

At the Frontlines: Confronting Poverty in Primary Care Medicine

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1. Introduction

1.1 Poverty and health

The effect of poverty on health status has been well-documented since the 1830s (Barnes, 1995; Engels, 1969; Poor Law Commissioners, 1842) and recent public health literature, especially since the 1970s, is replete with research which shows that the risk of developing disease appears to be related to socio-economic position (Hein et al., 1992; Hemingway et al., 2000; Marmot et al., 1978a; Marmot et al., 1978b; Rose & Marmot, 1981; Smith et al., 1997; Smith et al., 1998; WHO 2008). Moreover, a patient's uptake of preventative health recommendations and the success of a variety of chronic and acute therapeutic regimens are linked to socio-economic status. While socio-economic position affects health status continuously all along the socio-economic ladder, individuals living below the poverty line across the globe, have particularly dire health deficits. While these health deficits are largely the result of socio-economic factors that must be addressed through interventions that go beyond the bounds of the health care sector (CSDH, 2008), there are nonetheless a number of strategies that primary care providers can adopt to mitigate the effects of poverty on health.

1.2 Defining poverty

Definitions of poverty are varied and extend well beyond income to include inequities in the distribution of goods and services and the chance of leading a flourishing life. While consensus has not been reached on a standard definition of poverty, many global organizations have weighed in. The World Bank defines poverty as:

"[A] pronounced deprivation in well-being, and comprises many dimensions. It includes low incomes and the inability to acquire the basic goods and services necessary for survival with dignity. Poverty also encompasses low levels of health and education, poor access to clean water and sanitation, inadequate physical security, lack of voice, and insufficient capacity and opportunity to better one's life" (World Bank, 2000).

The United Nations developed a similar definition for poverty, which also touches on themes of living with dignity, a lack of capacity to meaningfully engage in society, and the inability to provide for basic social needs. Poverty is "sustained or chronic deprivation of

the resources, capabilities, choices, security and power necessary for the enjoyment of an adequate standard of living” which creates conditions in which individuals are left vulnerable to crime and disease (UNESCO, 1998; United Nations Committee on Social, Economic and Cultural Rights, 2001). The international poverty line as set by the World Bank is defined as individuals living on \$1.25 per day (World Bank, 2008), though the definition varies from country to country.

1.3 Prevalence of poverty

Poverty is a global phenomenon affecting low, middle, and high income countries. In the US, for example, where the government defines the poverty threshold as an income of \$22,314 a year for a family of four and \$11,139 for an individual, the Census Bureau’s 2010 data indicated that 46.2 million people, comprising 15.1% of the population, were living in poverty (DeNavas-Walt et al., 2011). Table 1 shows country rankings and the percentage of the population in poverty in countries around the world (CIA World Factbook, 2011). Between 1990 and 2005, the number of people living below the international poverty line declined from 1.8 billion to 1.4 billion. The UN Millennium Development group has reported that overall poverty rates fell from 46 per cent in 1990 to 27 per cent in 2005 in developing regions, and progress in many developing countries is being sustained. Despite these advances, roughly 920 million people will still be living under the international poverty line by 2015 (UNDP, 2011). In a global climate of recession, this number would be likely to increase.

In many countries the prevalence of poverty is higher among ethnic and racial minorities and among immigrants than it is among those in the ethnic majority and native born population, although the pattern varies from country to country. In the United States African Americans and Latinos have much higher rates of poverty and tend to live in highly segregated housing as a result of a long history of discrimination that has been difficult to overcome (LaVeist 2005). In Canada by contrast, ethnic and minority groups are not as segregated into ghettos (Walks & Bourne, 2006). To the extent that poverty is associated with minority and immigrant populations, clinicians need to be sensitive to the deficits in health status and health care access of these populations.

1.4 Relationship of poverty to health

While this chapter focuses on the provision of primary care to the poor who are at the extreme low end of the socio-economic spectrum, a general understanding of the mechanisms underlying the social determinants of health is warranted to fully understand the needs of poor patients. The socio-economic determinants generally considered to be important include income, employment, education, housing and environment, nutrition, social support, and social inclusion (Lahelma et al., 2004). While personal behavior, such as smoking and alcohol, consumption, contribute to health, socio-economic factors are strongly associated with health even after adjusting for these personal behaviors (Lantz et al., 1998).

Several mechanisms have been postulated as mediating the influence of these socio-economic factors on health. Evidence of the biological pathways mediating the influence of socio-economic factors suggests that stress induced by social circumstances chronically stimulates the hypothalamic-pituitary-adrenal axis causing persistent adrenal hormones

