Pediatric Behavioral Science in Family Practice

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Behavioral science is a well-accepted component of family practice, but official guidelines and proposed curricula have a predominantly adult focus. This paper describes a pediatric behavioral science curriculum for family practice residents that has been successfully integrated into the three-year family practice residency curriculum at the University of Colorado. Details of development and implementation are presented: the requisite knowledge base, skills, and attitudes; the core pediatric behavioral science topics and diagnoses; the family physician's role in handling each core diagnosis; guidelines for making management decisions; suggested approaches to teaching the curriculum; and a reference list for behavioral science faculty.

Behavioral science is now a well-accepted, essential component of family practice training,[1-9] and behavioral science curricula in family practice has been the topic of many excellent discussions.[2,4,5,8,9] These curricula tend to focus predominantly on adult issues,[2] and official program guidelines have remained very broad, also focusing on adult issues.[2,3] There is, however, an expressed need for more training regarding pediatric behavioral science issues.[10-12] To date, there are no published guidelines and no curricula for the training of family practice residents in pediatric behavioral science.

Substantial guidance exists in the family practice literature regarding the development of new curricula.[3,5,13-15] Any curriculum in family practice should first of all be based in reality and competency.[13] It should (1) reflect the actual content of family practice, (2) describe the knowledge, skills, and attitudes needed by a family physician, (3) outline the expected role and level of capability expected of family physicians in handling each specific condition, (4) be incorporated into training on a daily basis, and (5) document and ensure competency.[13,14] In addition, a behavioral science curriculum must (1) be concrete, practical, and pragmatic, (2) provide theoretical background as necessary, (3) provide techniques that are brief and intervention oriented, (4) use language familiar to the resident, and (5) be compatible with the medical model.[6,8,16,17]

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Family Medicine, a pediatric behavioral science curriculum (PBSC) has been developed that attempts to meet these criteria. This paper describes the development, content, and implementation of this curriculum and an approach to managing pediatric behavioral problems in family practice.

Methods

Development of the PBSC began in late 1977 and was first implemented in July 1978. There has been substantial reassessment and revision each year since then. Curriculum development has involved the following components.

Overall goals were developed by the PBSC coordinator (a behavioral pediatrician) and the other behavioral science faculty (a family physician trained as a clinical psychologist and a psychiatrist), with consultative assistance from the remainder of the family practice faculty, an educational specialist, and a child psychiatrist.

The core topics to be covered in the curriculum were determined by defining what the practicing family physician does in terms of pediatric behavioral science, and determining what family physicians feel they should know. Two resources were used to determine the core issues. The first was the Family Medicine Information System (FMIS), a semiautomated data system that links 12 Colorado family practices (three urban, four rural, five residency practices).[18] A recent FMIS study describes the 32,926 diagnoses of 9,117 pediatric patients in a one-year period in these practices.[19] Frequency data from this study were used to determine the common pediatric behavioral science diagnoses and issues in family practice that the family physician is likely to face at least two to three times a year. The method for doing this has been previously described.[14] These common issues and problems are one main focus of the PBSC. Second, the opinions and practice data of an advisory panel of 36 family physicians (urban, rural, and faculty) were used to determine which less frequent disorders were serious enough for inclusion in the PBSC.[14]

After determining those specific diagnoses and issues the family physician needs to know how to handle, the behavioral science faculty and the special consultants collaborated to determine the prerequisite fund of knowledge needed to handle these problems.

The family physician's role in the management of each issue or disorder was determined by consensus of the advisory panel and closely correlated with the roles these physicians exhibit in their own practice.[14] For each issue or condition included in the curriculum, the appropriate role was chosen from among three alternative categories adapted from those developed by Geyman[13] and those recommended by the Society of Teachers of Family Medicine[15]:

Definitive Capability: The family physician is capable of managing the condition or situation in a definitive manner, requiring consultative assistance only for the occasional atypical or more serious case.

