

Targeting Beneficiaries Who Are Most at Risk

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The Medicare/Medicaid Integration Program

The purpose of The Robert Wood Johnson Foundation (RWJF) Medicare/Medicaid Integration Program (MMIP) is to end the fragmentation of financing, case management, and service delivery that currently exists between Medicare and Medicaid. States are provided with grant support and technical assistance in their efforts to restructure the way in which they finance and deliver acute and long-term care. Technical assistance focuses on those states that have been awarded grants but is not limited to grantees. It is recognized that other states and initiatives can benefit from this help.

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Information about the MMIP can be obtained from the following locations:

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National Chronic Care Consortium

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The NCCC has also established a subsidiary corporation, the NCCC National Resource Center on Chronic Care Integration, to provide education, information, and consultation.

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About This Report

This report is one of five technical assistance reports prepared by the National Chronic Care Consortium (NCCC) for the Medicare/Medicaid Integration Program Office. The five reports focus on topics pertinent to creating more integrated delivery networks or coordinated systems of care for people who are dually eligible for Medicare and Medicaid. The topics chosen include:

1. Case Management: Methods and Issues
2. Targeting Beneficiaries Who Are Most at Risk
3. Primary Care for People with Chronic Conditions: Issues and Models
4. Quality Methods and Measures
5. Integrating Information: Selected Issues

The reports draw upon written documents prepared by the NCCC for its healthcare system membership, for healthcare organizations at large, and for organizations participating in the State of Minnesota's dually eligible demonstration, Minnesota Senior Health Options (MSHO). Excerpts from the following NCCC publications/materials appear in this report with permission:

- *Risk Identification: Exploring A Conceptual Framework and Identifying Implementation Issues*. 1995.
- *Innovations and Issues in Clinical Integration: Improving Systems for MSHO Clients*, MSHO Annual Educational Forum Proceedings, November 17, 1997.
- *Exploring Risk Identification as a Process that Supports the Care Management Goals of the MSHO Project*, Clinical Integration and Care Management Forum Proceedings, May 16, 1997.
- NCCC 1999 National Conference proceedings (unpublished).

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Overview

What Is Risk Identification?

Risk identification is an ongoing process of identifying and targeting individuals at high risk of adverse outcomes or events. The goal is early intervention in order to avoid or minimize the adverse event, prevent disability, or delay further deterioration. It can be a mechanism for providing quality service while minimizing cost.

In the short term, addressing the risk for high-cost care is a priority with the possibility of immediate reward for the network and high-risk consumers. Over the long term, risk identification will allow payers and providers to also begin to target low-risk groups in order to prevent decline and decrease the number of people who progress to chronic illness and disability. The cost/benefit trade-off of risk identification and early intervention are well-documented for high-risk groups.

In order to manage care effectively, a risk identification process should begin at the earliest point possible—upon enrollment of a person in a health plan or as soon as they come into the primary care clinic, if the person is not enrolled in a managed care plan. Although the starting point for identification may differ, the goal is common: to group people according to their similarity of risk in order to intervene and modify risk factors (for example, prevent disability or lessen the rate of functional decline).

Risk identification can be accomplished through case finding methods or risk screening, followed by a more in-depth risk assessment and intervention to address the areas shown to be at risk.

Risk identification is only as valid and reliable as the tools and analyses employed in the process. Payers and providers are therefore increasing their efforts to develop effective risk screening tools. It is clear that risk screening alone will not accomplish anything; the screening has to be followed up with action. This action will often involve a change in behavior on the part of the client/patient; therefore, the most challenging step will be aligning the client's goals and his or her perspective of risk with the healthcare provider's perspective and finding the best solution to reduce risk.

Over time, with rigorous and ongoing review of the risk identification process, providers and

others should be able to increase the specificity of the relevant risk groups as well as the interventions that yield the best outcomes. When fully implementing this process, providers and others will be employing both risk identification tools and outcome measures.

Why Do We Want to Target High-Risk Beneficiaries Prospectively?

We want to target the high-risk client/patient as soon as we can because these are the individuals who are likely to decline in health most precipitously, who may “fall through the cracks” of the healthcare system, and who will likely be the highest-cost users of services, requiring hospitalization and frequent Emergency Room visits if we do not proactively intervene.

The National Chronic Care Consortium's (NCCC's) interest in risk identification relates to its members' needs to answer several questions:

- Who is at high risk for adverse outcomes such as needing high-cost acute and/or long-term care services?
- What process and/or instrument can be used to identify these high-risk clients?
- What issues arise in the process of risk identification, and what strategies are members employing to address these issues?
- What targeted programmatic and service interventions could appropriately modify risk?

Provider networks or plans that are responsible for meeting the healthcare needs of a defined population under a capitated payment system have a financial incentive to:

- Eliminate unnecessary service use.
- Identify potential health problems early and prevent them if possible.
- Educate consumers/enrollees about illness, health behaviors, treatment options, and self-care practices in order to encourage prevention.

What Does “Risk” Mean? Why Are We Concerned?

Risk factors refer to demographic characteristics, behaviors, and living situations that are causally associated with increased probability of some health-related condition, health event, or outcome, including increased probability of illness, disability, or death (IOM 1991).

Figure 1 illustrates the concept of disability and disability prevention, identifying three types of risk factors:

1. Biological
2. Environmental
3. Lifestyle and behavioral

The progression toward disability is impacted by these three types of risk factors. Four related but distinct stages of progression are identified:

1. Pathology
2. Impairment
3. Functional limitations
4. Disability

The Institute of Medicine defines disability as “the expression of a physical or mental limitation in a social context.”

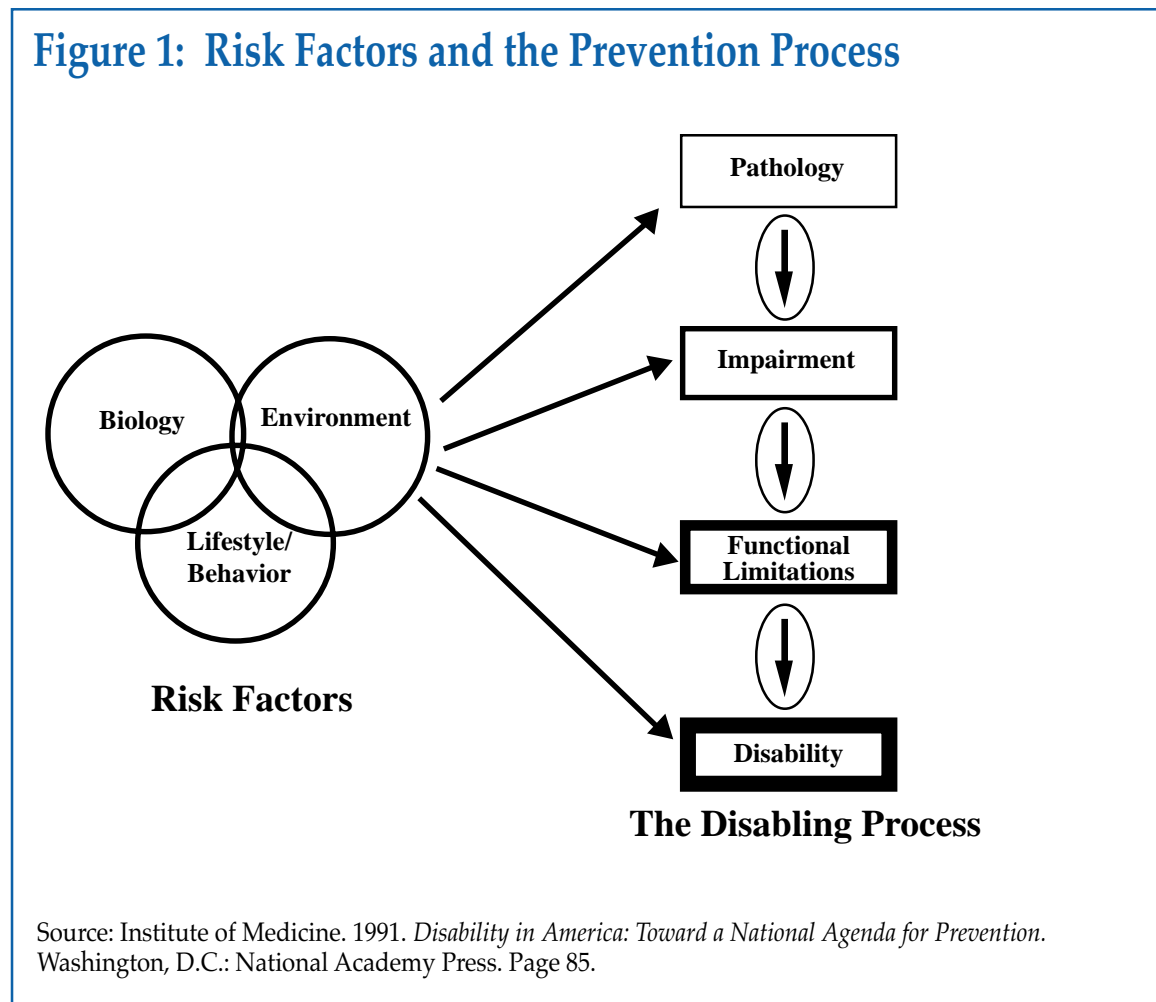


Table 1 presents examples of risk factors within each of three risk domains, as described by the Institute of Medicine.

