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24TH ANNUAL STONEBURNER LECTURE SERIES

Symposium on Adolescent Medicine

COVER Graphic interpretation of "Psychology of Drug Abuse" based on a lithograph, "Nightmare," by Rockwell Kent. Reproduced from *Medicine and the Artist* by permission of the Philadelphia Museum of Art.

Introduction

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"No longer children and not yet adults." Adolescents make up one of the most difficult but rewarding areas of the practice and art of medicine. This age group challenges the physician to understand and deal with a multiplicity of problems such as drug abuse, scholastic problems, venereal disease, pregnancy and a variety of other adolescent medical problems. Adolescents are fun; they are full of energy and feel sure of themselves.

The adolescent development is characterized by rapid changes in physiological and psychological development. In today's society their quest for independence and metaphysical experiences has created unique problems for the physicians to solve. These problems are continuing to be neglected by far too many people. The key to working with the many faceted problems presented to your office lies in establishing confidence, friendship and loyalty with the individual. Once such a relationship is established, the adolescent will want to continue this association until he is "too old" for you to offer care.

This issue offers you some sound sympathetic guidelines for dealing with a variety of problems commonly presented in offices and hospitals throughout the country. The basic philosophy of adolescent medicine is comprehensive care—promoting physical, mental, social and moral health for all of your adolescent patients.

Gynecological Problems of Adolescents*

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Introduction

In childhood, prior to adolescence, vaginal bleeding is only rarely a problem. During adolescence, however, vaginal bleeding (or the lack of it) is a common complaint.

The average age of first vaginal bleeding, or menarche, in the United States is between 12.5 and 13 years. Around two years prior to this, however, there has been budding of breasts and the appearance of pubic hair. During the year before menarche, there is pigmentation of the nipples and the breasts fill out. Axillary hair does not appear until about the same time as the first menses.

The degree of skeletal maturation is a better indicator of the stage of a girl's development than her chronologic age. It is generally agreed that most girls have their first menstrual period when their skeletal age is between 13.5 and 14 years, regardless of their chronologic age.

The average menstrual cycle lasts 28 or 29 days, although cycles from 21 to 40 days are considered within physiologic limits. The normal human female usually ovulates between the 11th and 17th day of the menstrual cycle; this is usually 14 days before the beginning of the next menstrual flow. The bleeding usually lasts from 3 to 7 days and blood loss is about 60 ml. Normal menstrual bleeding consists of a sloughing off of the more superficial portions of the endometrium, leaving only the basal layer. This occurs when the endometrium has been caused to proliferate by priming with estrogen and then is converted to a secretory state by progesterone. When the progesterone is withdrawn, the sloughing or normal menses occurs. On the other hand, when progesterone has not acted upon the endometrium (as would be the case if ovulation had not occurred) and the endometrium has been stimulated only by estrogen, the woman will not experience menstrual type bleeding. She may experience uterine bleeding, but this is usually of an irregular nature and due to fluctuations in the estrogen level. When the estrogen level decreases somewhat, the more superficial portions of the endometrium do not have adequate hormonal support and break away, often resulting in heavy and prolonged bleeding. These episodes of bleeding do not occur at any cyclic interval, and in fact the woman may experience no menses at all for prolonged lengths of time.

The first vaginal bleeding cycles are commonly anovulatory. Some authors divide adolescence into early and late periods using the first ovulation as the dividing point. They consider early adolescence synonymous with puberty, beginning with the menarche and ending with the first ovulation, and define late adolescence as beginning with the first ovulation and ending when the woman becomes mature. Early adolescence may last two or more years, but may never occur if the girl ovulates before her first episode of vaginal bleeding. The young woman may then pass rapidly into the state where she is capable of normal reproduction, although the fact that a human female is able to produce a fertilizable egg is certainly not to say that she is mature.

Amenorrhea

If menarche has not occurred by age 16, some investigation is in order. A diagnosis of primary amenorrhea is not usually made until after age 18, but if no menses have occurred between age 16 and 18, the condition is called "delayed menarche."