Partial Capability: The family physician is capable of initiating appropriate diagnostic or therapeutic measures and then seeking appropriate consultation or referral. Responsibility for ongoing care is negotiated between family physician and consultant.

Limited Capability: The family physician is capable of recognizing that an abnormality or uncommon condition is present and makes an appropriate referral.

Skills and attitudes desirable for family physicians in handling behavioral issues have been well described.[2,4,5,8,9,20] The behavioral science faculty determined by consensus those behavioral science skills and attitudes that were uniquely pediatric and those that related specifically to the management of the core issues.

A general protocol for assessing and managing behavioral science problems was developed by the PBSC faculty. This protocol provides specific guidelines for the resident to be applied to all pediatric behavioral problems.

Initial planning regarding integrating the PBSC into the residency program included all of the faculty described above. Teaching methods were chosen by the behavioral science faculty after a literature review, and most of the teaching was done by the behavioral science faculty. Subsequent review and revision was done by the PBSC coordinator based on results of periodic evaluation.

Evaluation has included three types of program assessment:

1. Evaluations of conferences, teachers, and teaching techniques were performed by residents

using standard departmental forms and reviewed at least yearly by the PBSC coordinator in order to plan curricular revision.

2. Evaluation of resident performance was performed every six to nine months by the PBSC coordinator using direct observation of resident-patient interactions.

3. The overall effectiveness of the PBSC was assessed by surveying all former graduates of the residency regarding the adequacy of their pediatric behavioral science training in preparing them for practice and regarding suggestions for improvement of their training.

The results of the survey was utilized in the latest revision of the PBSC.

The Pediatric Behavioral Science Curriculum

The overall goal of the PBSC is to assist residents in developing the knowledge base, skills, and attitudes needed to respond to common behavioral problems and questions of children, adolescents, and parents, to diagnose and initiate treatment of common and uncommon, but serious, pediatric behavioral problems, and to anticipate and strive to prevent those behavioral problems that may be preventable.

Thirty-five pediatric behavioral science diagnoses and issues were identified as common enough or serious enough in family practice to warrant inclusion as core topics in the curriculum (Table 1). According to the FMIS data, these issues account for 2.8 percent of all pediatric visits to family physicians, although it is very likely that the actual frequency is higher.[19] "Common behavioral questions, concerns and minor problems" is the most commonly diagnosed pediatric behavioral science rubric in the FMIS data.

When Shienvold et al[7] surveyed family practice residents regarding their behavioral science training in medical school, they discovered a limited and variable preparation. For this reason, it seemed prudent to provide residents with a fund of basic information to ready them for learning to handle the core issues and diagnoses. This basic background information includes the normal stages of psychological, intellectual, motor, language, and social development; temperament and its relationship to behavior; attachment and bonding; the psychological needs of children and adolescents; common childhood, adolescent, parental, and family responses to stress or loss; psychopharmacology (stimulant medication, short-term medication for anxiety); commonly used psychotherapeutic strategies for children; and professional services and community resources. There are other important prerequisite topics, such as family development, family dynamics, health education, and compliance, which were assumed to have been covered elsewhere in the family medicine curriculum.

The basic skills and attitudes that relate specifically to the handling of childhood and adolescent behavioral science issues are listed in Tables 2 and 3. The assumption was made that basic interviewing and counseling skills are taught elsewhere in the curriculum.

Table 1 also presents the roles recommended by the advisory panel of practitioners. For issues listed under "common questions and minor problems," the family physician is expected to have the expertise to definitely assess and manage the problem. For "other common problems often managed by family physicians," the physician may choose either a definitive or partial role. For less common, but very serious or emergency problems, the family physician should be able to recognize the problem, begin treatment, and solicit appropriate consultation or referral as needed. For issues not listed in the curriculum, the family physician should at least be able to recognize that a problem exists and refer appropriately.

The most difficult area for residents to develop a clear sense of their role is "other common problems," since their role may be either definitive or partial depending on the severity, parent's insight and acceptance, the child's age, insight, and acceptance, and the physician's interest, expertise, level of comfort with the problem, and time. It was determined that the faculty should provide residents with guidelines for deciding what role to assume.