Table 1: Examples of Risk Factors in Each Risk Domain

Domain	Examples of Risk Factors
Biological	<ul style="list-style-type: none"> • Genetic factors such as one disease increasing the risk of another (e.g., diabetes increasing the risk for stroke) • Adverse effects of drugs (e.g., the sedating effects of psychotropic drugs increasing the risk of falling)
Environmental (social and physical)	<ul style="list-style-type: none"> • Lack of family support • Death of a spouse • Lack of transportation • Social stigma (e.g., dependence on wheelchair) • Exposure to pollutants • Lack of access to adequate healthcare
Lifestyle and behavioral	<ul style="list-style-type: none"> • Poor eating ability and inadequate diet • Tobacco use, alcohol use, drug use • Stress • Sedentary lifestyle • Inadequate coping behavior

There is enormous interest in risk factors because of the high and still increasing costs of caring for people once they are ill. The many systems of administrative controls on costs at the point of care provision (or afterward) have been largely unsuccessful in reversing the upward spiral of costs. Attention is now turning to the concepts of preventing (or minimizing) the need for care in the first place.

What Is the Connection Between Risk and Prevention ?

Efforts to prevent illness and disability (and therefore the need for care) have enormous potential to decrease healthcare costs, but the variety of possible preventive measures are not without high costs themselves. They cannot be applied to everyone in the hopes of preventing all disease. They must be targeted to those most likely to benefit from them, that is, those with a higher probability of becoming ill or disabled without intervention. In addition, the preventive effort applied to someone at high risk must match the risk. For example, increased exercise will not decrease the risk of adverse effects from malnutrition, but increasing the healthfulness of the daily diet should make an impact.

Potentially, providers could target effective interventions by identifying clients at risk of adverse health outcomes and their specific risk factors. For maximum immediate impact, it would appear to make sense to target those people at highest risk of serious (and likely expensive) adverse health outcomes, then identify and intervene with those factors that can be modified and reduced. This short-term strategy, if combined with a longer-term strategy of health promotion programs, including increased efforts to promote self-management, could substantially reduce the need for care.

At risk of what? Which risk indicators should be part of a risk identification process? Overall, the purpose of risk identification is to intervene with identified individuals to ameliorate or eliminate risk in order to foster independence and self-care, enhance quality of life, and prevent or reduce adverse outcomes. The NCCC and its members chose five adverse events on which to focus:

- Functional decline
- Hospitalizations
- Nursing home placements
- High cumulative costs
- Death

A literature review helped identify factors that indicate high risk of hospital use, nursing home placement, further functional decline, high cumulative costs, or death.

Briefly, the risk factors receiving the most support for each of the specified adverse events are:

- **Functional decline**—older age, functional impairment, poor self-rated health, a larger number of chronic conditions
- **Hospitalization**—older age, prior hospital utilization, larger number of physician visits, poor self-rated health, diagnosis of cardiovascular disease
- **Nursing home placement**—older age, prior nursing home utilization, poor self-rated health, ADL impairment (risk increases with each additional impaired ADL), cognitive impairment, living alone, income adequate to pay or Medicaid eligible
- **High cumulative costs**—prior total utilization, prior utilization of hospital, prior year Medicare payments, Activities of Daily Living (ADL) impairments, Instrumental Activities of Daily Living (IADL) impairments
- **Death**—older age, hospital admissions in past year, poor self-rated health, cancer diagnosis, cardiovascular disease diagnosis, ADL impairments

There are some important caveats. The first is that studies can only find factors significant if the variables were included in the first place. Many of the studies reviewed were reported in the medical literature and tended to test few psychosocial variables. Secondly, although no one factor by itself indicates high risk, few of the studies provide any guidance in selecting particular combinations of factors that significantly increase risk. By and large, interpreting the significance of combined factors has been left to clinical judgment.

An important question for any of these factors is, “What is the frequency with which this factor might be found in a population?” This establishes the outside limit of expected responses to the screen. Some of this information is available, largely for the elderly. For example, there are data from national surveys on the frequency distribution of ADL impairment, by age groups, in those over age 65 and the change in outcomes over a two-year period for people with any functional impairment. Similar information could be developed for some of the other risk factors. Some recent studies have also calculated the odds of specific outcomes for people with various levels of a characteristic (age, ADL impairment).

What Is Risk Screening?

Risk screening is the process of dividing a given population group into risk categories (for example, low, medium, high). Screening often occurs immediately after a person has elected to join a health plan. Screening is the first step in understanding how likely the person is to require medical care for an adverse health event. It may be done by the health plan or by the clinic/provider care system that the person has chosen as his or her primary clinic.

Screening usually involves either reviewing existing data in an MIS or collecting new information. The two approaches may be used together. New information is usually collected through questionnaires administered by mail, telephone, or personal interview. The responses to these questionnaires are then scored, and each enrollee is categorized according to risk level. Again, combinations of approaches may be necessary. A plan or provider's approach will be

based on what data are available, logical points at which contact may be made with consumers/enrollees, and staff costs.

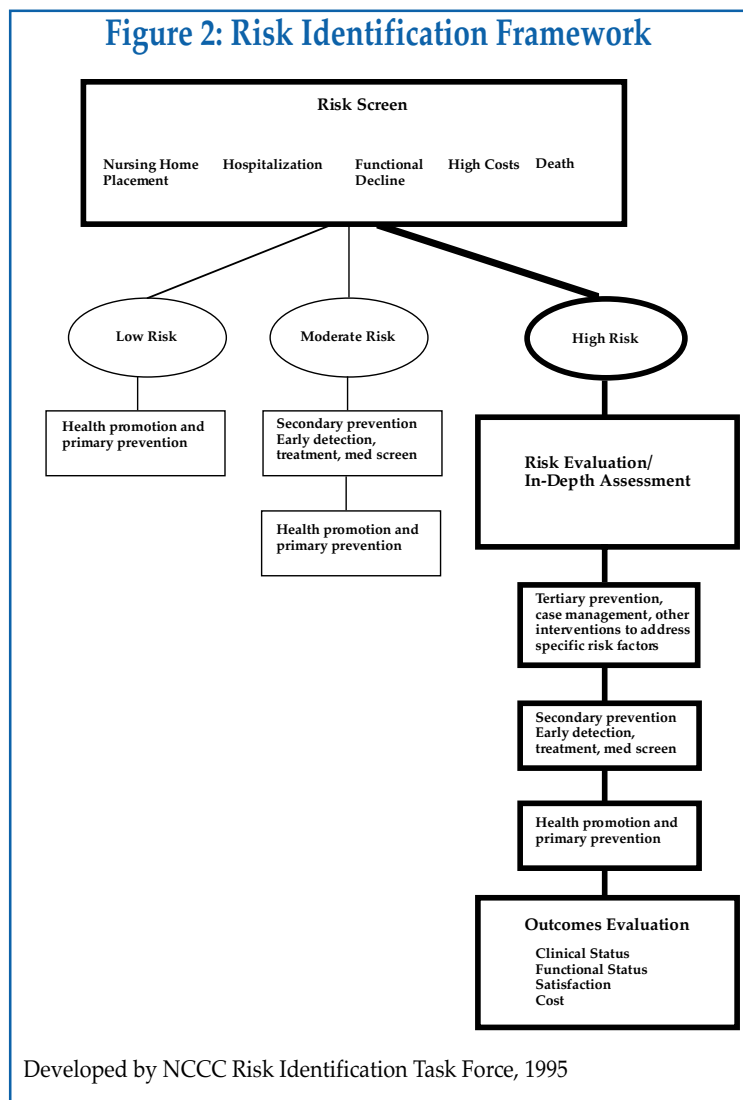
Once the person's responses to the risk screening questionnaire are scored, the results should be used effectively—that is acted upon. Obviously, plans and providers are usually most interested in the people who score at the high end of the scale, indicating they are most at risk for an adverse event.

