Child Mental Health in the Americas: A Public Health Approach

LEON EISENBERG

The systematic, population-wide application of preventive measures based on what is known about the causes and outcomes of psychiatric disorders can markedly reduce morbidity from mental ill health among children in the Americas. The actions proposed here rely partly upon increasing access for all women and their children to thoroughly tested obstetric and pediatric care; in part they depend on improving nutrition and opportunities for cognitive stimulation; and in part they call for enhancing the mental health skills of primary care practitioners by appropriate in-service training. There are limits to our knowledge and to the effectiveness of some of our interventions; nonetheless, the greatest barrier to better child mental health is failure to muster the political will to apply what is known to the care of mothers and children in all sectors of society.

No single consultant has the knowledge to formulate an action plan for child mental health in the Americas. Such a plan must take into account the special situations in individual countries as well as the common denominators across continents; it must reflect the insights of all the scholarly fields that study the social context in which children develop (demography, epidemiology, economics, sociology, political science, etc.) as well as the clinical fields that evaluate the ways individual children develop (genetics, pediatrics, social work, psychology, nursing, psychiatry).

This presentation has a more modest goal: to describe a public health approach to the promotion of mental health and the prevention of psychiatric disorders, an approach that takes into account the prevalence and the severity of problems and the evidence for the effectiveness of proposed solutions. One overriding consideration about child health must be kept in mind throughout. Equal rights for women are crucial for the successful physical and mental development of children. Only a world in which women have full citizenship will meet the needs of children. This issue will be dealt with in a companion report on social policy and child mental health.

One further word of justification is necessary. This document is drawn primarily from experience in the United States. That should not surprise the reader who is aware that the U.S. is the country the author knows best. However, this focus on the U.S. may lead to doubt about this work's relevance to Latin America. It should not, for on the contrary, the failures as well as the successes of U.S. mental health programs provide valuable material for the design of policy in other countries. For one thing, the U.S. is very heterogeneous. It is both a "first" world and a "third" world nation; that is, population groups living in urban slums and

---


2Professor of Social Medicine, Harvard Medical School, Boston, Massachusetts 02115, USA.
in pockets of rural poverty survive under conditions not far removed from those of the poor in some developing countries, at the same time that the majority of Americans enjoy high living standards. For another, the "postindustrial" economy of the U.S. presages circumstances that lie ahead for countries still undergoing industrialization. Finally, 22 million of the 249 million people counted in the 1990 U.S. census were classified as Hispanic and 30 million as black. Seen in this light, the U.S. experience seems worthwhile—not because it provides a set of prescriptions, but rather because it offers a set of data from which readers are urged to draw inferences appropriate to their own national conditions.

IS THE PREVENTION OF MENTAL DISORDERS POSSIBLE?

Despite widespread skepticism, effective prevention of some psychiatric disorders is not only possible but is, for certain disorders in some countries, virtually complete. What is not possible now, or in the foreseeable future, is the prevention of all mental disorders.

Pellagra provides a telling example. Patients suffering from pellagra crowded the orphanages and wards of mental hospitals in the U.S. in the early decades of this century. Then, well before it was shown to result from niacin deficiency but after it was recognized as a nutritional disease (1), pellagra was eliminated from the U.S. by dietary improvements (notably a reduction of the dependence on milled corn as a food staple). This preventive measure was not "psychiatric" in the narrow sense of the term. However, what matters is not the mode of action of the agent, the venue in which it is applied, or the discipline of the practitioner, but the effectiveness of the measure in preventing diseases manifested by disturbances in mental function (2).

What has been accomplished for pellagra is now possible for other organic brain disorders; and there are also promising interventions for the prevention of some of the functional mental disorders. However, means are not available for primary prevention of such major diseases as autism, childhood schizophrenias, or depression.

DEFINITIONS

The public health approach to prevention distinguishes between three levels of disease prevention.

Primary prevention is designed to preclude development of disease among susceptible populations. It employs health promotion (e.g., the teaching of hygienic practices, universal education to promote cognitive development, the provision of optimal nutrition to enhance disease resistance, social support for family life, peer programs in public schools to diminish rates of onset of habits injurious to health, etc.) and specific protection (e.g., immunizations, salt iodization to prevent goiter, tetanus toxoid injections during pregnancy to prevent neonatal tetanus, etc.).