General Guidelines for Case Evaluation and Management

Early in the program, it became clear that residents were able to make diagnoses, but they had

Table 1. Behavioral Science Diagnoses and Issues and the Family Physician's Role

Diagnoses and Issues	Family Physician's Role		
	Definitive	Partial	Limited
Common Questions and Minor Problems			
Colic and crying	XXXXXXXXXX		
Sleep-related problems	XXXXXXXXXX		
Feeding problems	XXXXXXXXXX		
Thumbsucking/transitional objects	XXXXXXXXXX		
Tantrums/negativism	XXXXXXXXXX		
Toilet training	XXXXXXXXXX		
Sibling rivalry	XXXXXXXXXX		
Discipline	XXXXXXXXXX		
Sexuality issues	XXXXXXXXXX		
Reaction to acute illness	XXXXXXXXXX		
Adoption	XXXXXXXXXX		
Single parents	XXXXXXXXXX		
Anticipatory guidance	XXXXXXXXXX		
Developmental screening	XXXXXXXXXX		
Other Common Problems Often Managed by Family Physicians			
Common psychosomatic symptoms (abdominal pain, headaches, limb pains, etc)	XXXXXXXX	XX	
Assisting child and parent during life crises (death, dying, chronic disease, handicap)	XXXXXXXX	XX	
Pregnant adolescent	XXXXXXXX	XX	
Family disruption (separation, divorce)	XXXXXXXX	XX	
Enuresis	XXXXXXXX	XX	
Encopresis	XXXXXXX	XXX	
Parent-child interaction	XXXXXXX	XXX	
Disturbance	XXXXXXX	XXX	
Obesity	XXXXXXX	XXX	
Substance abuse	XXXXXX	XXXX	
Attention disorders (hyperactivity)	XXXXXX	XXXX	
School phobia	XXXXXX	XXXX	
Anxiety	XXXXX	XXXXX	
Depression	XXX	XXXXXXX	
Serious Problems Usually Referred			
Suicide attempt		XXXXXXXXXX	
Developmental disorders		XXXXXXXXXX	
Educational/learning disorders		XXXXXXXXXX	
Child abuse		XXXXXXXXXX	
Antisocial disorders		XXXXXXXXXX	
Anorexia nervosa		XXXXXXXXXX	
Psychoses		XXXXXXXXXX	
All Other Problems			XXXXXXXXXX

Table 2. Basic Pediatric Behavioral Science Skills for Family Physicians

Assessment Skills

Be aware of own feelings toward children of different stages and temperaments and different types of parents
Develop relationship with children of all ages, adolescents, and parents
Interview children, adolescents, and parents
Assess quality of parent-child interaction
Recognize families at high risk for psychiatric or parent-child interaction problems

Treatment Skills

Counsel children, adolescents, and parents regarding common, minor behavioral science issues and problems
Counsel families at high risk to prevent behavioral problems
Manage pediatric illness in a manner that minimizes adverse psychological reactions (acute illness, chronic disease, handicaps, hospitalizations, life-threatening illness)
Provide anticipatory guidance
Enhance compliance (adherence)
Work with other professionals and community resources (including school personnel)
Recognize limits of recognition and therapeutic skills, and refer appropriately

Table 3. Desirable Attitudes for Family Physicians in Managing Pediatric Behavioral Illness

Family physician is the child's advocate in addition to being the family physician
Preventive care is at least as important as acute care
Children and adolescents deserve the same degree of respect, empathy and reassurance as adults
Different-aged children have different needs, manifestations of illness, and physiological and psychological abilities to cope; it is the family physician's job to understand and respond to these in an age-appropriate manner
Changes in the family of any kind affect children
Early detection and intervention for behavioral and developmental problems are possible and beneficial
Antidepressants and chronic "tranquilizing" drugs should be used only with consultation
Childhood and adolescent behavioral problems reflect family, cultural, and societal dynamics, not just the child

difficulty choosing appropriate roles and making management decisions. The faculty also felt there was insufficient curricular time for residents to learn to adapt their roles to the unique aspects of each individual case. Furthermore, the process of evaluating pediatric behavioral problems was often too lengthy to be practical in a busy practice setting. For these reasons, a general protocol was developed to guide residents in the rapid assessment and management of pediatric behavioral problems. This protocol is presented to residents as a framework upon which to build their skills or to fall back on when they feel insecure with a particular case. It is not intended to substitute for clinical judgment, but to serve as an aid in developing that judgment in residency and later in practice.