What Is Risk Evaluation/Assessment?

Risk evaluation or risk assessment is an essential step which follows screening, since classification alone does not solve problems. It involves obtaining more detailed information about the people who fall into the high risk category. This information is evaluated by the clinician who selects and recommends the most appropriate

approach for decreasing the risk. These actions are the core of professional care, although they are not usually considered from this risk framework.

The recommended approach may include further assessment, case management services, patient education, medical treatment, in-home care, supportive services, programs, or a combination of these. For example, case management may be used to gather the additional information (assessment), put together a plan, and access services or care. A visit by a home care nurse may be used for monitoring medical signs and symptoms, with communication to the person's primary care physician. Other interventions could include medication review by a clinical pharmacist, admission to a geropsychiatric unit for evaluation, medical or social adult day care, respite care for the family member, homemaker or chore services, home delivered meals, and other community-based long-term care.



Key Issues in Risk Screening

Many health plans and providers serving Medicare beneficiaries or dually eligible beneficiaries already have a risk identification process in place. They may have developed their own risk screening tools and organized processes to focus on the high-risk members as a priority. They may tie case management services to risk identification by ensuring that every high-risk member receives a home visit or a telephone call by a case manager to understand better the needs of this person. They may track the high-risk clients/members to determine how effective their care management strategies are. A few of the issues that these organizations face are highlighted below.

When Should an Organization Screen?

- **In a network serving an enrolled population**, contact at the point of enrollment provides the maximum opportunity for appropriate preventive interventions and also enhances comprehensiveness of coverage of the population. Further, consumers may be most interested in responding at the point of enrollment. The response rate for the Social HMOs' health survey at enrollment (and yearly) has typically been very high. Also, combining a health-risk appraisal and high-risk screen into one form may make sense for the enrolling population.
- **In a network with no point of enrollment**, contacting people through ambulatory care settings facilitates intervention before a health event requires the use of institutional services. Individuals to be screened may be selected by primary care providers using established criteria, or mass mailing techniques could be used for an entire practice. A letter from a person's physician accompanying a mailed questionnaire might produce a better response rate, although this was not the experience of some programs.
- Least desirable from a prevention standpoint, but still possible, is **high-risk screening of people during a hospitalization**. Advantages include being able to screen in person because staff are available, therefore ensuring a 100 percent response rate; knowing that the risk factor of hospitalization is present; and decreasing time between the screen and intervention. The screen may be combined with the risk evaluation step. This could also be used

as a rescreening opportunity for those previously not considered high risk.

- **Using data review** as a high-risk screen is dependent on having adequate medical information services (MIS). The more inclusive the MIS with respect to service utilization, the more useful the information will be. Unless the data include clinical information (such as ADL impairment) in addition to service utilization and cost, some risks, such as nursing home placement and functional decline, may not be identified very well.

What Risk Tool Should Be Used?

In the middle to late 1990s as the wisdom of risk identification became more accepted, many organizations set about developing their own risk screening tools and methods. The instruments have been and continue to be used effectively; however, one criticism of the tools was that they had not been scientifically tested and validated. That is, the organization using the tool could not provide hard evidence that the tool screened accurately. Were all the high-risk enrollees captured by the tool and scored appropriately? Was the tool too sensitive? How were the results evaluated?

Some of the tools developed were simple, brief screens—a few specific questions, often about previous hospitalizations and self-reported health status. Some of the tools were much lengthier—moving toward a full assessment of needs. The simpler tools, not surprisingly, often got higher response rates. The lengthier, more complex tools captured more information, but were more difficult to complete and therefore suffered in response rate. In addition, many of these risk screens were “scored” by clinicians using their personal, professional judgement, rather than a consistent decision rule or rating system. This lack of consistency and structure was seen as opening the door for error, resulting in missed opportunities or the use of healthcare resources ineffectively.

The P_{ra} and P_{ra} Plus

One set of risk screening instruments that has gone through extensive testing is the P_{ra} and P_{ra} Plus, developed by researchers at the University of Minnesota. “P_{ra}” stands for “probability of repeated hospital admissions”—a major adverse event to be avoided (Boult et al. 1993).

Dr. Chad Boult discussed the P_{ra} screening instrument at a conference hosted by the Minnesota Senior Health Options Project in 1997 (NCCC 1997a). The following is a summary of his presentation:

The P_{ra} screening instrument that was developed at the University of Minnesota is a tool that is used to identify high-risk, older people. It is mailed out to people, or it is completed over the phone. This instrument consists of eight simple questions. Many people think this tool is too simple to work; they think it does not provide enough information to predict the future.

We did four studies on the predictive accuracy of this tool. The populations studied included a national Medicare population, a local Medicaid population, a California HMO, and a Washington HMO. In each of these studies we gathered the answers to the eight questions from a population of older people and put the answers into a formula that provides a risk rating between zero and one. Everyone in the population was classified as high risk or low risk. We then followed those four populations and their use of health services for one to four years. We looked to see if the high-risk people, according to this screening, used more services than the low-risk people. We discovered that, regardless of the population, the groups classified as high risk used services and incurred costs at a ratio twice that of those identified as low risk. Although the P_{ra} screening tool proved quite effective in this study, the tool should not be the sole means of identifying and monitoring a population. It is better used along with a system that includes referrals to healthcare professionals and the use of information systems.

Q: How accurate is the P_{ra} screening instrument? How many does it miss? How many does it incorrectly classify?

A: The P_{ra} instrument is 60 percent specific and sensitive, which means that it picks up only 60 percent of the high-risk people. Forty percent of the people who are going to be high-users are missed by this instrument. That’s why I recommend it not be the only way you identify people at risk. Its main advantage is that you can get it out to the whole population, and you can correctly classify at least 60 percent of those people. You really need to have a system to incorporate referrals from physicians to pick up the others. It isn’t perfect, but it’s better than waiting for people to show up in the hospital or nursing home.

Q: What about confidentiality?

A: People worry that we are going to put their medical information on some kind of a server and allow administrators and clinicians access to it. These are issues that are going to have to be worked through. Keep in mind that the kind of information put on these systems is not terribly sensitive information. It is not information that is protected now. I think the sensible thing is to include only the information that is really important and use appropriate security to protect the information. I would encourage us all to pursue procedures that are as secure as possible and that still integrate care.

Q: Given the risk assessment that you have been doing, do you feel there has to be a different approach for determining the long-term care risk? Or are acute care and long-term care risks so linked that you can use the same process for both?

A: The P_{ra} instrument does predict long-term care risk. It wasn’t designed specifically to do this; it was designed to identify chronically ill people who use a lot of hospital services. We have looked to see what the outcomes are for people who are identified as high risk in terms of their long-term care use. It shows the high-risk people in a managed care organization have 3.5 times the number of home care visits and 3.6 times the number of nursing home admissions as the people who are classified as low risk. You wouldn’t want to rely on this tool as your only method for identifying people who are at risk for long-term care, but it would be a good place to start. You can increase your questionnaire a

P_{ra} Screening Instrument Questions

1. In general, would you say your health is: excellent, very good, good, fair, or poor?
2. In the previous 12 months, have you stayed overnight as a patient in a hospital?
3. In the previous 12 months, how many times did you visit a physician or clinic?
4. In the previous 12 months, did you have diabetes?
5. Have you ever had coronary artery disease, angina pectoris, a myocardial infarction, or any other heart attack?
6. Is there a friend, relative, or neighbor who would take care of you for a few days, if necessary?
7. Are you male or female?
8. What is your date of birth?

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bit and not hurt your response rate. Eight pages seems to be the limit, with 14-point bold type and lots of white space. So you can end up with a questionnaire around 20 questions. It makes sense for dually eligible-focused programs to add functional questions to the P_{ra} questions.