Secondary prevention seeks to shorten the duration of illness once it occurs, reduce the likelihood of contagion, and limit sequelae by means of early diagnosis and prompt treatment (e.g., the use of psychotropic drugs and psychosocial measures to abort acute psychotic states). Treatment (secondary prevention) of the first disease in a causal series constitutes primary prevention for those conditions that would otherwise follow in its wake (e.g., anticonvulsants and psychosocial care for patients with epilepsy to minimize accidents and personality difficulties, or treatment of congenital hypothyroidism to avoid cretinism).
Tertiary prevention is directed at individuals with irreversible disease. Its goals are to limit disability (e.g., by placing abandoned children in foster or adoptive homes to avert the developmental attrition caused by orphanages), to minimize exacerbations of the underlying disease (e.g., through psychosocial education for the families of schizophrenic patients), and to promote rehabilitation (e.g., by providing social skills training, vocational guidance, and sheltered workshops for retarded adolescents).

In the first instance, the goal is to prevent the development of disease; in the second, to shorten its duration after it has occurred; and in the third, to preserve function so far as possible when no effective treatment for the disease itself is available.

PREVENTIVE INTERVENTIONS

This section cites and describes well-validated ways of preventing mental disorders. These measures are listed in a life-cycle perspective that begins before conception and continues into old age.

Family Planning and Prenatal Care

The more numerous and the more closely spaced the pregnancies in the reproductive lives of women, the greater the risks for maternal and infant mortality and the worse the developmental outcomes for the children. Studies in developed countries have demonstrated that the larger the number of children in a family (other variables having been controlled for), the lower their educational attainment (3). Unplanned and unwanted teenage pregnancies are associated with high risks for mother and child (4, 5).

Taken together, these findings indicate the importance of using family planning services to reduce the number of offspring and to lengthen interbirth intervals in order to optimize the ability of parents to care for their children. The health risks associated with modern contraception are far less than those associated with pregnancy and childbirth (6). Comprehensive family planning services should include education about contraceptive methods and access to them.

Safe abortion must be available as a backup for contraceptive failure. Adolescents use contraception irregularly; and even when used faithfully, every contraceptive method has a failure rate (which is generally lowest for the birth control pill). Major morbidity and mortality from illegal abortions is inevitable if access to legal and safe abortion is denied.

Inadequate nutrition, cigarette smoking, alcohol consumption, drug abuse, and inadequate prenatal care during pregnancy are all associated with increased hazards to the fetus, including higher rates of low birth weight infants. Low birth weight, in turn, is associated with higher neonatal mortality and developmental impairment among survivors.

The high technology of the neonatal intensive care unit (NICU) results in greater salvage for very low birth weight infants, but at much greater monetary cost and with far less satisfactory developmental outcomes than those achieved by improving the physical and social conditions of the mothers during pregnancy. Thus, although NICUs in the U.S. have lower birth-weight-specific neonatal mortality than those in Sweden, overall Swedish neonatal mortality is lower than that in the U.S. because the proportion of low birth weight infants born in the U.S. is half again higher than that in Sweden (7).

Provision of comprehensive prenatal services, trained birth attendants, and backup hospital services for high-risk pregnancies will reduce psychiatric morbidity among live-born infants (8). Sosa
et al. (9) and Klaus et al. (10) have demonstrated that the presence of a supportive female companion (named a "doula" from the Greek word for experienced woman) during labor and delivery significantly reduced the need for cesarian section; this simple remedy diminished maternal morbidity at an obstetric service in Guatemala. Kennell et al. (11) replicated this striking effect in a randomized trial in Houston, Texas. As the authors state, "labor support is centuries old, but its advantages have now been validated in three controlled studies. . . . Its positive effects should not be overlooked in the trend toward more and increasingly complex technology."

A recently completed randomized prevention trial for women at risk of bearing children with neural tube defects (because of a previously affected pregnancy) revealed a strong protective effect (72%) from folic acid supplementation (12). Where feasible (principally in industrialized countries), screening for elevated blood levels of alpha-fetoprotein, chromosomal anomalies (by cytogenetic methods), and morphologic abnormalities (by ultrasonography) can permit the detection and abortion of abnormal fetuses carried by mothers at risk.

