensive care. Their health is unnecessarily affected, and they are exposed to financial risks and hardships that are appropriately eliminated by insurance mechanisms. On the other side, too, much of the wrong kind of insurance is also wasteful. Open-ended, comprehensive insurance promotes excessive use and encourages providers to charge higher prices." (p. 71) Within this general framework, Short writes that her paper "describes how the design and analysis of expenditure surveys have helped policymakers understand and address the issues of equity and efficiency surrounding health insurance reforms." (p. 71)

The paper mentions several different ways of defining the underinsured:

- Using actuarial values from the 1987 NMES, people were compared to the actuarial standard of the Clinton 1994 comprehensive insurance plan.
- Using actuarial values from the 1987 NMES, people were compared to the actuarial standard of the "largest plan available to federal employees". (p. 79)
- Using an idea of catastrophic illness and 1987 NMES data (originally using 1977 NMCES data), "people are underinsured if, in the event of large medical bills that they have a 1-in-100 chance of incurring, they would incur out-of-pocket expenses exceeding 10 percent of family income." (p. 79)

Short also claims that with the "widespread introduction of managed care plans", definitions of the underinsured "that evaluate plans strictly in terms of covered services and cost-sharing provisions … are no longer relevant". (pp. 86 – 87) The reason for this lack of relevancy, according to Short, is that the "60 percent of the population that is enrolled in managed care plans … is more concerned about administrative barriers to covered services (such as approval for referrals to specialists) than about barriers caused by cost-sharing and uncovered services." (p. 87) This suggests defining the underinsured as:

- People who are dissatisfied with their health care plan (e.g., people who have difficulty getting a referral to see a specialist). (Short suggests that the NMES/MEPS Household Survey might be appropriate for determining this.)

Short, Pamela Farley, and Banthin, Jessica S., "New Estimates of the Underinsured Younger than 65 Years," Journal of the American Medical Association, v. 274, n. 16 (October 25, 1995), pp. 1302 – 1306.

Short and Banthin wrote this paper shortly after the Congressional debate on the Clinton plan for a national health system. Short and Banthin write that in "one of the minor ironies of the recent debate on national health system reform, the lack of agreement on a benefit standard (and, therefore, on a definition of the underinsured) apparently did not prevent agreement on the number of underinsured Americans." (p. 1302) The number most often used in the debate was 12.6% based on Farley (1985). According to Short and Banthin, Farley argued in that article that the best definition of underinsurance was one that "singles out people at risk of out-of-pocket expenses exceeding 10% of family income if they are unlucky enough to incur the large medical bills that they have only one chance in 100 of experiencing." (p. 1302) The 12.6% was based on data from the 1977 National Medical Care Expenditure Survey.

In this paper, Short and Banthin offer several definitions of underinsurance and then calculate the number of underinsured using each definition based on data from the 1987 National Medical Expenditure Survey. The definitions considered by Short and Banthin are:

- Out-of-pocket expenses that a person has one chance in 100 of experiencing exceeding 10% of family income (a catastrophic illness). (p. 1303 – 1304)

- The actuarial value of the health insurance policy less than the actuarial value of the federal employee standard (the Blue Cross and Blue Shield standard option for federal employees). (pp. 1302 – 1304)
- The actuarial value of the health insurance policy less that the actuarial value of the Health Security Act (HAS) standard. (pp. 1303 – 1304)
- Lacking specific benefits offered by the federal employee standard and by the HAS benefits package. In particular:
    1. Unlimited lifetime benefits
    2. Out-of-pocket expenses limited to $1,500 per person
    3. Bo cost sharing for well-child care
    4. Greater than or equal to 30 days of inpatient mental health benefits
    5. Greater than or equal to 30 outpatient mental health visits
    6. Prescription drug coverage

Shulman, Neil B., Martinez, Beverly, Brogan Donna, Carr, Albert A., and Miles, Carolyn G., "Financial Cost as an Obstacle to Hypertension Therapy," American Journal of Public Health, v. 76, n. 9 (September, 1986), pp. 1105 – 1108.