SF-36 Health Survey

Some healthcare organizations have explored using the SF-36 as a high-risk screen. The SF-36 health survey (short-form, 36 questions) is a generic measure of health status designed to address universal human values. The survey assesses general health status and well-being and is not age-, disease-, or treatment-specific. The SF-36 captures the health concepts of physical and mental functioning and well-being. Several of the items originated in other health assessment instruments developed and tested over the past 20 years.

The demand for a standardized measure of functional status and well-being increases with the need to assess and compare health-related quality-of-life outcomes. The SF-36 is a useful general health status measure because it minimizes the burden on the respondent while maximizing validity and reliability (Ware and Sherbourne 1992). Also, health status is becoming a critical measure in efforts to manage and improve the processes of care for specific patient groups. Data are collected pre- and post-intervention or treatment in order to monitor changes in health status. Patient-reported health status is being incorporated into efforts to define cost-effective practices. SF-36 data are being collected in the following areas: open heart procedures, spine/low back pain treatment, total hip replacement, and knee surgery.

The usefulness of this tool as a high-risk screen is an open issue. It was designed to measure outcomes and therefore does not capture many of the risk factors identified for adverse health events commonly chosen (for example, functional decline, nursing home admission, or hospitalization). Conditions of its use prohibit removing items but allow supplementing with additional items. It should also be noted that this tool, used to measure outcomes, does not differentiate among ADLs and will not be able to identify changes in ADL functioning at the more impaired levels (a ceiling effect). Advantages include its being designed for ambulatory care, its extensive previous testing with established norms, and its good acceptance by physicians because of extensive use in medical studies.

If a Risk Screening Tool Is Being Developed, How Should It Be Constructed?

Issues to consider if an organization/network is developing its own risk screening tool must include both content and format. For the screening tool, the content will be those risk factors or indicators known to be related to various adverse health events. Format characteristics are important because they contribute positively or negatively to a tool's performance and effectiveness. Sources of information for both content and format are published literature and the knowledge of healthcare organizations and health plans with experience in risk identification.

Whether a screen is given to a person in print or administered in an interview, it is important that questions be worded clearly and unambiguously in lay language. The questions should be in a logical order, with consideration given to the placement of those more difficult or potentially embarrassing to answer. If in paper form, the print should be large, the way to record answers should be clear and simple, and the reading level required to complete it should be about sixth grade. Some formats typically used to save space, such as tables, may be confusing to the person recording answers.

Another consideration in formatting is ease of review or data entry. For this, most questions should be closed-ended with answer categories established. However, data entry conventions should not be allowed to make the form more complicated or cluttered.

Is Self-Report Going to Yield Valid and Reliable Information?

Self-report has been demonstrated repeatedly to yield valid and reliable information. Some crucial information can only be self-reported, for example, self-rating of health.

A known phenomenon in measuring ADL and IADL performance by interviewing is that the person being interviewed affects the response in a predictable way. Older people reporting about themselves underestimate their impairments compared to a report by a professional. On the other hand, their relatives, answering as proxies for them, overestimate their impairments compared to professional report. The differences are statistically significant but not large in practical terms. However, in part for this reason, some screens ask the identity of the person completing the form.

Is a Mailed Questionnaire Going to Yield Valid and Reliable Information?

Mailed questionnaires have been demonstrated to yield valid and reliable information, depending on two things: the questionnaire's integrity and the treatment of nonresponders. The questionnaire must contain tested questions that are presented in a format that allows the person to complete the form without help. People who do not respond may be those who need help to complete it, possibly for reasons that increase their risk level. Assistance for those who need it and a fallback mechanism for those who don't respond should be readily available. The rate of response should be tracked and nonresponders sampled to identify their characteristics and reasons for not completing the form. A recent study reported that people are more likely to report embarrassing information (for example, incontinence) in a mailed form than in a personal interaction.

Is Rescreening Necessary?

Because people change over time, it seems desirable to rescreen those not initially thought to be at high risk. However, in an enrolled population, it may be easier to rescreen the entire population. The SHMOs do this annually. No information was found on the cost-benefit of rescreening. It may be possible to use a combination of other mechanisms to identify people whose risk levels have changed. Those people already identified as at high risk and being served in a program with ongoing follow-up should be receiving periodic assessments that should identify new risk factors. Also, data systems tracking utilization can be used to trigger risk screening (for example, utilization over a particular level or ER use), and the screening should be available by specific referral or request.

Important Issues to Consider for a Network Developing a Risk Identification Process

Developing an effective risk identification process for a network requires an understanding of key underlying issues in terms of the network's purpose and scope, as well as a practical assessment of the network's capabilities. Table 2 provides several key questions for networks to consider in developing the risk identification process.

Table 2: Questions Relevant to a Network

Questions Relevant for Risk Identification
1. Is the network taking a short- or long-range view?
2. What risks are most important to manage in the system? What will be the goal of risk management?
3. Does the network have the capacity to manage these risks if they are identified? Must the programs and services be developed to address these risks effectively?
4. Where does the network have access to clients/patients/consumers? Which of these access points will allow identification of the most appropriate people with regard to goals?
5. How can information be collected from these clients and given to their primary care providers for the least cost and in a timely way?
6. How will these providers know what to do with the information?
7. How can the primary care provider easily link the person to the most effective interventions?
8. Will the process being planned identify clients/patients/consumers whose risk level increases?
9. How can communication and information be managed within the network to provide continuity for individual consumers, as well as monitoring of the risk identification and management processes?
10. How will the network determine whether the risk identification process is working and whether it needs improvement?

Current Experience and Case Illustrations

Among many NCCC-member organizations with capitated risk-sharing programs, risk identification is conducted at the point of enrollment. The majority of risk processes involve a mailed questionnaire for completion and return by the new enrollee. This is followed by review and categorization by level of risk, follow-up by phone for some of the subgroups, and intervention based on either subgroup membership or the determination of individual need.

NCCC members without a capitated program who were surveyed several years ago varied in how they accessed consumers for the risk identification process and in what methods were used to screen. These variations included:

- Senior health/medical clinic or physician office screening of all patients (or a referred subset) by in-person interviews using a standard tool
- Mass mailings of the screening questionnaire to all elderly patients of participating physicians or physician groups, without regard to payment source
- Face-to-face interviews of hospitalized patients who are part of a hospital's membership group
- Risk screening as part of nursing assessment on admission to hospital
- Information system data review of all fee-for-service patients in a hospital system data base
- High-risk screening combined with risk evaluation of new enrollees in a demonstration project, done in face-to-face interviews

Efficacy of Mailed Questionnaires

NCCC sites using a mailed questionnaire were generally satisfied with the ability of enrollees to complete them and with the reliability of the information (except answers to questions about the amount of alcohol consumed).

Two major problems were cited with a mailed approach. First, most sites were dissatisfied with

the amount of time that elapsed between enrollment and the first possible intervention for high-risk enrollees. This process generally takes six to eight weeks because a marketing/enrollment office only generates a list of new enrollees monthly. Then, it takes one to two weeks to do the mailing, and two weeks are allowed for the return. The screens are then reviewed by a clinician (case manager, nurse) and follow-up calls are made to those needing them. In some programs the returned screens are processed by the payer first, and only a subset are sent to the member (provider). This adds more processing time. One program reported that as many as 60 percent of the hospitalizations for new enrollees occurred within the first two months. This long time interval represents a significant lost opportunity for prevention and cost reduction.

A second problem involves nonresponders in the risk identification process, that is, enrollees who do not return their mailed questionnaire. There is general concern that the nonresponders may be more impaired or ill, more at risk, and thus prevented from easily accomplishing this task; Therefore, most programs having access to nonresponders send a second letter or do a phone follow-up to encourage form completion. Programs estimate return rates of 80 to 95 percent with follow-up. Some, however, do not make this second attempt and estimate response rates of 50 to 75 percent. Mailings to physicians' patient lists (not the point of enrollment in an HMO) have had even lower response rates.