Newborn Screening

A number of congenital metabolic abnormalities can be detected by routine screening of newborns. Notable among the correctable conditions are phenylketonuria (PKU), galactosemia, and congenital disorders of thyroid function—all of which result in severe central nervous system pathology if treatment is not instituted in the first weeks of life and maintained thereafter. The clinical manifestations of the first two conditions can be prevented by appropriate diet and the third by extrinsic thyroxin.

The fact that they occur at low frequency in Caucasian populations (one case per 3,600–5,000 live births for thyroid function disorders, one per 10,000–25,000 for PKU, and one per 60,000–80,000 for galactosemia—13) makes newborn screening a practicable public health measure only in countries with highly developed health services. Although the cost of case detection is relatively high because the conditions are rare, so are the lifetime costs to the community of caring for severely affected children. Even so, screening programs are of little or no value in the absence of a comprehensive follow-up program capable of ensuring that the infant at risk receives optimal care (14).

Childhood Immunizations

According to WHO and UNICEF data for 1990, more than two million deaths in children under age five have been prevented by means of immunization against diphtheria, pertussis, tetanus, measles, polio, and tuberculosis; yet there are still some three million deaths each year from vaccine-preventable diseases because of the failure to extend the vaccination program to all susceptible children (15).

Mortality data underestimate the magnitude of the public health burden because they do not tabulate the morbidity from central nervous system pathology or take into account the psychosocial consequences of chronic handicap among survivors. Full implementation of the WHO Expanded Program on Immunization would not only yield enormous gains in further reduction of mortality in childhood (and thus make parents more willing to forgo large family size) but would spare compromised brain function and psychosocial disability among survivors.
Preventing Malnutrition

Deficits in the intake of specific micronutrients, as well as in overall protein-calorie intake, can impair brain development with major consequences for cognitive and emotional function.

Iodine deficiency disorders (IDD) constitute the most pressing instance of a micronutrient deficiency that leads to brain malfunction. IDD affects more than 400 million people in Asia alone (16). Clinical manifestations include stillbirths, abortions, and congenital anomalies; endemic cretinism characterized by mental deficiency, deaf mutism, spastic diplegia, and other forms of neurologic defect; and impaired mental function associated with goiter. IDD in individuals at risk can be prevented for three to five years with one injection of 2–4 ml of iodized poppy seed oil, a treatment that can be given by primary care workers. To prevent fetal IDD, iodized oil must be administered before conception; treatment even as early as the first trimester of pregnancy is not fully effective. Oil injections are both feasible and practical as an immediate means of controlling endemic IDD. For reasons of cost and convenience, the long-term goal must be introduction of an iodized salt program for the entire population (17). Program success is dependent upon public education to elicit the full support of the population (16).

In another area, three field trials (two with placebo controls) have shown high-dose vitamin A supplementation to reduce morbidity and mortality in children with subclinical nutritional deficiencies (18–20). Iron deficiency anemia has been associated with lowered scores on tests of mental and motor development in infancy. Children who had iron deficiency anemia in infancy are at risk of experiencing long-lasting developmental disadvantage (21).

Worm infestations in children can result in retarded development, both physical and cognitive. It is now possible to treat 19 of the 23 major human helminth infections very effectively with one of three drugs taken orally: albendazole, praziquantel, or ivermectin.

In principle, it should now be possible to treat for iodine deficiency, vitamin A deficiency, and worm infestations by means of oral medication administered at school. Such programs are now being tested in the field (22).

Severe protein-calorie malnutrition, life-threatening in itself, increases the likelihood that exposure to infectious agents will result in clinical disease, because malnutrition impairs host defenses. Furthermore, malnourished persons show more pronounced systemic manifestations of diseases that are more limited in those who are well nourished. Gastrointestinal diseases, made more likely by malnutrition, increase nutritional stresses on the host by increasing caloric requirements of the same time that food intake and absorption are impaired. Traditional folk “treatments” for diarrhea, by reducing intake of food and fluids, worsen the threat.

The conjoining of chronic malnutrition with disadvantageous family circumstances results in retarded cognitive and social development (23). Studies of malnourished children indicate that it is the interacting and multiplicative effects of the simultaneous biological and social insults that result in damage (24). Grantham-McGregor and her colleagues (25, 26) have shown that nutrition plus social stimulation for hospitalized malnourished children, maintained after hospital discharge by parents educated by home visitors, resulted in greater developmental gains than did a program of renourishment alone. Effective remediation must be targeted at the entire complex of social and nutritional deprivation.