In cases of amenorrhea, a complete history should be taken, with particular emphasis on symptoms which could be caused by endocrine pathology or previous abdominal surgery. The family history should include menstrual and reproductive histories of the mother, aunts and sisters. Examination of the patient should include a general physical examination as well as a pelvic examination. Particular attention should be paid to lateral visual fields and the thyroid gland. The presence or absence of facial, axillary, pubic, chest and other body hair should be noted. Breast development

* Presented at the 24th Annual Stoneburner Lecture Series, February 26, 1971, at the Medical College of Virginia, Richmond.

and general body habitus may also be significant. Some form of pelvic examination should be done for all of these girls. Certainly the external genitalia may be inspected and the clitoris examined. In the vast majority of these girls, a speculum examination of the vagina may be done, perhaps using a small speculum. The cervix may be visualized and a smear taken from the upper vaginal mucosa for a maturation index of the superficial cells. A gentle bimanual examination using one or two fingers is then done, and the uterus and adnexal areas palpated in this manner. A rectal examination is done routinely, and in some patients, a rectal examination will offer the only opportunity for palpation. In such patients with a small vaginal introitus, inspection of the vagina may be performed using an endosope such as a culdoscope lens system.

Several conditions may become apparent at the time of physical examination. The first of these is an imperforate hymen. The hymen is located at the site where the lower portion of the vagina buds from the urogenital sinus. If a lumen does not develop at the point where the vagina arises, the result is an imperforate hymen. Usually these are not discovered until puberty and symptoms may arise from the accumulation of menstrual blood. Cyclic abdominal pain is a common symptom, but in some cases large amounts of blood can accumulate in the vagina, uterus and tubes without causing great discomfort. On examination, the hymenal membrane may be seen bulging and a mass will be palpated anteriorly on rectal examination. The treatment of this is simple incision or excision of a triangular flap.

A transverse vaginal septum is a similar condition. It probably arises as a failure of union between the downgrowing Mullerian duct and the upgrowing urogenital sinus during embryologic life. In some cases, a transverse vaginal septum may be associated with a sinus tract through which the patient menstruates. In other cases, the septum may be complete and symptoms similar to those of imperforate hymen will be seen. Usually the septum will occur at the junction of the upper and middle thirds of the vagina, providing the girl with a short vagina. Unless the sinus tract is large enough to dilate, the treatment of this is surgical, the exact procedure being determined by the thickness of the septum. This condition may be confused with testicular feminization, because in either case patients appear to be feminine and have short vaginas with no identifiable cervices. A buccal smear usually distinguishes the two groups, the patient with the imperforate hymen having a normal female Barr body present.

Congenital absence of the vagina may also be present. Sometimes these people have a normally developed lower vagina for a few centimeters, but most times the entire vagina and uterus are absent. The diagnosis is not usually made in infancy or childhood, but instead the patient seeks medical advice because she has amenorrhea despite the development of normal secondary sex characteristics and growth. These girls have ovaries and usually have the upper portion of the fallopian tubes. These commonly end at about the level of the uterine cornua, although in some instances a rudimentary uterus without an endometrial cavity may be present. Urinary tract anomalies are associated in a significant number of these patients, so x-ray of the urinary tract is desirable. An artificial vagina can be satisfactorily created surgically. Following surgery, this has a tendency to constrict unless it is kept dilated, so surgery is deferred until about 6 months prior to marriage. This allows the operative site time to heal and during this time the patient wears a foam rubber dilator, initially all the time, and later only at night. After marriage, regular coitus is adequate to maintain dilatation. Some adolescent girls with congenital absence of the vagina will develop psychiatric problems because of this, and in this group the procedure may be done prior to any plans for marriage, "to keep her from being different."