Processing Screening Tool Information

As mentioned, in the mid-1990s many organizations used only clinical judgement to “score” the results of a risk screen and determine the next steps. As organizations realized the need for consistency, many developed a weighting or scoring method to identify the level of risk or adopted other tools that had already developed the scoring method. Descriptors for risk categories can be generalized as follows:

1. **Low risk and the worried well**—those with no chronic illness, no additional risk factors
2. **Moderate risk**—those with chronic disease or other conditions whose symptoms are under control
3. **High risk**—those with chronic disease with additional risk factors (symptoms not managed) and the frail, very impaired person

Some organizations look specifically at high levels of service utilization (for example, persons who need significant specialty care or very frequent monitoring) to make determinations for categorization. Other organizations look closely at who needs intervention and doesn’t need intervention. Another site follows up on clients who have a score over a certain threshold, as well as people who indicated on their screen forms that they have questions about their conditions, medications, or insurance coverage. Depending on the scoring mechanism and tools used, the proportion of people at high risk would, obviously, vary—however a common rule of thumb has been that the highest risk group represented approximately five to eight percent of all people screened in a Medicare risk population.

Interventions for Different Categories

One common problem with risk screening methods has been the disconnect between collecting the information through the risk screen and arming the primary care physician or clinical team with that information in a timely manner. The efficacy of the whole process depends on accurate information getting into the hands of people who can address the risk issues as soon as possible. Surprisingly, some organizations have spent significant resources on creating a tool and scoring system but have neglected to properly prepare and mobilize clinicians and other team members for acting upon that information.

The usefulness of categorization is to design responses (interventions) that are timely and that vary depending on the level of need. The general trend among organizations with a risk identification approach is to develop a standard initial response for each category. Examples include:

- **Low risk**—Send a letter to the client with the phone number of an advice nurse, instructions on who to call if he or she develops a problem, information about health education and exercise classes, instructions on how to use the clinic system or health plan services, and information about and referral to a wellness center.
- **Moderate risk**—Call the client to obtain more information (with a follow-up letter from the plan or the person’s physician); provide instruction or answer questions about conditions and medications; give information about services available, community agencies, and other important information related to the person’s needs; and encourage a timely appointment with the individual’s primary care physician/provider. Further interventions are initiated based on new information gathered.
- **High risk**—Call the person immediately to arrange for a home visit; assign the client to a case manager or team for more complete assessment; schedule an immediate appointment with the primary care provider; arrange for geriatric assessment and, if possible, the selection of a geriatrician for primary care; and conduct a medication review to determine current medications being taken and notify primary care physician if drug-to-drug interactions may be occurring or if there are medications that are harmful. Further interventions are initiated based on the comprehensive geriatric assessment.

Linking into the Rest of the System and Sharing Information

The initial response for moderate and high risk includes gathering additional information and triage, that is, linking the person with the right part of the system. It is essential that the information be shared with subsequent providers, especially with the primary care provider. Ideally, risk information would be put into an electronic database that is available to all providers, including primary care, hospital (ER), advice nurse, and long-term care (community and institutional). Although progress is being made, many organizations find it hard to meet this ideal, and all struggle with the linking and information-sharing process. Various site practices include the following:

- Care managers are located in the medical practice building where they meet with physicians as necessary. Physical proximity has been shown to be important in effectively supporting case manager and physician interaction.
- All risk screen information is in an electronic database available to the advice nurse. High-risk enrollees go through geriatric assessment, and results and recommendations are communicated by the geriatrician care manager to primary care providers.
- Providers receive risk screen data from member services, but there is no standard process to guide the use/application of these data. Or, risk information is sent to the primary care physician, but it is not timely, and there are no specific expectations about subsequent primary care physicians' responses.
- A slightly expanded risk screen is used as the new patient assessment and is transmitted to the primary care physician, along with the recommendations of the nurse case manager, for the enrollee's first visit. High-risk enrollees receive an eight-page telephone assessment by the nurse case manager, which is also transmitted to the primary care physician. Risk information is also transmitted to the hospital from case management upon a client's hospital admission. Data are transferred manually to the primary care physicians' offices.

NCCC members agree that linking the primary care physicians with the risk information is essential. The next step is developing ways to ensure that timely and relevant information reaches the primary care physicians. This will enhance their responsiveness and follow-through and ensure that the information is used to modify care when appropriate.

Case Study: Medica Health Plans

In her presentation at a 1997 NCCC/Minnesota Senior Health Options (MSHO) conference, Sally Dunn, of Allina Health System in Minnesota, shared her learning from over 20 months of working with a risk screening process for senior members of Medica Health Plans (NCCC 1997a). The following is a summary of her presentation.

At Medica we began using a risk screening tool—the P_{ra} tool—in August 1995 for members who enrolled in our new TEFRA risk plan that July. Currently we have about 5,000 members, mainly in Hennepin and Ramsey Counties. About 50 percent of these members are individual enrollees, and about 50 percent are enrolled through company retirement plans.

We use a care advisor model, which involves having either a nurse or a social worker with geriatric expertise assigned to every member enrolled in the plan. These care advisors call new members within a month of enrollment to welcome them and to explain the specifics of the risk plan, including making sure they have a physician and that they understand they need to go to Medica providers.

When the care advisor receives the risk survey results back—currently this occurs within two months of enrollment—they identify the high-risk members to follow more closely. Our 5,000 members break out into the following risk levels:

2–3 percent	High risk
15–16 percent	Moderate risk
81–82 percent	Low risk

Care advisors do home visits and complete a comprehensive assessment of members at high risk. We also have a multidisciplinary team conference for every member who has a home visit or for members who appear to have complicated care needs. Members of this team include the nurses and social workers who are care advisors as well as a geriatrician.

In explaining our risk screening and care follow-up process, I will review our initial plan, the modifications we have made since implementation, and the future revisions we have planned.

Initial Plan

1. Survey all new enrollees and, in the future, survey only those who initially scored low risk (because we thought we would be following everyone else).

2. Send *Healthwise for Life* to all who returned the survey so they knew they would be receiving something in exchange for completing the survey.
3. Send members who scored at moderate risk a second survey with questions on functional status and other health problems.
4. Have care advisors make home visits and complete a comprehensive assessment for all who scored at high risk.

Modifications Since Implementation

1. We had trouble getting the initial survey results back, so we decided that to try to send out a second survey to those at moderate risk would be impossible. In July 1996 (one year after we started) we decided to use one longer survey and send it to everybody. We still used the eight questions on the P_{ra}, but we added ten questions. This 18-question survey is four pages long. Although I thought we would have more trouble asking people to complete the longer survey, we had a return rate of 84 percent in the first month using the new survey, up from the 74 percent response rate from the initial survey.
2. We send a different gift—with a health improvement message—every year to those who complete and return their surveys.
3. We decided that all those at high risk do not need home visits. We had been doing that automatically, and what we found was that the younger people (65- to 70-year-olds) who are at high risk generally had good medical management and did not have need for community resources. Now care advisors do phone screenings to determine who needs a home visit.
4. We made major revisions in our information systems and scanning process for the surveys. We now use an outside company to do our scanning.
5. We developed an internal system where we can pull information from our mainframe database for our reporting.

Future Revisions

1. One of the things we did not do early enough was to let our physicians know about this survey process. We started going to the clinics to talk to the physicians about this risk screening process after the fact. It would have been better to work with them prior to implementation, to explain what the survey results would mean and how the care advisors could help them manage the care of these complex members.
2. We want to monitor certain ICD-9 codes for “trigger” diagnoses. This information is difficult to obtain in our system. We can get claims data on diagnoses, but we want it linked to a care advisor so they can follow up on patients who may need more care. We currently cannot get this data in real time for our clients.
3. We also have begun reviewing high-cost cases (over \$20,000) to see what the patterns are: How many of these people are high risk? How many are moderate? Were the care advisors involved? Were the clients hospitalized? We recently received this information but have not yet begun analyzing it.
4. One other thing we are trying with a different plan is to use the survey with one additional page devoted to health education topics. When people complete the survey, they check which topics they are interested in, and we send them information along with their gift.

Q: Does HCFA need to approve the survey tool?

A: HCFA needs to approve anything that is sent out to the members. We did send them the tool, and there were no issues. A note of caution, you cannot send this out to people before they are officially enrolled because it could be seen as an effort to screen out high-risk people. We do say in our cover letter that the information is confidential and that their responses will in no way affect their continued enrollment, because there have been some concerns expressed about that.