Monitoring the growth of young chil-
dren, a simple method well within local resources, permits the early detection of developmental failure. It is one of the four components of the UNICEF "GOBI" initiative: growth monitoring, oral rehydration, breast-feeding, and immunization (27).

Injury Prevention

Accident-related injuries (more appropriately termed unintentional injuries) are the leading cause of "years of potential life lost" in the United States, YPLL being defined as the number of deaths from a given cause multiplied by the difference in years between the subject's age at death and age 65 for each case (28).

Vehicular accidents are a major source of head and spinal cord injuries among survivors. Such injuries are preventable by vigorous enforcement of lower speed limits (29), better highway design, traffic regulations, vigorous prosecution of drunk driving, automatic seat belts, child safety seats, and air bags.

Among children, cycling is a major cause of hospital admissions for head injuries. In a recent study (30), cyclists wearing helmets, as compared to those without helmets, had an odds ratio for brain injury after accidents of 0.12 (95% confidence interval 0.04–0.40).

Poisonings in children can be minimized by mandating "childproof" safety caps on bottles of medication and toxic chemicals for domestic use (31). Blood lead levels in children can be reduced by effective controls on the lead content of gasoline for automobiles (32).

Home Visiting and Enriched Day Care

David Olds and his colleagues (33, 34) at the University of Rochester have shown that a program providing prenatal and postnatal home visitation, transportation for health care, and sensory and developmental screening is effective in preventing abuse and neglect among children born to socially disadvantaged primiparas. The nurse-visited women made better use of community services, experienced greater social support, improved their diets, and reduced their smoking. Length of gestation and newborn birth weights were improved, and there were fewer verified cases of abuse among poor unmarried teenage mothers.

Studies in both developed and developing countries have shown that children growing up in deprived circumstances exhibit deficits in cognitive development, lower levels of academic achievement, and increased rates of behavioral and antisocial disorders (35). These disastrous outcomes can be made less likely through enriched day care programs that involve parents as active participants. Several long-term outcome studies have demonstrated better occupational history, fewer out-of-wedlock pregnancies, and lower rates of academic and behavioral pathology (36–38).

Day care programs can facilitate attainment of a second goal: the teaching of parenting skills to adolescents by having them participate in the care of toddlers under supervision. The effectiveness of this strategy has not been formally demonstrated, but its desirability is indicated by the fact that experience in child care within the family, the traditional way these skills have been transmitted, is becoming ever less available. With smaller family size, both parents working, and more single-parent families, one can no longer take for granted that such "naturalistic" education is available to all children.

Community-based and School-based Programs

Pierson et al. (39) introduced a parent education and diagnostic screening pro-
gram for children in an experimental group provided with periodic developmental exams from six months of age, weekly play groups from two years, and daily prekindergarten from three years. Classroom observation demonstrated that children in the experimental group had less learning difficulty and fewer reading problems in second grade.

Ramey and Campbell (40) evaluated a child-centered prevention program emphasizing language, cognitive, perceptual-motor, and social development for children 18–54 months old. The enrolled children scored significantly higher than controls on a series of tests of mental ability.

Botvin et al. (41) assessed a school-based 12-unit curriculum delivered by peer leaders or classroom teachers, with periodic booster sessions in subsequent years. The goal was to give junior high school students in an experimental group the skills to resist pressures to smoke and use drugs, to help them develop self-esteem, and to cope with social anxiety. The outcome was a reduction in the onset of smoking among students in the experimental group, as indicated by both self-reporting and saliva tests.

These and other model programs have been reviewed by an American Psychological Association Task Force on Prevention (42). The task force noted that the common features of successful programs included “careful targeting of the population, the capacity to alter life trajectory, the provision of social support and the teaching of social skills, the strengthening of existing family and community supports, and rigorous evaluations of effectiveness” (p. 57).

**Prevention in Clinical Settings**

**Iatrogenic Disease**

Iatrogenic disease resulting from inappropriate prescribing practices can be reduced by training primary health care workers in the recognition and management of psychosocial disorders. Gell et al. (43) have documented the high prevalence of mental disorders in primary child health care in developing countries. Training in the recognition and management of psychiatric disorders in general practice can not only reduce unnecessary diagnostic studies and inappropriate medication but can also make effective mental health care available. Psychologic morbidity is a common accompaniment of chronic physical disease; Pless and Wadsworth (44) have shown that it may persist into adulthood. A program of combined comprehensive biomedical and psychosocial pediatric home care has been shown in a controlled clinical trial to produce long-term mental health benefits five years later (45).