In cases of amenorrhea where there is no obvious physical cause, the initial laboratory work should include a test of thyroid function and a test to exclude the adrenal as a cause for the amenorrhea. These are currently done by obtaining serum for free thyroxine and a 24-hour urine collection for 17-ketosteroids. If there is any suggestion of Cushing's syndrome from physical examination or history, a 24-hour urine for 17-hydroxysteroids should be collected. If there is any suggestion of adrenogenital syndrome, a determination of urinary pregnanetriol would be indicated. As noted earlier, a maturation index is obtained from the vaginal mucosa.

Once this initial laboratory work has been done, the patient is given a pure progestin to help establish the diagnosis of anovulation. If the patient's problem is simple anovulation, that is, she is producing adequate estrogen but is not ovulating, the addition of a progestin such as oral medroxyprogesterone 10 mg daily for 5 days will result in withdrawal bleeding resembling menses several days after the cessation of treatment. The progestin converts the proliferative endometrium to secretory endometrium and its withdrawal is then followed by a slough of the superficial endometrium. If bleeding does occur, this (1) suggests there is adequate endogenous estrogen being produced and that anovulation is the problem, (2) establishes the fact that the patient is not pregnant, and (3) also establishes the fact that the patient has an endometrium capable of bleeding and that this blood has a passageway to escape from the uterus to outside the body. If the progestin is given and there is no withdrawal bleeding in 1 week, the patient is then given an estrogen as well as a progestin. This could be done by giving her oral norethynodrel 5 mg with

mestranol 0.075 mg daily for 5 days, or giving ethinyl estradiol 0.1 mg daily for 14 days with medroxyprogesterone 10 mg daily taken concurrently on days 10 through 14. If this is followed by withdrawal bleeding, this indicates that (1) the patient is not producing endogenous estrogen, (2) she is not pregnant, and (3) the endometrium is capable of bleeding and the flow can escape. This is a group of patients in which the assay of pituitary gonadotropins is useful in establishing the cause of no estrogen production. Total pituitary gonadotropin in the urine should be either high or low, but not normal. If the value is high, it would indicate that this primarily is an ovarian problem, and despite high levels of gonadotropins the ovary is not producing estrogen. If, on the other hand, pituitary gonadotropins are low, it would indicate that the ovary is not being stimulated.

The patients who do not bleed after estrogen and progestin therapy should be carefully evaluated for a possible pregnancy. Once this possibility has been excluded, the cervix should be sounded to rule out the possibility of cervical stenosis and the uterine cavity probed to establish the fact that there is, indeed, a cavity to the uterus. In most instances, this can be done in the office without hospitalization.

Most of the patients seen for amenorrhea will be found to have anovulation and to be producing adequate endogenous estrogen. They may then be treated with oral medroxyprogesterone 10 mg daily for 5 days, beginning cycle day 22 of each month. This will result in regular withdrawal bleeding, occurring about every 28 days and lasting a normal length of time. When administered in this way, the drug certainly will not interfere with spontaneous ovulation, should it occur. Until spontaneous ovulation does occur, the patient will experience regular bleeding. Such medication may be administered for 6 months and then temporarily discontinued to see what bleeding pattern the patient will exhibit on her own. After experiencing several such episodes of bleeding, some girls indicate that they would rather not be bothered with vaginal bleeding at monthly intervals. It is beneficial for the superficial endometrium to experience a slough as normally occurs from a secretory endometrium several times a year, so this group of girls may be given a progestin at 4 month intervals until spontaneous menses begin.

The amenorrhea associated with anovulation may be secondary to psychogenic factors. Psychic shock, fear, unhappy home or school conditions, and insecurity can cause both primary and secondary amenorrhea. Sometimes this is associated with simple anovulation but at other times the patient stops producing estrogen also. In this latter group, the administration of progestin alone will not result in withdrawal bleeding and the patient must receive estrogen priming before such withdrawal bleeding will occur. If pituitary gonadotropin levels are low in the face of no endogenous estrogen production, pituitary and hypothalamic pathology should be excluded. Old injuries (such as from high fever or trauma), tumor and pharmacologic effects should be ruled out. The history, skull x-rays and visual fields are particularly helpful here. In a few cases of hypothalamic disease, amenorrhea will be associated with galactorrhea, but such cases are rare.