The teaching of prerequisite knowledge, skills, and attitudes early in the curriculum is focused on how to sensitively and quickly evaluate the child and parent to (1) recognize the diagnosis, (2) determine how the family is currently handling the problem and assess the adequacy of their approach, (3) assess parent's insight and receptivity to counseling, (4) assess the child's level of functioning (''normality'') in four major areas—home, peers, school, and self-image, (5) assess parent-child interaction, (6) identify major family stressors, and (7) look for other problems, particularly signs of significant psychosocial problems in parent, child, or other members of the family. The resident is taught to use these assessments and those roles suggested in Table 1 to decide on an appropriate role in management.

For ''common questions and minor problems,'' the family physician usually takes a definitive role unless during his or her assessment he finds more serious problems, poor parent-child interaction, poor level of functioning in two or more areas of the child's life, or significant psychopathology in the parent. When the family physician chooses a definitive role, he is to proceed to actively listen and empathize with the parent, positively reinforce what the parent is doing well, adapt advice to the family's values and beliefs, solicit feedback and negotiate a management plan, and offer supportive psychotherapy where appropriate.

For ''other common problems often managed by the family physician,'' the resident is encouraged to definitively manage only those problems that meet the following criteria:

1. The physician feels comfortable with his knowledge and skills in handling the problem.
2. The problem is of relatively brief duration (less than six months).
3. The evaluation of functioning in the four areas of the child's life (home, school, peers, self-image) reveals just one area of major difficulty or two areas of mild to moderate difficulty. Any greater manifestation of trouble requires referral.
4. The physician is interested in the problem and feels comfortable in working with the family.
5. The parents are generally receptive.
6. There are no other serious psychiatric problems in the child or parents that take precedence.

If the physician chooses to manage the case, plans should be made to assess progress over two to three months; and if there is not significant progress, then referral should be made.

For ''serious problems usually referred'' or problems the family physician is unable to diagnose, the physician's role includes (1) referral to an appropriate resource, (2) advocacy and support for the family and child during evaluation and treatment, and (3) continuing primary care that is sensitive to the behavioral issues.

These simple guidelines are introduced to residents early in their training and are used in precepting in the family practice center. Residents with special interest or expertise may take on more definitive roles with faculty guidance. Other residents may opt for more limited roles, but at least specific roles and guidelines are offered.

Teaching Methods and Integration of PBSC Into Residency

The essential components of the PBSC are the prerequisite knowledge base, basic skills and attitudes, core diagnoses, and a general protocol for choosing appropriate management roles. These components are integrated into the three years of training, primarily within the general behavioral science curriculum and the pediatric offerings.* In general, basic background information is introduced in didactic sessions and group discussions

*Detailed curricular plan available on request by writing to author.

and later reviewed with individual residents in their model practice as specific problems arise. Skills and attitudes are introduced in small-group discussions using videotaped examples, but most teaching of skills is done one on one, using videotapes and direct observation of the resident interacting with patients.

First Year

The PBSC is introduced early in the first year in the one-month "Introduction to Family Medicine" rotation by reviewing the main educational objectives. Basic knowledge, skills, and attitudes are covered during the ten hours of classroom instruction offered in this month.