Recommendations for Providers and Plans Interested in Risk Identification:

1. **Make sure you have a system in place first.**
You need to know how to handle the information you are going to get from the survey before you even think about using a survey.
2. **Consider the cost-effectiveness of the system you put in place.**
It is important to have a risk screening and monitoring process in place, but it is expensive to set it up. We paid for a number of consultants to set up our system, and it wasn’t linked to our database; it cost over \$100,000 to set up the one that was linked to our database. You need to think about the costs involved with the system you have and what it’s going to cost to set up something new. After it is set up, you have to maintain the system.
3. **Know how you are going to use the survey information.**
It is important to use and follow up on the information you request from members.
4. **Design a system that is flexible.**
We have made a number of changes in the system that we have. There are probably more updates to be made.
5. **Make sure your system has appropriate reporting capabilities.**
Reporting capabilities are extremely important. Currently we can obtain lists of care advisors and their members; care advisors use these to track their caseloads. We also receive a one-page report by member that provides the responses people made to the survey questions.
6. **Have other sources of information about your members.**
You need to have some ways that members or family members can call you when they have problems. You need to know if they are hospitalized or if they are placed in a nursing home.

Case Study: Sutter Health

In her presentation at a 1997 NCCC/MSHO conference, Dr. Cheryl Phillips, geriatric consultant at Sutter Health in California, described a pilot program centered around risk identification at Sutter Health (NCCC 1997b). The following is a summary of her presentation:

We conducted a successful pilot program at Sutter Health called the Geriatric Care Coordination Program. This program was developed to assure that appropriate risk screening, evaluation, and management occur for Sutter's Medicare risk enrollees. We recognized that 10 percent of our Medicare risk enrollees accounted for 70 percent of the resources used. Therefore, we created a team of practitioners, including a physician, geriatric nurse practitioner, and social worker and conducted a simple risk screen at the time of enrollment. When a person who enrolled into the Medicare risk product chose a physician/clinic that was part of Sutter Medical Group or the IPA affiliated with Sutter, the screen was administered. The data were entered into the information system at Sutter Health Resource Center. These data were then available to the advice center and nurse triage staff. There were four levels to the risk screen:

1. Level I—No identified risk factors
2. Level II—Stable, but has a chronic disease
3. Level III—Chronic disease with social support needs
4. Level IV—High risk/frail

We found that 85 percent of those screened were Level I or II; the Level IIIs needed social services primarily and the Level IV enrollees were frail and had functional and medical needs. Following the risk screen, the geri-team conducted an in-home assessment of the Level IV enrollees and some Level III enrollees. They held patient/caregiver conferences and communicated with the primary physician. They provided consults in the hospital, served as the primary care team in the skilled nursing facility, and coordinated services with home healthcare.

In a study of 46 patients who were Level IV and who were receiving services by the geri-team, many improved in such areas as functional abilities, depression, and instrumental activities of daily living, and many reduced the number of medications they needed to take. However, we did not have enough data to find a statistically

significant difference in the cost of care between the control and experimental groups. One issue is the number of patients in the sample—about 500 people would be needed in the study group to really compare to other like patients who did not receive the services of the geri-team. Another issue is collecting the data. Because Sutter does not use a common patient identifier across the system, it is difficult to match records across settings and over time.

Issues for Others to Consider Include:

- The issue of who pays for improved service and care management when the benefits are realized downstream. For example, how do you “count” a hospitalization that never occurred because of the program, and who does that benefit?
- The turf battles and overlapping accountabilities between facilities and practitioners.
- The issue of outcomes—what are these and how are they measured? For example, improved functional ability to perform activities of daily living probably matters greatly to the patient and would presumably show up in the patient's higher ratings of satisfaction. How important is this to the healthcare system though? There is a heavy emphasis on the cost of care and on utilization and readmissions.

Case Study: Providence Health System

Dr. Kenneth Brummel-Smith, medical director at Providence Health System (formerly Sisters of Providence Health System), Portland, Oregon, presented at the 1999 NCCC National Conference (NCCC 1999). The following is a summary of his presentation:

I am proud of our process of developing a risk screening tool for Medicare-risk HMO enrollees, as well as of the product itself. Our system is still in its infancy, but it is working to identify individuals who are at risk for chronic illness, especially elderly patients in the early stages of dementia.

The Case for Health Screening

One of our problems in geriatrics is we do not really know who we are taking care of. We do not know a lot about what to expect for older patients. There is a general poverty of data in patient charts; we know about their diseases, medications, and insurance, but we do not know much about their functional and cognitive status. Health screening is a way to get information about enrollees that allows us to classify them into populations so we can manage and treat them better. Health screening is NOT assessment. Rather, it leads to a more comprehensive assessment for selected individuals. Assessment is only effective if it is done on the right people, and screening tells you who the right people are.

Use of Health Screening in a Managed Care Environment

In the Portland area, 70 percent of the people are in managed care. There are four big managed care HMOs, and ours is the fourth largest. Three hospitals in Portland are in partnership with long-term care facilities, and physician groups work with all the HMOs. There are multiple payers: Kaiser Permanente, Blue Cross, Good Health, and others. In this environment, physicians are not totally aligned with the Sisters of Providence system; they work with others as well. How you conduct and implement health screening in an integrated provider association (IPA) environment is different from how you conduct screenings with an HMO staff model.

Development of a Health Screening Tool Targeting High-Risk Individuals

We need effective management of needs for a typically small group of people who are heavy users of the healthcare system. In one project, for

example, 15 percent of Good Health Plan Medicare members accounted for 74 percent of expenditures. The cost per member of this “heavy user” group was \$14,975 per year, in contrast to \$929 for the average enrollee. Because of these circumstances, we wanted to identify adverse events affecting members.

For the health screening tools to be used, we had to convince pools of doctors (POD) that they were useful and credible. We wanted to use an evidence-based process to identify the potential “heavy user” and that person’s needs. Physicians insisted the process and the tool be evidence based. In addition, we wanted to substantiate the approach and the tool with references from the research literature. We did pilots of each tool to test and revise items and to develop scoring sheets and a weighting system. We did focus groups and were told things like, “Make screening tools and procedures easy to understand and quick to score.” and “Provide clear instructions on how to use the tools.” We heard that information had to be timely and that risk screening should be done soon after a patient enrolls so physicians can make use of the results. As a result of this feedback we arranged to have the screening survey go out to new patients with new member packets at enrollment. We have found that 90 percent of the surveys come back within a week. We have set high standards for ourselves to turn data around quickly so the providers can access it.

Survey Domains and Items

In general, what we were trying to identify with the screening tool was a person’s risk for five events:

1. Hospitalization
2. Nursing home placement
3. Functional decline
4. High cost of care
5. Death

We studied the research literature for the variables that were associated with or predicted these outcomes. Then we went to our staff and physicians for their opinions. This was partly because much of the research literature is generated by the Veterans Administration, and our patient population is obviously quite different from theirs. So we asked our people whether the suggested predictors fit with their own experience. Doing this also helped gain physician buy-in.

In terms of generating items, we asked ourselves, “What are the things that we are really concerned about, that we want to catch, like a patient being

on more than five medications or incurring more than seven hospitalizations within a certain time period?" At the same time, we did not want to restrict ourselves to identifying risks that had such a low prevalence that the screening wouldn't capture many people. Some items were difficult to capture, like spirituality and its importance as a protective factor. Because we did not have evidence to support screening for a spirituality, we ended up excluding it from the survey.

To find out how easy it is to administer the tool, we piloted a draft on a sample of seniors who were already attending a foot clinic or seniors club. We wanted to make sure the wording of the survey was clear and that it could be completed in a reasonably short amount of time. In testing the survey we found that 98 percent completed the survey within 20 minutes and did not find any of the questions objectionable. A high majority also said the questions were easy to understand.

Weighting Items and Scoring the Tool

All items on the survey are on a Likert scale which ranges from 0 (no risk) to 10 (strongest level of risk). We used a pragmatic approach to develop the point scoring. First, because we were looking at risk, we decided not to add points to items that related to protective factors. As a result, the tool is good not for identifying healthy people but for catching those at risk. Second, we felt it necessary to differentially weight the items because not all risks are equal. We wanted to weight functional problems more, because they are more predictive of risks than diseases. We also felt that multiple risk factors can combine to increase risk, so certain algorithms were created to capture those multiplicities. Our guiding goal was to assign the greatest weight to items that we know are most predictive. We worked on pilot data to come up with summative scores and norms and determined that a score above 40 means a person is at risk. "Auto flags" are things to note, even if a person scores below 40. A flag is a factor, or combination of factors, that places someone in a high-risk category where they might not otherwise be based on their overall risk score. Through a process of review and revision, we worked down from 32 to eight flags using several criteria. This was an iterative process and one that took about a year and a half to develop. We will continue to revise the tool following evaluation and testing.