Rank	Country	Pop. below poverty line (%)	Rank	Country	Pop. below poverty line (%)	Rank	Country	Pop. below poverty line (%)
1	Chad	80	36	Belize	43	71	Turkmenistan	30
2	Haiti	80	37	Dominican Republic	42.2	72	Virgin Islands	28.9
3	Liberia	80	38	Djibouti	42	73	Macedonia	28.7
4	Congo, Democratic Republic of	71	39	Cote d'Ivoire	42	74	Ghana	28.5
5	Sierra Leone	70.2	40	East Timor	42	75	Lebanon	28
6	Mozambique	70	41	Angola	40.5	76	Belarus	27.1
7	Nigeria	70	42	Bangladesh	40	77	Micronesia, Federated States of	26.7
8	Suriname	70	43	Sudan	40	78	Armenia	26.5
9	Gaza Strip	70	44	Mauritania	40	79	Moldova	26.3
10	Swaziland	69	45	Kyrgyzstan	40	80	Laos	26
11	Zimbabwe	68	46	Ethiopia	38.7	81	Brazil	26
12	Burundi	68	47	Venezuela	37.9	82	Uzbekistan	26
13	Honduras	65	48	El Salvador	37.8	83	Panama	25.6
14	Zambia	64	49	Benin	37.4	84	Fiji	25.5
15	Niger	63	50	Papua New Guinea	37	85	Iraq	25
16	Rwanda	60	51	Mongolia	36.1	86	India	25
17	Comoros	60	52	Mali	36.1	87	Romania	25
18	Guatemala	56.2	53	Tanzania	36	88	Nepal	24.7
19	Namibia	55.8	54	Afghanistan	36	89	Tonga	24
20	Senegal	54	55	Uganda	35	90	Pakistan	24
21	Sao Tome and Principe	54	56	Ukraine	35	91	Israel	23.6
22	Tajikistan	53	57	Peru	34.8	92	Bhutan	23.2
23	Malawi	53	58	Ecuador	33.1	93	Sri Lanka	23
24	Madagascar	50	59	Philippines	32.9	94	Algeria	23
25	Kenya	50	60	Burma	32.7	95	Anguilla	23
26	South Africa	50	61	Grenada	32	96	Guam	23
27	Eritrea	50	62	Togo	32	97	Bulgaria	21.8
28	Lesotho	49	63	Georgia	31	98	Slovakia	21
29	Nicaragua	48	64	Cambodia	31	99	Uruguay	20.9
30	Cameroon	48	65	Bolivia	30.3	100	Greece	20
31	Guinea	47	66	Botswana	30.3	101	Egypt	20
32	Burkina Faso	46.4	67	Argentina	30	102	Spain	19.8
33	West Bank	46	68	Cape Verde	30	103	Estonia	19.7
34	Colombia	45.5	69	Dominica	30	104	United Arab Emirates	19.5
35	Yemen	45.2	70	Kosovo	30	105	Bermuda	19

Rank	Country	Pop. below poverty line (%)	Rank	Country	Pop. below poverty line (%)	Rank	Country	Pop. below poverty line (%)
106	Paraguay	18.8	122	Korea, South	15	138	Canada	9.4
107	Bosnia and Herzegovina	18.6	123	Jordan	14.2	139	Bahamas, The	9.3
108	Mexico	18.2	124	United Kingdom	14	140	Greenland	9.2
109	Portugal	18	125	Hungary	13.9	141	Serbia	8.8
110	Iran	18	126	Indonesia	13.33	142	Kazakhstan	8.2
111	Turkey	17.11	127	Russia	13.1	143	Mauritius	8
112	Trinidad and Tobago	17	128	Albania	12.5	144	Montenegro	7
113	Poland	17	129	Slovenia	12.3	145	Switzerland	6.9
114	Croatia	17	130	Denmark	12.1	146	France	6.2
115	Jamaica	16.5	131	United States	12	147	Austria	6
116	Maldives	16	132	Syria	11.9	148	Ireland	5.5
117	Costa Rica	16	133	Chile	11.5	149	Lithuania	4
118	Japan	15.7	134	Azerbaijan	11	150	Tunisia	3.8
119	Germany	15.5	135	Vietnam	10.6	151	Malaysia	3.6
120	Belgium	15.2	136	Netherlands	10.5	152	China	2.8
121	Morocco	15	137	Thailand	9.6	153	Taiwan	1.16

Source: (CIA World Factbook, 2011)

Table 1. Country Rankings with Percentage of Population Living in Poverty

levels that predispose to obesity, diabetes, cardiovascular disease, and altered immune modulation (Brunner & Marmot, 2006). Another analytic strategy takes a life course approach building on evidence that a person's social circumstances at each point in time accumulate over a lifetime to contribute to an individual's health status so that, repeated periods of nutritional deficiency and social factors beginning in utero and running through childhood and adult life set up a sequence of poor development of the fetus, running through childhood and adult life leading to physiological damage and premature death in middle and early old age (Blane, 2006). There is also evidence that social support and social cohesion contribute to health and deficits in such support can affect physical and psychological morbidity as well as mortality (Stanfeld, 2006).

The poor are exposed to greater personal and environmental health risks, are less well nourished, have less information and are less able to access health care than those in higher socio-economic position; they thus have a higher risk of illness and disability. Conversely, illness can reduce household savings, lower learning ability, reduce productivity, and lead to a diminished quality of life, thereby perpetuating or even increasing poverty (WHO, 2008)

Those living in poverty have a lower life expectancy. One third of deaths - some 18 million people a year or 50,000 per day - are due to poverty-related causes. According to the World Health Organization, hunger and malnutrition are the single gravest threats to the world's public health; malnutrition is by far the biggest contributor to child mortality, being present

in half of all cases of pediatric death (WHO, 2008). In the United States, the number of deaths attributed to socioeconomic health determinants, such as poverty, has been shown to be comparable to the number attributed to pathological and behavioral causes. In 2000, approximately 245,000 deaths were attributed to low education, 162,000 to low social support (comparable to the 155,000 lung cancer deaths that year), and 133,000 to individual-level poverty (Galea et al., 2011).