"A home health interview, including blood pressure measurements, was conducted on 4,688 adults representing the noninstitutionalized population of Georgia." (p. 1105) "All adults 18 years or older residing within a sample housing unit were interviewed, and their blood pressure was taken three times at one visit". (p. 1105) Survey questions related to the economic conditions of the survey respondents were used to determine the financial costs associated with people having hypertension – e.g., "How often is the cost of high blood pressure medicine a problem for you?" (p. 1105), "Have there been times when you ran out of your blood pressure medicine and could not afford a refill?" (p. 1105) and "How often is the cost of an office visit to get your blood pressure checked a problem for you?" (p. 1105) The authors conclude that the financial burden faced by low-income people "may be an important factor to contributing to the number of uncontrolled moderate to severe hypertensives". (p. 1107)

The authors did not discuss underinsurance *per se*, but as noted above, they did discuss the effects of low-income on the ability of people to receive medical treatment for hypertension. The implication is that a person is underinsured if that person is unable, because of the associated costs (e.g., out-of-pocket costs), to obtain needed medical care (e.g., hypertension medicine, physician office visits).

Stone, Deborah A., "United States," Journal of Health Politics, Policy and Law, v. 25, n. 5 (October, 2000), pp. 953 – 958.

In the paper, Stone discusses and assesses the role of the government and the market in the United States health care system. In this context, she discusses both the uninsured and the underinsured. She concludes that however we define 'government' and 'market', the "government's role in the United States has always been secondary to the market." (p. 957)

Concerning the underinsured, Stone writes that to say a person is underinsured means that "they lack insurance coverage for essential care such as prescription drugs, long-term residential care, home health care, or essential medical equipment." (p. 955)

Stroupe, Kevin T., Kinney, Elanor D., and Kniesner, Thomas J.J., "Does Chronic Illness Affect the Adequacy of Health Insurance Coverage?," Journal of Health Politics, Policy and Law, v. 25, n. 2 (April, 2000), pp. 309 – 341.

In the first part of the paper, the authors discuss the concept of adequate health insurance coverage. In this context they discuss both uninsurance and underinsurance. (In the latter case they make reference to the work by Bashshur, Smith and Stiles (1993), Monheit (1994), and Short and Banthin (1995)) "Using data from healthy and chronically ill individuals in Indiana," the authors report finding that "chronic illness decreased the probability of having adequate coverage by about 10 percentage points among all individuals and by about 25 percentage points among single individuals." (p. 309)

Concerning underinsurance, the authors categorize individuals as underinsured "if they had coverage that could not prevent a medical event from becoming financially catastrophic, requiring substantial out-of-pocket expenses." (p. 314) They then go on to offer another characterization of underinsured individuals as those whose "policies contained characteristics that might leave them exposed to unlimited medical expenses." (p. 314) Finally, they introduced a cost sharing criterion into their characterization of the underinsured. (pp. 314 – 315) More specifically, the authors provide a definition of underinsurance that has three parts (each of whose satisfaction is sufficient for an individual to be considered underinsured):

- The individual has health insurance coverage "that could not prevent a medical event from becoming financially catastrophic, requiring substantial out-of-pocket expenditures." (p. 314)
- The individual has a health insurance policy with characteristics "that might leave them exposed to unlimited medical expenses." (p. 314) Such characteristics include:
    1. A permanent preexisting condition exclusion
    2. No stop-loss limit
    3. A lifetime maximum payout of no more than $50,000
- A low-income individual (a family income of $15,000 or less) has health insurance that requires a large degree of cost sharing due to:
    1. A yearly deductible greater than $1,000
    2. Coinsurance rates for hospitalization, physician services, or prescription drugs greater than 20 percent or coinsurance rates for outpatient mental health services greater than 50 percent
    3. An exclusion of coverage for hospitalization, physician services, prescription drugs, or out patient mental health services

Weiner, Saul, "I Can't Afford That!: Dilemmas in the Care of the Uninsured and Underinsured," Journal of General Internal Medicine, v. 16 (June, 2001), pp. 412 – 418.