**Child Neglect and Abuse**

Child neglect and abuse, major problems the world over, demand prompt and effective intervention. Schoolteachers and health care workers need to know how to recognize neglect and abuse and how to initiate referral to community agencies charged with management. In some instances, visiting homemakers and social workers can help to salvage families so that they become safe places for their children; in others, rapid removal from the home will be essential, not merely for the child’s mental health but for its very survival.

Nevertheless, that is only the first step. Foster care may suffice in the short term if the child’s family of origin can be reconstituted and the child returned to it (for example, when neglect has resulted from an acute family crisis, hospitalization of a parent, eviction from the home, etc.). But over the long run foster care is unsatisfactory. Once it becomes clear that the family is incapable of fulfilling its re-
sponsibility, the child should be legally freed for adoption and an adoptive home found. Over the past 30 years in the United States, the magnitude of the placement problem has grown, but a system adequate for its management is not yet in place (46, 47).

**Epilepsy**

The prevalence of epilepsy in less developed countries has been estimated to be as high as 15 to 50 cases per thousand inhabitants, as compared to rates of 3 to 5 per thousand in industrialized countries. Improvements in obstetric care, more effective accident prevention, and prompt treatment of CNS infections will reduce this prevalence.

Untreated epilepsy is associated with progressive neurologic compromise and increasing psychosocial impairment made worse by the stigma associated with the disorder. Greater skill in recognizing epilepsy and making appropriate use of anticonvulsant medication can markedly diminish the psychosocial handicap (48).

**Schizophrenia and Affective Disorders**

Although the primary prevention of the schizophrenias eludes present capabilities, secondary prevention measures employing neuroleptic drugs for patients and psychoeducational training for family members can reduce the duration of illness episodes and the likelihood of relapse (49–52). Tertiary prevention, by keeping hospital stays to a minimum, redesigning institutional programs, and providing social skills training and sheltered workshops, can avert chronic social breakdown syndromes among patients with chronic disorders (53).

Similar considerations pertain in the case of affective disorders. The knowledge base necessary to permit primary prevention is not yet available, but the use of tricyclics, lithium, and interpersonal psychotherapy (54) can shorten morbid episodes and reduce the likelihood of recurrence (55–56). In view of the long-term morbidity associated with depressive illness (57) and the rising incidence of depression in recent birth cohorts (58), emphasis on the diagnosis and treatment of depression in primary care facilities should have high priority in public health programs.

**IS PREVENTION ALWAYS PREFERABLE?**

Having shown that prevention of some mental disorders is possible, we must still ask: Is it always preferable? From the standpoint of the individual who would otherwise have become ill, avoidance of illness is almost always more desirable than treatment because it avoids the morbidity associated with illness and its care. However, when prevention requires changing habitual behavior, and particularly when change causes withdrawal symptoms (as in smoking cessation), the "cost" of prevention may deter its acceptance. Moreover, in the case of smoking the time lag between risk-taking and its pathologic consequences is a matter of decades. This reinforces public skepticism, especially because smoking cessation reduces rather than altogether eliminates the probability of disease. Although the risk of lung cancer is far greater among smokers than nonsmokers, not all smokers develop cancer, and lung cancer does occur in nonsmokers. Ways of detecting those at greatest risk (presumably because of genetic susceptibility to one or more carcinogens in cigarette smoke) are being sought but have not yet been discovered. Thus, many who would not develop cancer must be persuaded not to smoke, even though nonsmoking does not guarantee good health. The relatively slow progress of anti-smoking campaigns attests to the strength of social forces that reinforce smoking.
From the standpoint of the community, in contrast to that of the individual, decisions about undertaking preventive measures require a weighing of competing social aims (59). To pursue the example provided by smoking, its elimination involves the loss of jobs in tobacco farming and cigarette production, of tax revenues, and of export-generated foreign exchange. These factors do not gainsay the extraordinary benefits from smoking cessation: significant reductions in rates of cancer, ischemic heart disease, chronic obstructive pulmonary disease, prematurity, and other health hazards. But they do highlight the magnitude of the political challenge (60).