Living in a state of poverty can impede access to both primary and emergency care. People living in poverty have the greatest needs and face considerable challenges in obtaining medical treatment. According to the Canadian Community Health Survey, among Canadians with the lowest incomes, 40% suffer from chronic illnesses (Statistics Canada, 1997). People living in households with incomes under \$20,000 are three times more likely to experience a decline in health status than those at higher income levels (Orpana HM, 2007). In one study, lower-income families were much likely to report delayed or foregone medical care because of issues related to the cost of care (Kullgren et al., 2010). This is further aggravated by a disconnect between physicians and their patients over the lived reality of poverty, which creates structural, attitudinal, and knowledge-based barriers to addressing poverty as a risk-factor to patient health (Bloch, 2011).

2. Addressing poverty in primary care

In this section of the chapter, we focus on evidence-based recommendations about adjustments in clinical practice that may significantly improve care for low-income individuals in the primary care setting (Table 2). While medical care alone cannot address the impact of low income, inadequate educational attainments, suboptimal living and work conditions, and material and other psychosocial deprivation on the health of patients, if physicians acknowledge the impact of these factors on their patients' health, they can utilize a range of therapeutic options to help their most disadvantaged patients.

When clinicians ignore the effects of poverty on health, they reduce their ability to improve the health status of a large fraction of the public, given how prevalent poverty is. Primary care clinicians can enhance clinical care and improve health outcomes for poor populations in ambulatory settings if they incorporate considerations about the socioeconomic status of patients within routine clinical practice. Marmot has proposed that the primary care clinician take a holistic approach to meeting the needs of poor patients that fully recognizes the full range of their needs (British Medical Association, 2011).

While the recommendations in this chapter are directed to primary care providers themselves, it is important to recognize that they will not have an opportunity to improve the health of poor patients unless patients have access to them and can respond to their interventions. Thus before considering how primary care providers can improve the care they offer, it is essential to consider larger structural issues. The Discussion paper for the 2011 World Conference on Social Determinants of Health considers the need to reorient health care services and public health programs to reduce inequities (WHO, 2011). As the document points out, to receive effective care, individuals need to know that they have a problem, seek care for this condition, gain access to care, receive appropriate advice, obtain the prescribed treatment, adhere to the treatment, and obtain effective relief from the treatment, with satisfactory resolution of their problem (WHO, 2011). To make these steps

feasible health sector leadership must facilitate the funding, location, and timing of services and the competencies and attitudes of health workers. Health sector leaders must also work with communities to identify barriers and solutions, including ensuring that care extends beyond curative services to promotion and prevention activities. An essential ingredient to guaranteeing access to care is financing of equitable universally available health coverage (WHO, 2011).

Some of the most significant progress toward addressing poverty-related health deficits is likely to be accomplished through wide-scale governmental efforts. In the US, for example, where health disparities have been recognized to be a profound problem, the US Department of Health and Human Services (DHHS) outlined a series of interventions to address health care disparities building upon provisions in the Affordable Care Act of 2010 (US Department of Health and Human Services, 2011). In the European Union, DETERMINE is an EU Consortium for Action on the Socio-economic Determinants of Health (SDH) (2007 - 2010) aimed at increasing awareness and capacity among decision makers in all policy sectors to take health and health equity into consideration and to strengthen collaboration between health and other sectors. A summary of actions taken in various member states of the EU is available (Institute of Public Health in Ireland, 2010). The World Health Organization has made a number of recommendations for countries that seek to pursue similar efforts to address the socioeconomic determinants of health (Valentine et al., 2008).

2.1 Primary care interventions

Primary care physicians and other primary care providers (PCPs) are well positioned to educate low-income patients about the linkages between adverse life circumstances and poor health. PCPs often develop trusting relationships with their patients over the course of years, and enlarge their expertise in eliciting their patients' health goals and personal problems. Indeed, low-income patients may receive reliable health guidance only within the ambulatory care setting since their typical social milieu is characterized by poor health literacy, fragile support systems, and infrequent displays of ideal health behaviors. Here we enumerate a number of strategies (Table 2).

2.1.1 Screen and document poverty

It is not possible for clinicians to address the impact of poverty on health unless, they are aware of their patients' socio-economic status. While the literature does not yet provide a well established set of questions that clinicians should use to ascertain their patients' socio-economic status, some initial findings are worth attention. Measures of socio-economic status that have been shown to be good predictors of mortality are wealth and recent family income and they have been recommended for purposes of conducting research (Duncan et al., 2002). Primary care providers may find the results of a pilot study conducted in Canada more useful: the study found that a set of three questions were quite sensitive and specific for identifying poor patients in a family practice clinic: 'Have you (ever) had trouble making ends meet at the end of the month?'; 'In the past year, was there any day when you or anyone in your family were hungry because you did not have enough money for food?; In the last month, have you slept outside, in a shelter, or in a place not meant for sleep? (Brcic et al., 2011)

<i>Screen and document poverty</i>	Incorporate questions about SES into screening questionnaires and into health records.
<i>Appreciate impact of poverty on health status</i>	Be familiar with the effects of socio-economic position on health status, health behavior, access to care, and response to interventions.
<i>Correct organizational and logistical deficiencies</i>	Use planned care visits for prevention activities. Distribute prevention activities among clinic staff as efficiently as possible. Ensure rapid availability of test results.
<i>Formulate standard protocols for care delivery</i>	Provide clinician prompts for screening tests, vaccines, and dietary counseling. Enable non-physician staff to deliver standard preventative care.
<i>Provide extra outreach and assistance for vulnerable groups</i>	Arrange point-of-service testing if feasible. Use intake questionnaires to elicit patient preferences and concerns. Extend nurse-managed chronic care supervision.
<i>Support self-management</i>	Send patient reminders through letters, voicemail, and email. Provide written treatment guides and dosage information. Address health literacy issues.
<i>Evaluate intervention outcomes</i>	Follow-up with patients using electronic disease management databases.
<i>Address deficits in health status and health care access among ethnic minorities</i>	Reduce discrimination Train staff to be sensitive to the needs of low-income and ethnic minority patients. Ensure availability of translators. Obtain feedback to measure quality of care.
<i>Increase partnerships with agencies outside the healthcare system</i>	Direct patients to government assistance programs, local educational resources, and advocacy organizations.
<i>Educate patients about mitigating SEDH</i>	Discuss the link between SES and disease. Acknowledge and address financial concerns.