Other causes of amenorrhea with a hormonal basis include Turner's syndrome, gonadal dysgenesis without Turner's syndrome, testicular feminization, adrenogenital syndrome and polycystic ovary syndrome (Stein-Leventhal syndrome).

In Turner's syndrome, the condition begins with an accident in miosis or mitosis of the ovum. These people have only one sex chromosome instead of two, and when the area normally occupied by ovaries is examined, usually only a streak of fibrous tissue is found. Histologically this resembles ovarian stroma which contains no follicles. These individuals do not ovulate or produce estrogen or progesterone and their pituitary gonadotropin levels are high. In addition to the lack of any secondary sex characteristics and menstruation, there are associated findings which are not caused by estrogen lack. These include shortness of stature, scant pubic and axillary hair, exaggeration of the carrying angle of the elbow, webbing of the neck, and coarctation of the aorta. These patients do have a vagina and uterus, and when exogenous estrogen and progestin are administered, they will develop secondary sex characteristics and have menses.

Some women will also have streak ovaries which do not produce estrogen but present an entirely different clinical picture. These women have normal female sex chromosomes, and all of their findings are secondary to the absence of gonads. The associated findings of Turner's syndrome are absent. Instead of being short, these patients are eunuchoid, tall, and have an appearance similar to that seen in persons castrated prior to puberty. These patients may be also treated with estrogen and progestin. In these cases, epiphyseal closure may be promoted and there will also be development of secondary sex characteristics and menses.

Individuals with testicular feminization have the XY chromosome compliment seen in normal males, but certainly do not appear to be males. In fact, these patients on cursory examination appear to be normal females. They are of normal height, have normal breast development, and are not hirsute. Pelvic examination will disclose a short vagina and the absence of a uterus. There is usually scant or absent axillary and pubic hair and the patient may have an inguinal hernia or evidence of a previous herniorrhaphy. The hernias are associated with cryptorchid testes. The clinical findings are due to a lack of end-organ response to androgens. All testes normally secrete some estrogen as well as testosterone. In these people with testicular feminization the testosterone exerts no pe-

ripheral effect, so estrogen is the only sex hormone acting, and female secondary sex characteristics develop. Since these cryptorchid testes have a malignant potential, removal has been advocated, and after castration, testosterone levels fall precipitously and estrogen levels fall somewhat less dramatically. Following this surgery, most of these patients should be given replacement estrogen medication.

The adrenogenital syndrome due to congenital adrenal hyperplasia has its onset in intrauterine life. It is due to enzyme blockage in the adrenals with resulting elevation of urinary 17-ketosteroids. There are several types of this syndrome, but the most common one has a partial block in the synthetic pathway for cortisol resulting in the production of 17-ketosteroids and pregnanetriol. In addition to the amenorrhea, these people will have early development of hirsutism, accelerated development in length and weight, advanced bone age on x-ray and associated virilization. Treatment with cortisol will result in the onset of ovulatory menses and in many cases reduction of the hirsutism. When hirsutism is associated with amenorrhea, one should also exclude adrenal and ovarian tumors as well as Cushing's syndrome.