Another point: If the incidence of a disease targeted for prevention is low, the ratio between benefit to the individual and cost to the community shifts markedly. Consider the case of maple syrup urine disease (MSUD or branched chain ketoaciduria). The incidence of MSUD in newborns is between one case in 250,000 newborns and one in 300,000 (13). Untreated, MSUD is associated with mental retardation, convulsions, repeated infections, and (in the classic form of the disease) early death. Treatment with diets low in branched chain amino acids can improve the prognosis for the patient if the disorder is detected in the newborn period and if treatment is begun promptly. However, the costs of screening, the low yield of confirmed cases, and the complexity of the dietary regime all combine to make prevention of MSUD a public health measure feasible only where health care systems are highly developed.

COMPONENTS OF ACTION PLANS FOR CHILD MENTAL HEALTH

The available data base suggests that effective child mental health plans should consist of certain components that are generally applicable but that will require different emphasis in different countries and will be more feasible in some countries than in others because of cultural, political, religious, or other considerations. These components include:

1. Family planning. Because enabling parents to control family size is essential for the health of mothers and children, every nation should introduce sex education in the schools, including information about contraceptive methods and their reliability. Sexually active individuals should have access to contraceptives. Safe abortion should be available when contraception fails.

2. Prenatal care. To give all infants a safe start in life, a comprehensive program of prenatal care should be available to all pregnant women. This must include assurance of adequate nutrition and counseling on the importance of avoiding cigarette smoking, alcohol use, and drug use during pregnancy. Appropriate birth attendants must be available for delivery, together with hospital backup for high-risk pregnancies. The stress of labor and parturition can be reduced by having "doulas" available for hospital deliveries. Where resources permit, newborns should be screened for phenylketonuria and congenital hypothyroidism.

3. Immunization. To protect against brain damage and death, the WHO Expanded Program on Immunization should be extended to all infants and children. Reducing morbidity and mortality in childhood will in turn enable parents to plan for fewer births because of greater confidence that their children will survive to adulthood.

4. Optimal nutrition. Growth monitoring of infants and toddlers is essential if malnutrition is to be intercepted. Where appropriate, iron and vitamin A supplementation should be introduced. Iron deficiency anemia should be promptly corrected. In settings where worm infesta-
tions are common, school-based public health programs for treating such infestations with appropriate drugs can improve child nutrition.

5. **Child safety.** To avoid head injuries and consequent brain damage, every country should invest in injury prevention programs. With respect to automobiles, this should include child safety seats and airbags, highway speed limits and modern highway engineering, and measures to reduce drunk driving. Motorcyclists and bicyclists should be required to wear helmets. To prevent accidental poisoning, bottles containing medications or toxic chemicals should have “childproof” tops. In addition, the use of lead-free gasoline and lead-free house paint, together with the progressive de-leading of all housing stock, can reduce blood lead levels in children.

6. **Home visiting and day care.** Infants and toddlers in homes at risk (characterized by poverty, low education, unwed teenage mothers, histories of difficulties with older siblings) will benefit from home visiting by nurses at periodic intervals to advise mothers on infant care, monitor the progress of the child, and mobilize additional community services where they are required. Such children will also benefit from enriched day care programs that not only stimulate cognitive development but also serve as a vehicle to teach skills to parents.

7. **School-based programs.** Universal public education provides an opportunity for age-appropriate education about family life and human sexuality. For older children, education modules about avoidance of smoking and drug abuse can reduce the rate at which children are seduced by “pushers” into health-damaging habits. Programs to enable children to succeed in school tend to enhance self-esteem and reduce psychopathology. Attaching day care centers and nursery schools to public secondary schools provides a natural “laboratory” for instructing adolescents in parenting skills and at the same time increases day care resources for the community.

8. **Mental health in primary care.** Teaching mental health principles to all child health workers will permit earlier recognition and more effective treatment of development and behavior problems in young children. The care of children with chronic physical disorders should include measures to prevent psychologic morbidity. The prevention of epilepsy by better obstetric care, accident prevention, and prompt treatment of CNS infections should be accompanied by training in the diagnosis and treatment of epilepsy when it does occur in order to prevent psychosocial impairment among affected children. In community health clinics and school clinics, all primary care health workers should be alert to signs of child neglect and abuse and be familiar with the process of referral to competent authorities in the community.

REFERENCES


7. Guyer B, Wallach LE, Rosen SL. Birthweight standardized mortality rates and