Table 2. What can primary care physicians do to help their low-income patients?

2.1.2 Appreciate the affects of poverty on health

To most effectively help poor patients, it is useful for primary care clinicians to recognize the many ways that poverty predisposes patients to disease processes and shortens their life expectancy, and to also appreciate how the many deficits imposed by poverty make it more difficult for them to respond to therapeutic efforts.

Consider a young adult patient for example living in a poor community whose family lives in crowded housing in a neighborhood that has a high unemployment rate, high crime rate and few community resources. She did not finish high school because her family was unable

to stay stably housed in one neighborhood and she found the stress of moving from one school to another so difficult that she could not keep up with schoolwork. She has been asked by her mother to help with the care of other children in the family. At 18 she was able to get a job at a fast food chain where she works part time. At age 24 she is overweight. She has felt overwhelmed with her extended family's situation and has little time to pay attention to health and has been embarrassed to deal with continued weight gain. At age 28, when she goes to the federally funded health clinic for treatment of a urinary tract infection, her primary care clinician finds that her fasting blood sugar is quite elevated. A repeat visit to the clinic when the infection is resolved reveals that the fasting blood sugar is high, the Hgb A1c level is 8.5, and the clinician tells her that she is diabetic. This young woman's primary care clinician will only be able to effectively help her once he or she appreciates that socioeconomic factors have clearly, over the course of her lifetime, had a cumulative effect on her health status and the likelihood that she will be able to pursue treatment for her obesity and diabetes, and preventive strategies to avoid cardiovascular disease.

2.1.3 Correct organizational and logistical deficiencies

The health care system is an important channel for reducing behavioral risk factors and increasing uptake of preventative strategies for low-income individuals. Thus, low-income patients can benefit enormously from the implementation of interventions that improve performance of indicated preventative activities in usual-practice settings. An evaluation of health care delivery systems in the US determined that hospital outpatient departments in particular offer high quality preventative services, due to benefit from institution-wide resources invested in systems to improve quality of care (Grossman et al., 2008). However, these benefits were limited by delays in health care and higher emergency room visits due access problems.

Impoverished patients consistently underutilize preventative health interventions such as adult immunizations and cancer screenings. For instance, the increasing rates of cancer deaths among low-income minority women can be partially attributed to lower screening rates and later detection of the disease. Black and Hispanic women, who are more vulnerable to poverty, have the lowest rates of cancer screening in the United States (Ramirez et al., 2000; Legler et al., 2002). Low-income patients tend to delay clinical contact until treatment is absolutely necessary because of the financial burden imposed by insurance co-payments, transportation costs, lost wages, and childcare arrangements. Thus, they are more likely to assume that the lack of obvious symptoms indicates absence of disease. A study of low-income minority women in community health centers showed that a large number would not undergo cancer screening since they did not experience any symptoms of ill health (Ogedegbe et al., 2005). The same study emphasized, however, that clinician recommendation was the most commonly cited encouragement for cancer screening among minority women. Data indicate that physicians miss several opportunities during office visits and acute care visits to help their patients avoid disease and serious complications through undertaking preventative care including vaccination, cancer screening, dietary counseling, and screening for chronic conditions such as diabetes and depression (Stone et al., 2002; Agency for Healthcare Research and Quality, 2006; Schmalzing & Hernandez, 2005).

There are several ways of remedying these issues by correcting organizational and logistical deficiencies. Organizational changes in staffing and clinical procedures are most effective in improving rates of adult immunization and cancer screening (Stone, et al., 2002). Dramatic improvements in immunization and screening performance rates are possible through team-based quality improvement approaches and using planned care visits for prevention activities. In one example, a study sought to integrate an assessment of reproductive planning into the primary care encounter. This assessment was found to be important by 81% of the women surveyed (Dunlop et al., 2010) and it was found to be a useful tool in targeting individuals who were at high risk for unintended pregnancies. Another study in Appalachian Pennsylvania showed that colorectal cancer screening rates increased by 17% when physicians, nurses, and office staff were provided with information such as screening guidelines, county-specific cancer incidence and mortality data, and other educational tools (Curry et al., 2011). Such initiatives may redirect specific prevention activities to non-physician staff such as clerical or nursing staff that might identify patients needing prevention services and arrange physician visits, or enable nurses to utilize protocols to deliver preventive care themselves.

Having a usual source of care, especially a long relationship with a specific provider, is a strong predictor of adherence to prophylactic advice (Doescher et al., 2004). A survey of severely low-income Washington D.C. census tracts determined that if non-elderly women without a specific primary care physician were linked to a specific clinician at their primary care delivery site, adherence to Pap smear, clinical breast exam, and mammography by would increase by 30%, 15%, and 15% respectively (O'Malley et al., 2002). Reorganizing primary care services to boost continuous, longitudinal relationships with care providers may lead to significant strides in the success of health promotion interventions.