Normal psychological development is presented didactically, followed by case vignettes that illustrate how each stage affects family life and how it relates to common questions and concerns among parents.[21-27] The psychological needs of children are covered in a group discussion format, encouraging the group to generate a list of needs and how they can be met.[28] A brief didactic presentation on parent-child interaction is followed by videotaped examples of common disturbances or vicious cycles in parent-child interaction.[29-31]

Discussion groups that include residents, faculty, and parents from the model family practice are used in teaching several issues: attachment and bonding,[32-36] childhood temperament,[37-39] reaction to illness,[40-44] physician-patient interaction,[45-48] and compliance.[49-51] Parents have a great deal to teach regarding the perceptions and needs of children and parents on these issues. Specific approaches regarding this teaching technique have been previously described.[52]

There are several good reviews of pediatric interviewing that were useful in the development of the PBSC.[53-57] First-year residents are taught pediatric interviewing techniques in a four-step process: (1) didactic material is presented, (2) videotaped examples are reviewed, (3) the residents interview paid volunteers,[57] and (4) the residents are observed doing child and adolescent interviews in their own practices. Children and adolescents from the Family Practice Center are used as paid volunteers for step 3 of this process. During the "interview" of these volunteers, the residents are encouraged to practice standard interview techniques and then to relax and enjoy getting to know the individual children, adolescents, or parents. This process allows the residents to gain facility in a safe environment, develop comfort with that age group, and it is hoped, learn to enjoy dealing with children and parents. The residents are also introduced to the general protocol for assessing pediatric behavioral problems and choosing appropriate roles by using videotaped examples of three cases, each requiring a different role.

General techniques of providing anticipatory guidance[58-62] are introduced using a videotaped example, followed by a didactic review of common parental questions, anticipatory guidance issues, and minor problems.[59-62] These techniques are also presented in a department manual that is given to residents.

Core pediatric behavioral diagnoses are not covered formally in the first year; instead, they are covered as they arise in the resident's own practice. At that time, the resident's interest and receptivity are keenest. With the resident's first pediatric behavioral case, the PBSC coordinator does the evaluation in order to model basic skills and the general protocol. With subsequent cases, the resident takes on greater responsibility, until during the second year the resident does the evaluation alone observed by the PBSC coordinator.

At regular intervals the coordinator observes each first-year resident in a routine pediatric visit to assess skills and make suggestions on many aspects of pediatric care, including the behavioral aspects. More time is spent with the less-skilled resident.

Second Year

During the six-week "ambulatory psychiatry" rotation, the behavioral science faculty teaches general counseling skills, common behavioral problems, the use of community resources, and psychopharmacology. Approximately one sixth of the curricular time is devoted to the PBSC. A variety of skills useful in counseling are taught in

the general curriculum. These skills include developing a relationship, active listening, accurate empathy, clarification of values, recognition of values and belief systems, feedback and negotiation, advice-giving techniques, use of positive reinforcement, methods of offering support, and so on. There are, however, the following counseling skills needed specifically by the primary care physician regarding pediatric behavioral issues: accurate empathy with the parent's and child's perspective; developing relationship and trust with children, adolescents, and parents; helping parents understand the meaning of a child's behavior; helping parents recognize their child's needs; modeling for parents techniques of communicating with children and being supportive to children; and helping parents to learn other parenting skills.[62-67]

In pediatric psychopharmacology, the following issues are discussed: stimulant medication, medications for enuresis, short-term medications for acute, severe anxiety, and antidepressants (with the admonition that antidepressants in children should be managed by psychiatrists).

"Common problems" and "serious problems" (Table 1) are introduced during this rotation. Whenever possible, the didactic presentation is coupled with a videotaped example or a current case within the Family Practice Center. The case is also used to model the general protocol. Those topics not covered in this rotation are covered in the third-year rotation. The behavioral aspects of medical issues, such as teenage pregnancy, chronic disease, reaction to acute illness, physical handicaps, and obesity, are taught together with the medical aspects during regular departmental medical conferences.

In addition, a pediatric behavioral science bibliography is presented to the residents.[68] References in a behavioral science bibliography must meet the same criteria as the curriculum: practicality, brevity, and compatibility with the medical model and the family physician's role. The references in the pediatric behavioral science bibliography were chosen to meet these criteria.