Weiner writes that when "patients lack sufficient health care insurance, financial matters become increasingly intertwined with biomedical considerations in the process of clinical decision making." (p. 412) He goes on to write that within this context, his paper focuses "on 3 types of dilemmas that clinicians face when patients cannot pay for needed medical services: (1) whether to refer the individual to a safety net provider, such as a public clinic; (2) whether to forgo indicated tests and therapies because of cost; and (3) whether to reduce fees by fee waivers or other adjustments in billing." (p. 412) As this suggests, Weiner's principal concern is with people who cannot afford needed medical care. With regards to the underinsured, this leads Weiner to define the underinsured as people having health insurance but either the insurance does not cover needed services or the patient cannot afford to pay a deductible or copayment required by the health insurance. (p. 413) No surveys are mentioned and no numbers of underinsured are provided.

Weissman, Joel, "Uncompensated Hospital Care: Will It Be There is We Need It?," The Journal of the American Medical Association, v. 276, n. 10 (September 11, 1996), pp. 823 – 828.

The author writes that debates about health care reform "rarely mention the enduring need for free or reduced-cost hospital care as a safety net for uninsured and underinsured individuals." (p. 823) Hospitals increasingly find it difficult to provide uncompensated care, federal and "state governments lack coordinated approaches to uncompensated care", and "measurement of uncompensated care is inconsistent." (p. 823) Weissman concludes that if "America's experiment with market-driven health care is to succeed, government must play a stronger role by creating a market for services to patients who cannot pay." (p. 827)

Concerning the underinsured, Weissman claims that they are those people with inadequate private insurance. Weissman uses figures from Short and Banthin (1995) and writes that "[T]he number of Americans under 65 years of age with private insurance who were underinsured in 1994 is estimated to be 25 million to 48 million, or 10% to 20% of the population." (p. 823) However, Weissman then goes on to write that "there is no commonly accepted definition of underinsurance". (p. 823)

Wilensky, Gail R., "Underinsured and Uninsured Patients: Who Are They, and How Can They Be Covered?," Consultant, v. 29, n. 2 (February, 1989), pp. 59 – 62, 67, 70.

Wilensky writes that whether "31 million or 37 million, the number of Americans who are either partially or completely without medical insurance is far too high, and may be growing." (p. 59) What complicates the issue is that the medical field has changed. "Where once we could finance medical care of the indigent by burying the costs of such care in the prices charged to those who could afford to pay … the current marketplace approach to medical financing threatens to eliminate that route." (p. 59) Wilensky believes that to meet the problem we need to have a better sense of who the uninsured and underinsured are, and why the number appears to be growing. She concludes that a "Medicaid buy-in plan could help fill the gap between 100% employer-provided coverage and zero individual coverage." (p. 59)

Although no direct definition of 'underinsurance' is provided, Wilensky does mention that a growing number of people lack basic health coverage. (p. 70) The implication is that a person is underinsured if the person has health insurance that fails to provide coverage for important health needs.

Woodward, Albert, "Private Health Insurance and the Underinsured," HealthSpan, v. 4, n. 8 (August/September, 1987), pp. 1 – 13.

Woodward writes that confusion "over the structure of public and private financing and the different kinds of [health insurance] coverage has bedeviled health insurance from its inception." (p. 3) Moreover, the "large number of different insurers offering a plethora of private health policies creates a bewildering range of coverage options from which the buyer must choose." (p. 3) Thus, in the paper Woodward examines the ability of private insurance to meet the insurance needs of the American public.

Within this context, Woodward writes that persons "who are inadequately insured in the U.S. comprise three groups: those always uninsured during a year or similar period of time, those sometimes uninsured during the period, and those who are underinsured with respect to expected healthcare expenses." (p. 3; Woodward makes reference to Farley

(1985) here) Later Woodward writes that among “the underinsured, there is some group health insurance at the work place, but it is inadequate to prevent the possibility of incurring expenditures of more than 10 percent of income on medical expenses.” (p. 4) Thus, following Farley (1985), Woodward seems accept either of two definitions of the underinsured:

- One percent expectation of out-of-pocket expenses greater than or equal to 10% of family income. (p. 5)
- Total expected value of out-of-pocket expenses greater than or equal to 10% of family income. (p. 7)