2.1.4 Formulate standard protocols for care delivery

Structured protocols for care delivery that allow bundling of appropriate intervention and health promotion strategies with comprehensive medical care may be particularly beneficial for low-income patients who are infrequent users of ambulatory care. Combining routine and preventive clinical care as a matter of standard practice ensures that patients will receive appropriate prophylactic care and education upon visiting a primary care clinic.

O'Malley et al. have demonstrated that low-income, inner-city women are more likely to adhere to cancer screening recommendations if a comprehensive array of services is available at the primary care delivery site (O'Malley et al., 2002). Similarly, physician prompts can also significantly increase the amount of educational and preventive care that patients receive. For instance, including health maintenance flow sheets on patient charts significantly increases vaccination rates among the elderly in diverse rural, inner-city, and suburban practices (Norwalk et al., 2004). Some patients are also more likely to engage in physical activity after physician-delivered tailored interventions (Dutton et al., 2007).

Increased uptake of disease-testing and screening among low socio-economic status (SES) patients is predicated on patient recall, convenience, and rapid availability of results (Warren et al., 2006). Outreach programs which generate quarterly reminders through

letters, voicemail, and e-mail have been successful in persuading some individuals to schedule health screenings and self-management evaluations for chronic conditions. If feasible, providing point-of-service testing at primary care clinics would be a major convenience for low-income patients since it provides quick results and eliminates the need for repeat appointments. Point-of-service HIV testing in Baltimore City was found to have utility in groups at the highest risk of contracting the disease (Keller et al., 2011). In another study, however, only 81% of those testing positive returned for confirmatory results, compared to 91% of conventional test-takers (Guenter et al., 2008).

2.1.5 Provide extra outreach and assistance for vulnerable groups

The cumulative strain that accumulates from fighting challenging life circumstances often leaves poor patients unmotivated to deal with the cost and complexity of therapeutic regimens. While low-self efficacy may account for the inability of low-SES individuals to cope with medical problems, the systemic factors and provider attitudes which prevent them from self-managing diseases cannot not be ignored. Clinicians perceive their Medicaid patients, who typically belong to low SES, as less compliant than more affluent patients (Greene & Yedidia, 2005). Low-income patients also receive fewer referrals and fewer service options from their doctors.

Providers have fewer feelings of affiliation toward their low-income patients and are likely to underrate their likeability, competence, rationality, and self-control (Van Ryn & Burke et al., 2000). On average, physicians estimate that their lower SES patients are less likely to desire a physically active lifestyle or have a demanding career. Since disadvantaged patients may assign low priority to medical problems over other financial and social pressures, doctors might perceive such patients as non-compliant, unmotivated, and resistant to positive change (Reilly et al., 1998). Empirical evidence proves that facilitative provider behavior in the clinical setting is closely linked to improved physiological outcomes and self-management among low-income patients (Reilly et al., 1998). Physicians' negative attitudes toward low-income patients may hinder their ability to provide a clinical encounter that produces the best possible therapeutic outcomes. How can physicians provide the most facilitative clinical environment for their most disadvantaged patients?

Well-designed intake questionnaires can elicit patient expectations and preferences regarding illness and its management prior to physician contact. Such information allows the provider to allocate sufficient time for acute care, discussion of treatment plan and side-effects, patient education, and health promotion, which are key components of an optimal primary care visit. A key determinant of low-income patient satisfaction and health outcomes among low-income patients is the duration of the clinic visit (O'Malley et al., 2002B; Becker & Newsom, 2003). Further, Dugdale et al report that visit rates of above 3-4 per hour are associated with less data gathering, prevention, decreased patient satisfaction, increased patient turnover, and inappropriate prescribing (Dugdale et al., 1999). A Nigerian study in a resource-poor setting showed that increased time with clinicians combined with dietary education about caloric values of local food items reduced total morbidity for diabetes by half, in comparison to a control site where physician-patient interactions were not modified (Mshelia et al., 2007).

2.1.6 Support self-management

Self-management of chronic conditions may be especially difficult for low-income patients who may not be equipped to understand the complicated etiology of their disease and related coping strategies. Patient empowerment can be encouraged through the identification and acknowledgement of health literacy issues that limit patient understanding and compliance. Nearly 80 million US adults are thought to have limited health literacy, and rates are higher among the elderly, minorities, the uneducated, and the poor (Bennett et al., 2009; Kutner et al., 2006). Low rates of health literacy have been shown to be associated with poorer health outcomes, poorer use of health care services, and higher health costs overall (Berkman et al., 2011; Weiss et al., 1994). Interventions such as low-literacy health books provided to low-income parents of young children have been shown to reduce the number of emergency room and doctor visits, as well as the number of missed school and work days (Herman & Jackson, 2010).

Low levels of numeracy and literacy, common among low-income patients, might impede their ability to understand medication regimens and appropriate dosage. Although low-income patients are less likely to know the names of their medications, studies have shown that they are able to comply with medication schedules and dosages as well as more affluent patients (Kripalani et al., 2006). Research suggests that patients with low literacy may learn and practice self-care behaviors with additional support and training (Pignone et al., 2006). Educational resources such as videotapes and other educational aids such as workbooks were highly valued by low-income patients suffering from anxiety disorders who found additional information about their condition to be “empowering” (Mukherjee et al., 2006).