Precepting in the model practice unit focuses on refining assessment skills and developing counseling skills. The second-year residents use the general protocol to evaluate and manage pediatric behavior problems in their practices while closely observed and assisted by the PBSC coordinator.

Third Year

The pediatric rotation in the third year involves (1) an ambulatory experience with a private pediatrician, (2) elective pediatric subspecialty experiences, and (3) 30 hours of review of core pediatric topics. Precepting in the Family Practice Center focuses on refining skills and adapting the resident's individual approach to a busy practice setting. The resident uses the PBSC coordinator as a consultant.

Continuing Education

Graduates are encouraged to call on the behavioral science faculty for advice or consultation during transition into practice. For some residents, the greatest progress in learning behavioral pediatrics appears to occur during this period.

Evaluation

Evaluation of teachers by residents revealed that they felt the most useful contributions came from teachers who had clinical experience with children and who had a practical rather than a theoretical approach. The highest ratings were given (in the following order) to behavioral pediatricians, general pediatricians, family physicians with additional behavioral science training, psychologists, psychiatrists, and psychiatric social workers.

Evaluation of conferences revealed that the most effective presentations were those in which (1) an "expert" made a didactic presentation and a "clinician" added the practical, clinical perspective, (2) videotaped examples were shown, (3) parents or children were invited to give their perspectives, and (4) guidelines for referral were presented and community resources discussed.

Evaluation of individual residents showed that residents come to the residency with widely varying skills and knowledge base. The residents progress at different rates, with most progress occurring during and immediately after the ambulatory psychiatry rotation and in the last six months of residency. All residents made substantial gains.

The theoretical basis of the PBSC as it now

stands has gained validity by surviving yearly evaluation and revision. Considerable validity is added by the choice of core topics being based on the actual content of family practice and the roles taught to residents being determined by practicing family physicians. In addition, a survey of graduates of the residency has shown an increase in both the physicians' sense of personal competence and their evaluation of the adequacy of training in pediatric behavioral science during each year since the PBSC was implemented.

The clinical efficacy of the general protocol to pediatric behavioral science problems has not been fully evaluated. However, a study is currently under way to do so.

Discussion

It has long been assumed in medical education that as long as the resident is seeing patients and has faculty around to supervise, the appropriate curriculum will eventually emerge.[9] This is a fallacy.[13,14] The discipline of family practice is at a point at which its breadth has been defined; the next task is to define its depth. The Family Medicine Information System (FMIS) study on pediatric care in family practice is one attempt to define depth in the pediatric domain.[19] The common pediatric behavioral science topics identified by the FMIS are similar to those identified in the only other family practice content study of this topic.[69] Now that it is possible to define what residents should learn, curricula can be designed that specifically teach it, not by chance, but by design.

Some of the advantages of the Pediatric Behavioral Science Curriculum (PBSC) are that it is based on what family physicians actually do, it directly addresses the family physician's role, the knowledge base, skills, and attitudes taught are those that are directly relevant to what physicians do and the family physician's role, the educational process is adapted to the needs and limitations of the different levels (year in program) of the residents, and it provides a simplified protocol for approaching these problems on which the resident can lean while gaining experience. From the resident's standpoint, the main advantage is that the PBSC puts a limit on what the resident needs to learn about pediatric behavioral science. Residents often have little perspective on the depth of knowledge required in family practice and the family physician's role in management. It can be very reassuring for residents to discover that they need to master only 35 topics in this area, and that their role is a partial one for many of these issues. By receiving a list of expectations early in their first year, residents gain a sense of control over the educational process.

The obvious disincentives are that this approach requires a considerable amount of specific curricular time and expenditure of faculty energy, and it requires the identification of qualified teachers in this domain. For many programs the likely person to take responsibility for a pediatric behavioral science curriculum may be a community resource rather than full-time faculty.

In the future, there will be a need for this kind of approach to curriculum design in other areas of family practice, further refinement of this approach, and more formal methods of documenting its efficacy.

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