Patients with polycystic ovary syndrome will have bilaterally enlarged polycystic ovaries and failure of ovulation. Typically, a girl goes through normal early adolescence and may even ovulate for a time before stopping. In some cases there may be no spontaneous menses. Hirsutism may be mild or severe, but virilization does not occur. The ovaries in this condition are about two to four times normal size and contain many small follicles beneath the capsule. The primary defect, however, is not thought to be in the ovary, but in the hypothalamus or higher centers resulting in an improper secretion of pituitary gonadotropins. The traditional treatment for polycystic ovary syndrome was wedge resection of the ovaries. In some manner, reduction of ovarian mass changed the feedback effect on the hypothalamus, and pituitary gonadotropins were then secreted in a proper ratio. Such effects did not last forever, and commonly after a year or so of ovulatory menses, the original condition returned. More recently, it has been possible to induce ovulation in most of these women by the use of clomiphene citrate or menopausal gonadotropin. This is given only during the months when pregnancy is desired. In order to have regular menses at other times, withdrawal bleeding from exogenous sex steroids may be utilized. In most cases, sequential estrogen-progestin is given here, because the estrogen has a beneficial effect on the hirsutism; the progestin then induces a secretory change in the endometrium resulting in a menstrual type slough when the progestin is withdrawn. In some cases, the estrogen is given continuously; in others, both estrogen and progestin may be stopped on the same date, with the estrogen therapy being resumed one week later.

Menorrhagia and Metrorrhagia

Anovulation may also manifest itself by episodes of frequent, heavy or prolonged vaginal bleeding. The work up and long-term therapy of such patients is the same as when the primary symptom was amenorrhea. There is in addition, however, the initial problem of getting the bleeding stopped. Dilatation and curettage of the uterus is only rarely needed. Most of these girls will stop bleeding when treated with estrogen. Their bleeding has occurred when their circulating estrogen level has dropped, so they may be logically treated by exogenous estrogen. In some cases, oral estrogen is adequate therapy. In other cases, when hemorrhage has been profuse, bleeding may be controlled by the administration of intravenous conjugated estrogens 20 mg, repeated once in 6 hours if necessary. At the same time that intravenous therapy is given, oral medication is also started. The patient may be given oral conjugated estrogens 1.25 mg three times a day, ethinyl estradiol 0.1 mg daily, or any of the commercially available oral contraceptive tablets (preferably those with higher estrogen content). When oral estrogen alone is given, the patient should take this medication for 21 days and on the last 5 days should take medroxyprogesterone 10 mg. This will cause secretory changes in the estrogen stimulated proliferative endometrium and will result in normal type bleeding when both estrogen and progestin are withdrawn. In subsequent months, medroxyprogesterone alone administered 10 mg a day for 5 days, beginning cycle day 22, is usually adequate to prevent abnormal bleeding.

Dysmenorrhea

Painful menstruation during adolescence is usually primary; that is, it is not associated with congenital anomalies or organic disorders. Such discomfort usually does not appear until several years after the menarche, and is thought to appear at the same time that the girl begins to ovulate and have ovulatory menses rather than while she is having anovulatory bleeding episodes. A distinction was previously made between early and late adolescence on a basis of whether menses were ovulatory. If that classification is retained, primary dysmenorrhea is a symptom of late adolescence.

Dysmenorrhea pain is recurrent, sharp, and cramping or contraction like in character. It is usually located in the suprapubic area and may precede the onset of flow, may not occur until bleeding actually occurs, or may not appear until after bleeding has been established for several days. Associated symptoms may include malaise, headache, backache and lethargy. Since this is usually associated with ovulatory menses, these girls usually do not have any his-

tory of menstrual irregularity, but instead have quite regular menses.

The cause of primary dysmenorrhea is not known. It most likely has something to do with uterine contractions, but the exact nature of this is not clear. In addition, there seems to be some psychogenic influence in that some girls have been conditioned in childhood by their mothers or older sisters to look upon menstruation as "being sick." Physical examination, of course, should be done, in an effort to rule out any organic or congenital obstruction to menstrual flow.

The milder cases can be treated with a combination of mild analgesics and amphetamine. Such medication should not be taken at night, but the effects of amphetamines as a uterine muscle relaxant are beneficial and useful during daytime. If the patient continues to has severe symptoms, the use of an estrogen-progestin combination oral contraceptive agent is useful. This inhibits ovulation, but supplies exogenous progestin. How this prevents dysmenorrhea is unclear, but it does so in a majority of these patients. Some physicians worry about the propriety of giving a medication which can be recognized as a contraceptive agent to an adolescent girl, fearing that if she knows the effects of the medication this will inspire her to engage in premarital coitus. As other contraceptive methods are readily available over-the-counter at drugstores and even at discount stores, the availability to her of another contraceptive method is not likely to influence the girl's social behavior. Since combination oral contraceptive agents have been used for this purpose, the number of presacral neurectomies done to relieve dysmenorrhea has diminished greatly.