Research shows that provider communication effectiveness and patient understanding are highly predictive of diabetes self-management (Heisler et al., 2002). This communication can be enhanced through the use of video-conferencing technology to overcome transportation-related obstacles in rural settings (Davis et al., 2010). Many low-income patients lack knowledge about their illness and its triggers and therefore, are unable to monitor and control their condition. For instance, poor inner-city asthmatic patients are less likely to understand exacerbation triggers, less likely to control their disease effectively, and more prone to emergency visits and hospitalization (Coyle et al., 2003). Patients would undoubtedly benefit from clear and concise written treatment guides which enumerate symptom triggers and management strategies in a simplified manner (Partridge, 2004).

2.1.7 Evaluate intervention outcomes

Team-based care coupled with aggressive case management could provide the consistent support and follow-up that patients from low-SES require. Data-driven care improvement for chronic disease management looks extremely promising in this regard. Developing electronic disease management databases enables physicians to follow-up with patients and track outcomes over time. A successful diabetes-management program maintained a computerized roster which included trends for major metabolic values, common comorbidities, smoking status, and current medication for all patients (Kimura & Murkofsky, 2007). The roster was ranked so that high-risk patients were placed at the top and received more focused supervision such as reminders about regular follow-up visits, treatment

regimen, and timely self-assessments. The greatest barrier to the widespread implementation of an electronic medical record system may be the cost burden placed on primary care practices in both high- and low-income countries (Holroyd-Leduc et al., 2011; Ludwick & Doucette, 2008).

Nurse-managed low-educated African American and Hispanic patients with systolic dysfunction reported fewer hospitalizations and better functioning (Sisk et al., 2006). These patients received guidance about diet, medication adherence, and self-management of symptoms through an initial visit and regularly scheduled follow-up telephone calls. Behavioral health specialists affiliated with a primary care provider served as care managers for economically disadvantaged patients suffering from panic disorder (Mukherjee et al., 2006). The specialists delivered cognitive behavioral therapy as an adjunct to physician prescribed pharmacotherapy, sought to increase adherence by calling patients who missed appointments, challenged negative beliefs among patients who were disinclined to pursue treatment, and relayed information about medication dosage and side-effect management.

2.1.8 Address deficits in health status and health care access among ethnic minorities

The 2011 report prepared by the US Department of Health and Human Services enumerated several ways that the primary care workforce can address health disparities among ethnic minority populations in the United States (US Department of Health and Human Services, 2011). The recommended strategies might be applicable to many nations where ethnic minorities experience health deficits relative to the remainder of the population. These recommendations include: making efforts to identify health disparities among racial and ethnic minorities; bridging language barriers for people whose primary language is not that of the native or dominant population and for whom the quality patient-provider interactions is likely to be inadequate by promoting the healthcare interpreting profession as an essential component of the healthcare workforce; enhance the cultural proficiency of the primary care workforce; incorporate community health workers into the primary care team to promote patient participation in health education, behavioral health education, prevention, and health insurance programs; increase the diversity of the healthcare and public health workforces since racial and ethnic minority practitioners are more likely to practice in medically underserved areas and provide health care to large numbers of racial and ethnic minorities (Komaromy 1996; Gonzales 1999; US Department of Health and Human Services, 2011).

Among primary care physicians practicing within the same large academic primary care system, patient panels with greater proportions of underinsured, minority, and non-English-speaking patients were associated with lower quality rankings for primary care physicians (Hong et al., 2010). At the same time, US physicians with a patient population that was over 50% Latino cited several hurdles to the delivery of high quality care to their patients, ranging from the patient's inability to pay to difficulties communicating because of language barriers (Vargas Bustamante & Chen, 2011). Low patient activation rates, which correlates with low skills, knowledge, confidence needed to properly manage one's own health, among Hispanic immigrants in the US was linked to low acculturation and lack of familiarity with the US healthcare system (Cunningham et al., 2011).

One way of directly addressing disparities due to ethnic differences is through the implementation of cultural competency training in medical education and practice. Such education enables medical students, staff and professionals to be sensitive to the needs of low-income patients. Interventions such as ensuring the availability of translators through a shared network of interpreter services is a cost-effective means of reducing barriers to communication between patients and their doctors without unduly burdening small practices and community health centers (Jacobs et al. 2011). A number of strategies have been shown to help reduce the tendency of medical trainees to unconsciously act in biased ways towards ethnic minority patients. In a review of these approaches, Woolf and Dacre report that discovering counter-stereotypical information about a patient, viewing a patient as having several social identities rather than one stereotyped identity, taking the patient's perspective, and seeing patient care as representing opportunities to put into practice one's goal of helping others can all help students avoid biased decision making and improve patient care (Woolf & Dacre, 2011).

2.1.9 Increasing partnerships with agencies outside the healthcare system

Several health care organizations have developed innovative programs that combine medical care with interventions that ameliorate disabling socioeconomic factors. For instance, the Orel Directly Observed Treatment Short course (DOTS) support program that operates in the Orel region of Russia recognizes that increased poverty and homelessness in the post-Soviet era are linked to the greater prevalence of tuberculosis (Ziglio et al., 2003). This program combines social support and medical treatment to promote adherence among impoverished TB patients and provides them with much-needed nutrition during recovery. In order to encourage patients to comply with DOTS therapy, food packages are given to patients each day they come to the clinic to take their medication. Nurses deliver food packages to elderly, infirm, or alcoholic TB sufferers who are unlikely to come to the clinic for their medication. Ensuring regular interaction with medical personnel and providing nutritional incentives has played a significant role in turning the Orel program into a model for successful tuberculosis control and management within resource-poor settings.