Using the Results of Screening

Every POD has two case managers, one nurse case manager and one social worker case manager. We interface with the case management system and send this data to all of these providers at the same time. We need to provide information to users so

they know what to do when their patients have high-risk scores. We asked physicians what they wanted help with in terms of care and treatment for identified risks; they overwhelmingly said "help with psychosocial problems." They also wanted a single page showing a patient's score, with a thermometer graphic showing that person's degree of risk and any auto flags. Our score summary sheet lists the categories that push a patient into a high-risk category. Ultimately, of course, our goal is to help physicians and others use interventions to minimize a patient's risk.

Key Evaluation Questions for Follow-Up Study

In order to validate this tool, we developed a study design that looks at several questions:

1. Does the scoring identify high-risk members? To answer this question, we took 5,000 existing members and screened them into two groups, based on our previous knowledge of the expected percentage of "heavy users" of the system (15 percent). We will compare these two groups on our outcomes of interest: hospital admission, nursing home placement, functional decline, cumulative cost, and mortality.
2. Based on a person's score, did the interventions reduce adverse outcomes? To answer this question, we randomized the 450 people identified as high risk through health screening.
 - Group A received the appropriate follow-up assessment, but we did not provide the physician with the written risk summary from the screening. This is our "usual care."
 - Group B patients' physicians received the risk summary, but the patients themselves did not receive any case management.
 - Group C patients' physicians received the risk summary along with recommendations for support, and case managers were involved. We hope to show that outcomes improve and costs decrease for Group C.

Our next steps include perfecting the communication plan, increasing the return rate, and reporting to primary care and case management teams within five days. We want to target suggestions for interventions, identify gaps in resources, and develop additional services to assist primary care. The limitation readers should keep in mind is that this tool is specific to our own system, an IPA system willing to commit money now to health screening. It may not work in an environment where 85 percent of people are in fee-for-service. In our managed care environment, however, we encountered tremendous interest.

Other Issues

The experiences of NCCC members and others have raised a host of additional important unresolved issues and concerns. These include:

- Control of the risk identification process and shortening the front-end time
- Resources: who should pay for risk identification?
- Consumer rights and self-determination
- “Bouncing enrollees”
- Is rescreening needed?
- Risk identification in other populations
- Other Medicaid capitation issues
- Lack of resources for treatment of mental illness

Control of the Risk Identification Process and Shortening the Front-End Time

NCCC members generally agree that, as providers, they want to be in control of the risk identification process. Since they are at risk, they want to be able to plug the risk holes and have a tight process for risk identification. Members would like to increase their ability to learn more about the status of nonresponders to the risk identification tools. Their biggest concern, however, is the long time that elapses between enrollment and the first intervention. Members have not found a way to appreciably shorten this time. Even when they have control of the process, beginning with mailing out the risk identification questionnaire, they are still dependent on the health plan for the list of new enrollees.

Resources: Who should Pay for Risk Identification?

As one member put it: “The hospital says it’s a good process, but because the enrollees are outpatients, the costs should be assigned to the medical group. The medical group says it’s a good process, but says it’s a hospital cost because it’s off-setting inpatient days. While they’re working it out, nobody pays.” This member believes the payer should assume part of the cost—that is the health plan. Several of the risk identification processes have project status, which temporarily assists sites in securing needed resources. Others

operate with “borrowed” time. Many of the efforts are understaffed (having only one or two people). As the member sites add managed care products, this rapidly becomes untenable. Appropriate data on outcomes could be convincing, but with such limited staff time and lacking data systems, these are not forthcoming.

Consumer Rights and Self-Determination

Could there be a potential for a managed care plan to “factor out” the consumer’s right to make some basic decisions about his or her care by setting up utilization controls that require the least expensive alternative? There is also the ongoing issue of the consumer’s right to refuse some medical care even when this refusal puts the client at increased risk of health impairment and, therefore, of being a high utilizer. There is tension between the issues of patient self-determination, financial risk, and service mission. There is the potential for conflict between the best interests of the client and the best interests of the system.

“Bouncing Enrollees”

This issue relates to overuse or excessive use of services. In this one area consumer choice may be protected to the point that it seems to decrease the quality of care. For example, in Medicare and Medicaid managed care, enrollees have had the right to regularly disenroll from their health plan every thirty days, every six months, or once a year, depending upon the state. Because of this consumer protection provision, a portion of the enrollees can and do “bounce” from one plan, practitioner, and provider system to another. Each time the enrollee enters a new plan, there is a process of collecting information about that enrollee, identifying the primary care practitioner(s) who will work with the enrollee, and starting the risk identification process. The incentives for risk identification and prevention obviously decrease tremendously with the shorter time frames. The risk identification process alone takes more than 30 days in most plans. Many believe that allowing plan changes once a year (the most common period in the private sector) is a reasonable balance between the consumer’s right to choose and use his or her own judgment in finding high quality care and the care management system’s ability to identify needs within the enrolled population, to develop a relationship with the client, and to provide quality care according to its guidelines. Medicare plans are moving to this one-year time frame, under regulations issued by the Health Care Financing Administration.

Is Rescreening Needed?

Only some healthcare systems/plans rescreen regularly (yearly). While many see the need to update the risk status of the low or moderate groups because it can change, most have not yet decided how to put this into practice. Currently some of the risk identification is based on screening for interval triggers such as primary care physician referral, utilization review, inpatient status, and discharge planning referral.

Risk Identification in Other Populations

Several NCCC members are part of risk arrangements with Medicaid capitation or with employer groups. These groups are characterized by a unique set of issues that point to the need for different risk indicators. Covered enrollees can include: mothers and children, pregnant women, employees of businesses, people with work-related injuries, and young people on Medicare/Medicaid disability. Many factors need to be revisited for each population, such as how to obtain enrollee information, how to encourage early enrollment in the risk management process, and how to define risk categories and effective interventions.

Other Medicaid Capitation Issues

Many states are moving toward serving their Medicaid population in capitated managed care systems. In addition to the bouncing enrollees and different population issues mentioned above, another practice presents problems for risk screening—the practice of “batch enrollments.” Some programs, such as Medicaid plans offered by the state, will conduct batch enrollments, enrolling hundreds or thousands of consumers at one time by rolling them over from their previous plans. This enrollment process makes it difficult for providers to respond to the individual needs of the great numbers of new clients. The numbers alone make the risk identification methods currently used (methods that are labor intensive and are supported by a small staff) unworkable. In addition, the percentage of the Medicaid population considered “high risk” is probably higher than that expected in the non-Medicaid population, thereby exacerbating the need for timely assessment and intervention.

Lack of Resources for Treatment of Mental Illness

A large gap in service is the lack of resources to treat the seriously mentally ill. Many communities have few resources to care for chronic schizophrenics, the elderly psychotic, or the young violent mentally ill. These individuals may be moved from place to place, or inadequate resources may be offered. If these patients are in a capitated managed care system (for example, Medicare disability), their costs cannot readily be contained, and the provider frequently suffers a severe financial loss. Current interventions may not be adequate to address the needs of people with mental illness. Though a fairly significant level of resources are currently used, services may be inappropriate, not well targeted, or episodic rather than continuous.

Summary and Conclusions

- Risk identification serves the purpose of targeting primary, secondary, and tertiary prevention. To be effective, it needs to result in intervention, not merely classification.
- The risk identification process, including high-risk screening and risk evaluation, should be tied into the enrollees' / consumers' source of primary care and follow-up.
- Points of access to the consumer for risk identification, in order of desirability from a prevention standpoint, are: upon enrollment in a health plan, in the primary care clinic (initial visit), upon use of a community-based or home care service (initial use), upon hospitalization, at the nursing home level.
- A small number of risk factors can be identified for five major adverse health events: death, hospitalization, nursing home admission, functional decline, and high cumulative costs of care. (Note: Most of the literature targeted the 65+ population.)
- Self-report provides reliable and valid information; mailed responses are reliable, but there must be a process for dealing with nonresponders.
- Review of MIS data is possible as part of the risk identification process.
- An individual's level of risk needs to be redetermined over time.
- The SF-36 was developed for determining health status as an outcome measure. It would probably need to be supplemented to be useful as a high-risk screen.
- It is possible to develop a "home-grown" risk screening tool and process, but the organization should consider content, format—and especially scoring—very carefully. This should be done with strong clinical leadership involved. A pilot of the tool should be conducted to ensure validity.
- There are important issues related to cost and benefit that need to be worked out prior to establishing a risk identification process.