Mittleschmerz or ovulatory pain also is a symptom of late adolescence as opposed to early adolescence. The discomfort is usually described as a slight aching in one side of the lower abdomen, although it may be quite severe. At times, it is so severe that when it is located on the right side, the possibility of appendicitis is seriously entertained. The cause of midcycle pain is unknown. Moderate amounts of free blood do not cause peritoneal pain, but in some manner the peritoneum becomes irritated. The menstrual history and the time of occurrence of the pain are most useful in making the diagnosis.

Leukorrhea

Not all vaginal discharge is pathologic. Increased vaginal fluid is very common in adolescent girls. The girl may interpret the normal estrogen stimulated secretion of the endocervical glands as a pathologic condition. In a normal ovulatory cycle, such secretion is greatest at the time of highest unopposed estrogen levels, that is immediately before ovulation. In early adolescence, estrogen is the only hormone which is acting upon the endocervical glands, and such secretion may be present continuously. When the girl begins to ovulate, such secretion will diminish and will be of increased volume for only several days each month.

The second most common cause of leukorrhea in adolescent girls is infection with Candida albicans. The increased incidence in diabetic females is well known. Systemic antibiotic therapy may be followed by Candida infection, and pregnancy as well as therapy with oral estrogen-progestin contraceptive tablets may also predispose to this. The scanty discharge is thick, white and curd-like in appearance. In addition to leukorrhea, the patient may have vaginal and vulvar puritis with associated excoriation on the vulvar areas. The diagnosis can usually be made by inspection of the vagina and may be confirmed by culture on Nickerson's media. Culture tubes containing Nickerson's media are available commercially and may be incubated at room temperature for 2 days and subsequently examined in the physician's office.

Infections may be treated first with nystatin vaginal suppositories which are inserted twice daily for 12 days. If vulvitis is also a symptom, nystatin cream is applied here. If the nystatin does not clear up the infection, gentian violet may be used. This is highly effective in eliminating the condition but the purple staining of undergarments, bed sheets and towels may be a problem.

Vaginal trichomoniasis is relatively uncommon in the younger adolescent. It becomes more common as the girls grow older and is particularly common in girls who have had intercourse. On the other hand, the number of cases in which vaginal trichomoniasis occurs without the possibility of direct sexual contact with an infected male is so large that we must consider this a disease that can be transmitted several ways, only one of which is by coitus. The girl will complain of an irritating profuse discharge. There may be perineal itching or burning with micturition and sometimes the symptoms are worse just before and immediately after menses. On examination the vagina is filled with a copious frothy, watery, dirty ivory colored fluid. When the vaginal mucosa is involved severely, a strawberry or red punctate vaginal eruption may be seen, but many cases of vaginal trichomonous exist without this finding. The diagnosis is made by finding Trichomonas vaginalis in wet smears of the vaginal fluid. The fluid should be examined immediately after being diluted with warm isotonic saline solution. Hypotonic solutions as well as cooling, drying or changes in the pH will quickly kill the organisms. The organisms, which are protozoa, may be seen swimming about on the wet smear. Vaginal trichomoniasis may be treated with metronidazole 250 mg three times a day for 10 days.

Non-specific vaginal inflammations are commonly associated with leukorrhea in adolescent girls. There is little or no irritation or discomfort due to this leukorrhea except that there may be some dysuria.

There is usually no vulvar inflammation, but the vagina is inflammed and the discharge varies from a scanty thin fluid to a purulent grayish-yellow leukorrhea which is profuse enough to necessitate the wearing of perineal pads. These cases, as well as mixed infections with monilia or trichomonas, may be treated with vaginal suppositories of furazolidone with nifuroxime. Sometimes the non-specific vaginitis is associated with a congenital cervical erosion or an erosion which is secondary to the vaginitis. Such erosions do not usually need cautery and if they are secondary to the vaginitis, they clear up when the vaginitis clears.