In a remarkable program located in Blackpool, England, general practitioners (GPs) observed that many of their patients displayed symptoms that stemmed from non-medical causes, often related to deteriorating local economic conditions (Ziglio et al., 2003). Patients were afflicted with sleeplessness, depression, and substance abuse, often linked to worries about indebtedness or other socioeconomic concerns. In order to assist patients to access non-medical resources, surgeries in the most deprived areas of Blackpool collaborated with the Citizens Advice Bureau (CAB), a national charity, to create a "one-stop shop" solution to medical, social, and psychological problems. Patients, who are generally poor, receive assistance in navigating the welfare system to claim a variety of benefits such as disability allowances, elder care supplements, and unemployment benefits and may also be provided debt counseling upon request. Staff members can be consulted at several GP surgeries and many patients are referred to them by medical personnel. This seamless integration of medical and social services allows the poor, elderly, and disabled patients to attain financial and mental security.

Similarly, “Just for Us” is another joint program run by an academic medical center and community organizations which provides financially sustainable, in-home, integrated care to frail low-income seniors and disabled adults living in subsidized housing (Yaggy et al., 2006). The stakeholders include a community health center, county social and mental health agencies, and a city housing authority, which coordinate services to promote the health and independence of these seniors. A multidisciplinary team provides in-home primary care and chronic disease management based on a fee-for-service model. Besides evidence-based medical care, the seniors receive assistance in obtaining Medicaid privileges, food stamps, and Meals on Wheels. Social workers provide intensive case management and services such as protective services (if abuse is discovered), post-hospitalization follow-up, assistance in obtaining durable medical equipment, mental health care and public transportation benefits. Costs for emergency department use and inpatient care, which are reliable indicators of the health status of elderly citizens, have dropped substantially.

Intensive case management for substance-dependent women receiving Temporary Assistance for Needy Families (TANF) has been shown to yield higher levels of substance abuse treatment initiation, engagement, retention, and higher likelihood of abstinence at 15-month follow-up (Morgenstern et al., 2006). Case managers addressed barriers to entry which included childcare, transportation, and housing problems. Additionally, they provided motivational counseling coupled with outreach methods such as home visits and contacting family members. Clients received incentives such as vouchers for purchasing children’s toys and cosmetics for attending treatment.

A special unit for tuberculosis treatment in Hungary which targets homeless and alcoholic TB patients has dramatically curbed recidivism rates for disease and substance abuse by introducing a comprehensive program of recovery (Ziglio et al., 2003). Patients undergo therapy for alcoholism if necessary, and the primary problem of homelessness is addressed through an innovative re-housing program. Recovered patients are placed into housing established or financed by a foundation where they can stay for a period of 2-3 years. The recovered individuals find employment, contribute to common housing expenses, and save money to become financially solvent and slowly reintegrate into mainstream society.

The BfreeNYC screening program for Hepatitis B in low-income communities has been found to have a significant impact on the reduction of health disparities in communities of recent immigrants (Pollack et al., 2011). Stakeholders included members from the fields of community health, local government, academic institutions, public hospitals, and private physician practices. The program provided free community-based screenings, vaccinations, and care of Hepatitis B, and showed positive outcomes in program effectiveness and the reduction of morbidity and mortality.

2.1.10 Educate patients about mitigating SEDH

As noted earlier, it is possible for physicians to use brief intake questionnaires to quickly establish the patient’s socio-economic status. By asking questions related to education and training, financial situation, employment, risky behaviors and addictions, a physician can learn about and, in turn, educate patients about specific socio-economic factors that impede the patient’s well-being or hinder treatment adherence. Physician-directed conversations may help patients understand that their medical problems often have a social context.

Depending on their circumstances, patients could be referred to social welfare programs or local charitable organizations such as Women, Infants, and Children (WIC) supplemental nutritional services, alcohol and drug abuse treatment programs, domestic violence shelters, legal aid, community colleges, clergy, career counselors, employment agencies, homeless shelters, language training sites, community libraries, and other advocacy organizations for the underserved. Often physician endorsement of a particular intervention may eliminate the patient's initial inhibition or resistance to seeking proper assistance.

Returning to the newly diagnosed diabetic young woman introduced earlier, the various strategies can be usefully applied to her care along with the usually recommended approach strategies outlined here. According to standard recommendations, her primary care provider focuses on trying to manage her hyperglycemia as recommended by guidelines and explains the need for a diet, exercise and weight loss (Nathan et al., 2006; Nathan et al., 2009). She also aims to provide the recommended health maintenance for her patient (American Diabetes Association, 2011). She focuses on multi-factorial risk reduction to reduce the risk of coronary artery disease, including reducing dietary fat; Light to moderate exercise; Smoking cessation; Tight glycemic control (target A1C <6.5 percent with intensive therapy); Tight blood pressure control (target <140/85 mmHg for most of the study and <130/80 mmHg for the last two years); Angiotensin converting enzyme (ACE) inhibitor therapy regardless of blood pressure; Lipid-lowering therapy (target total cholesterol <190 mg/dL [4.9 mmol/L] for most of the study and <175 mg/dL [4.5 mmol/L] for the last two years; target fasting serum triglyceride <150 (Gaede et al., 2003).