Selected Annotated Articles

Healthier Living: Longer Lives, Less Disability

Healthier living through better primary prevention may not only lengthen one's life, but it may result in fewer years with disability, according to a recent study by Anthony Vita and colleagues. The researchers found that smoking, body-mass index, and exercise patterns in mid-life and late adulthood can predict disability in later years. In fact, people with high health risks were found to have "twice the cumulative disability of those with low health risks," and the "onset of disability was postponed by more than five years." The study first surveyed 1,741 individuals (with an average age of 42 years) in 1962 and followed up with annual surveys from 1986 through 1994.

Although the study seemed to answer a hypothesis posed nearly 20 years ago by Dr. James Fries that assumed increasing the average age at the onset of disability and chronic disease would decrease the total amount of disability, an accompanying editorial concludes that the findings may not be generalizable. The research's limitations are that the population studied was mostly highly educated, white males. Dr. Edward Campion, recognizing the importance of these research results, nonetheless recommends that physicians must "pay less attention to the laboratory data and more attention to how patients are doing in their activities of daily living." He also espouses the need for health-promotion interventions later in life as a strategy to improve aging.

Sources:

Campion, E. W. 1998. "Aging Better." *New England Journal of Medicine* 338 (9 April): 1064–6.

Vita, A. J., et al. 1998. "Aging, Health Risks, and Cumulative Disability." *New England Journal of Medicine* 338 (9 April): 1035–41.

Prevention Program: Case Study

In Waltham, Massachusetts, Winchester Hospital reports that it is improving chronic care and achieving positive financial results through an innovative Community Health Initiative (CHI). The CHI is a two-phase program of casefinding and prevention that is applied to "all chronic disease states." This program includes:

- Development of a personal prevention plan for all patients
- Use of software programs and R.N. expertise to identify at-risk patients
- Follow-up with patients to encourage them to go in for tests and take other measures to prevent disability

Nearly 10,000 patients have been screened since CHI was implemented. CHI says that the program is assisting the hospital in complying with Health Employer Data and Information Set (HEDIS), picking up new diagnoses and screenings and increasing revenues.

Source:

"Community Health Initiative Uses Casefinding, Intervention to Boost Prevention and Revenues." 1998. *Healthcare Demand and Disease Management* 4 (10): 151–4.

P_{ra} Health-Assessment Instrument and Managed Care

Health-assessment risk-identification tools are one strategy for finding individuals at risk for high cost and utilization of services. The P_{ra} instrument has been shown to be a practical and reliable screening instrument in the fee-for-service environment; a recent study has also found it to have predictive validity in the managed care environment. The study found that high-risk people (those in the highest quartile of P_{ra} values) enrolled in a Medicare-risk health plan incurred hospital admissions and claims that were 2.5 and 2.7 times greater than the low-risk cohort group.

The P_{ra} instrument identifies high-risk people who tend to be chronically ill, functionally impaired, and highly medicated. According to the authors, the instrument can help identify those “older people who may benefit from interventions designed to avert health crises and the need for expensive care.” Effective interventions may lead to “significant improvements in health and reductions in the cost of care for at-risk older persons of the future.”

Source:

Pacala, J. T., C. Boult, R. L. Reed, and E. Aliberti. 1997. “Predictive Validity of the P_{ra} Instrument Among Older Recipients of Managed Care.” *Journal of the American Geriatrics Society* 45 (May): 614–7.

Patient Registry and Health Promotion

The identification and tracking of at-risk individuals is important to the integration of care of populations served. The Center for Health Promotion at HealthPartners in Minneapolis has developed a “Partners for Better Health Registry” from administrative databases. The administrative databases allow the registry to obtain information that is based on clinical encounters, rather than on self-reported information from self-assessment surveys. The developers of the registry claim that the development of a clinical encounter-based registry in combination with self-reported risk-assessment data, aids in efforts to contact hard-to-reach groups, will increase the size of the population that can be targeted for interventions, and can provide useful information for health promotion programs.

HealthPartners found that the cost difference of identifying individuals at risk through the encounter-based method and a self-report survey is dramatic. The cost of identifying heart disease and diabetes through self-report surveys is approximately \$13.50, while the cost of identifying individuals using existing administrative databases was \$0.40.

The registry raises issues of patient privacy, confidentiality, and the patient-provider relationship, which are treated strictly and seriously. Only assigned personnel have access to the database and can generate the query results. For example, information generated at the individual level is directly linked to the patient’s medical record and is not shared with employers.

Nicolaas Pronk, director of the Center for Health Promotion, believes that the development of the registry “has the ability to allow for targeted efforts that address the need of individuals and specific groups of patient” and will aid in the “appropriate assignment of resources for health improvement and disease prevention initiatives.”

Source:

Pronk, N. P., et al. 1997. “Building a Patient Registry for Implementation of Health Promotion Initiatives: Targeting High-Risk Individuals.” *HMO Practice* 11 (March): 43–6.

Seniors: Predicting Hospital Readmissions

Screening seniors for risk of adverse outcomes such as rehospitalization is essential to determining appropriate interventions. According to Sherry Aliotta, regional director of Prudential Health Care in Woodland Hills, California, there are seven factors that hold up in case management practice as predictors for readmission in senior populations and therefore are excellent for establishing the need for case management intervention. These factors are:

- Age older than 75
- Male gender
- Diagnosis of diabetes
- History of any type of heart disease
- Overnight hospital stay in the past 12 months
- Personal perception of poor health
- Ability of the client to name someone who could take care of him or her for several days when ill (If someone is easily named, the client has probably needed that individual's help in the past.)

These factors have been proven statistically valid by researchers at the University of Minnesota.

Source:

"Identifying At-Risk Seniors Prevents Costly Admissions." 1996. *Case Management Advisor* 7 (February): 17–20.

Risk Assessment: One IPA's Program

Self-health assessment surveys are commonly used by risk plans to determine an individual's physical and mental functional capacity. The Muir Medical Group of Walnut Creek, California, a 350-physician independent-practice association (IPA), uses an 18-question self-health assessment survey to provide better care for its 3,000 senior enrollees. Muir estimates that at least 15 percent of this population are high-risk clients.

The survey asks questions on medical and mental status, social needs, housing, and other issues. Those identified as high risk are contacted by geriatric care coordinators for an in-home assessment.

The response rate for the surveys is more than 60 percent, and physicians are included in the survey design. For more information, contact Arlene Phillips at (510) 210-0167.

Source:

"Medical Group Queries Seniors to Detect High-Risk Enrollees." 1996. *Managed Medicare and Medicaid* 2 (19 January): 2–3.

Self-Ratings of Health: Implications for Future Disability

Client self-reports of health status in a chronic care network (CCN) risk-identification program are central to identifying individuals at risk for morbidity and mortality. There have been many studies to date linking poor self-assessments of health to mortality. However, few studies have researched the relationship between poor self-assessments of health and disability. A study conducted by researchers Idler and Kasl focused on self-ratings of health as predictors of future levels of functional disability.

The researchers reviewed data from 2,812 elderly New Haven, Connecticut, residents who were interviewed each year from 1982 to 1988. Responses to questions on their perceived levels of health (in terms of excellent, good, fair, poor, and bad) were recorded. The participants were followed for a number of years to measure their levels of functional disability.

The results indicated that self-ratings of health correlated strongly with changes in daily functional abilities. "Elderly persons who reported poor health in 1982 were almost two and a half times as likely as those with excellent health to have experienced a decline in functional ability as many as six years later." Researchers also gained a better understanding of the meaning of excellent, good, fair, and poor ratings.

Source:

Idler, E., and S. Kasl. 1995. "Self-Ratings of Health: Do They Also Predict Change in Functional Ability?" *Journal of Gerontology* 50B (6): S344–53.

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