These standards of care will not be effective, however, unless her primary care provider makes an effort to discover that the patient is poor, collects information about her social circumstances and understands her lived reality of poverty, and develops a care plan that takes this reality into account (Bloch, et al. 2011). Strategies recommended above including making available assistance with furthering her education, job training and employment services will be important aspects of holistic care to improve her situation (British Medical Association, 2011). Studies demonstrate a number of approaches that are specifically aimed at improving the successful management of poor diabetic patients including the use of physician-community health worker partnering to support diabetic self management (Otero-Saboquai et al, 2010); certified medical-assistance coaches with specific diabetes training (Ruggiero et al, 2010); literacy sensitive , culturally tailored, group-based self management interventions involving sessions to teach knowledge, attitudes and self-management behaviors (Rosal et al, 2011); and a telephone delivered physical activity and dietary intervention (Goode et al, 2011).

3. Barriers to improving primary care for low-income populations

Several obstacles must be overcome to facilitate primary care providers' efforts to ensure the best possible care to low-income patients. Bureaucratic obligations coupled with low reimbursement rates often force them to increase patient volume and abbreviate patient appointments (Larson et al., 2003). Consequently, clinicians primarily focus on acute problems and spend less time on patient education, disease prevention, and general health counseling. Since low-income patients derive the greatest marginal benefit from health education, personalization of treatment regimens, and motivational counseling, they stand to lose the most when face time with physicians is reduced. Current performance measure

indicators have not recognized care coordination in the treatment of chronic conditions and time spent on health promotion activities (Larson et al., 2003).

Moreover, performance measures usually assess quality of care for specific diseases but cannot satisfactorily evaluate care that mitigates multiple, concurrent illnesses prevalent among low SES adults. Attaining quality goals among poorer patients is substantially more demanding than improving health outcomes for well-educated, materially privileged patients. Thus, aligning financial incentives with improved outcomes without provisions for measuring baseline health indicators may press doctors to avoid treating poor patient (Committee on quality Health Care in America, 2001). Since improvements in patient outcomes and quality goals can be attributed to the efforts of the entire care team, performance payments could be used to improve systems rather than reward individual physicians.

Lack of research also inhibits the ability to provide optimal care to disadvantaged patients. Although poverty and psychosocial deprivation has been linked conclusively to poorer health, intervention studies that determine the effect of combining conventional medical therapy with socioeconomic interventions have not been designed and evaluated to the same extent. Partnerships between academic medical center and community organizations may be ideal vehicles for the delivery and assessment of socioeconomic interventions. For instance, Stone et al point out that there is insufficient evidence to link increased uptake of preventative services among adults and financial incentives such as reduced co-payments and monetary compensation for adherence (Stone et al., 2002).

Clinical practice guidelines which incorporate socioeconomic evidence are uncommon (Aldrich et al., 2003). Systems change will likely be an effective way of streamlining care for low-SES patients. Rust and Cooper posit that organizational change in clinical setting resets the default setting from “don’t do anything unless the doctor orders it” to “do automatically the evidence-based things the doctor would want to have done” (Rust & Cooper, 2007). Newer models of clinical organization could direct care through a multidisciplinary team including nurses (through protocols) and front-desk staff (providing age and gender appropriate health promotion materials, in addition to using time spent by patients in the waiting room (intake questionnaires, self-scoring depression or obesity scales, or disease specific kiosks). However, literature that evaluates the effectiveness of systems innovation in improving care for low-SES patients remains quite scanty.

4. Conclusions

While we have mentioned many strategies that primary care providers can employ to mitigate the impact of poverty on health, we acknowledge several limitations. A clinician working with an adult patient cannot undo the cumulative effects of poor nutrition, education, and housing experienced since childhood. Socioeconomic interventions thus are most likely to show profound improvements in overall well-being if they are introduced during childhood. Moreover, the success of many interventions enumerated above is contingent on organizational strategies and programs that individual clinicians can hardly muster alone. Most, although not all of the evidence-based interventions we have mentioned here, address the effects of poverty in developed countries such as the United States. The level of deprivation in the developing world is such that other infrastructural

modifications such as the provision of clean water, clean air, and sewage disposal may be more productive as health improvement strategies.

Clearly, development of evidence-based strategies and design of delivery systems consistent with such evidence is needed to ensure that the most vulnerable and impoverished members of society benefit from primary care. In 2006, the National Healthcare Disparities Report recorded that poor people received worse quality of care than their affluent compatriots in 71 percent of care quality measures (Agency for Healthcare Research and Quality, 2006). Evidence indicates that primary health care, particularly when delivered effectively in combination with interventions that tackle socio-economic influences on health can improve the health of poor populations. Primary care clinicians should make every effort to put this evidence into practice.

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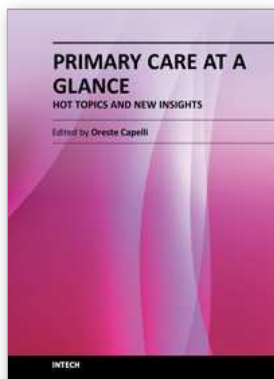
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"Both among scientists and clinical practitioners, some find it easier to rely upon trivial explanations, while others never stop looking for answers". With these surprising words, Augusto Murri, an Italian master in clinical medicine, reminds us that medical practice should be a continuous journey towards knowledge and the quality of care. The book brings together contributions by over 50 authors from many countries, all around the world, from Europe to Africa, from Asia to Australia, from North to South America. Different cultures are presented together, from those with advanced technologies to those of intangible spirituality, but they are all connected by five professional attributes, that in the 1978 the Institute of Medicine (IOM)¹ stated as essentials of practicing good Primary Care: accessibility, comprehensiveness, coordination, continuity and accountability. The content of the book is organized according to these 5 attributes, to give the reader an international overview of hot topics and new insights in Primary Care, all around the world.

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