Venereal Disease

Acute gonorrhea is accompanied by a profuse purulent, yellowish green discharge. This will appear 3-8 days after the girl has had coitus with an infected male and may be associated with dysuria or vulvar burning. In some cases there is very little discomfort. The profuse, thick, creamy vaginal discharge may persist after the acute symptoms have gone away and may be seen to be coming primarily from an eroded cervix. There may be associated infection of the Bartholin's glands or of the periurethral glands. Unfortunately, female patients are not as aware as males of a urethral discharge and 80% of females with gonorrhea are asymptomatic. The gonococcus usually does not rise above the internal uterine os except during menses and this results in symptoms of acute salpingo-oophoritis commonly occuring just after menses. The patient will have bilateral lower abdominal pain and tenderness, adnexal thickening and tenderness, fever and leukocytosis. Pelvic peritonitis, with rebound tenderness and a palpable abscess in the tube or ovary may be associated findings. Gram stain may be applied to smears, and cultures may be made on the new Theyer-Martin or Lesser-Martin culture media which is most specific for gonococcus. The results are available in 48 hours, and as a screening technique this method will pick up about 90% of the cases. It is probably best to take smears from the cervix, vagina, urethra and rectum. The treatment of acute gonorrhea in the female is a single injection of 4.8 million units of procaine penicillin G.

Patients with gonorrhea should also be examined for syphilis, using the absorbed flourescent Treponema antibody test. This becomes positive in about 20 days after exposure, so it is positive during the time of the primary lesion. The presence of a chancre on the vulva, in the vagina or on the cervix, is rarely noted and the manifestations of secondary syphilis may be the first symptoms noted by the patient. The primary lesion, or chancre, develops at the site of innoculation, 3 to 6 weeks after the Treponema pallidum enters the body. It rarely is a well-defined punched out ulcer with a hard base, as seen in the male, but may be a painless, flat, moist abrasion or a flat, superficial, excoriated type of ulcer. The chancre heals spontaneously, and about 6 weeks after its appearance, secondary syphilis may appear. This is typically manifested as a symmetrical, macular, papular, non-irritating rash which may involve the palms and soles as well as the trunk and extremities. Other findings include mucous patches of the oral mucosa, condylomata lata, iritis or neurorectinitis, alopecia, generalized lymphadenopathy, and constitutional symptoms such as malaise, lassitude, headaches and fever. The VDRL (cardiolipin) test is positive by the time secondary syphilis is noted. The treatment of primary or secondary syphilis is a single injection of 2.4 million units of benzathine penicillin G.

Rape

From time to time, girls allege that rape has occurred and they seek medical attention. If the victim is not brought in by the police, officials should be notified. The definition of rape varies from state to state. In Maryland, for instance, penetration of the vagina by the penis is required, but in the Commonwealth of Virginia rape occurs when force is used to cause contact of genitalia without consent of the person being raped. Statutory rape, on the other hand, occurs when the girl gives consent to coitus but is 15 years of age or under.

An evaluation for suspected rape should include a good history, which should be obtained and written down as quotations in the patient's words. The time, place and circumstances should be recorded, as well as the patient's emotional state and whether a bath had been taken since the incident occurred. The examination should include a statement concerning the general appearance of the patient including evidence of trauma such as bruises, lacerations or torn clothes. Particular attention should be paid to evidence of trauma about the external genitalia. A speculum examination should then be carried out with a non-lubricated speculum. A cotton swab should be saturated with fluid present in the vaginal cavity. A small portion of this should be put on each of two glass slides and allowed to dry. The swab should then be placed in a test tube and sealed with a cork. These specimens will be examined microscopically for sperm and biochemically for acid phosphatase. These specimens, along with any garments that appeared to contain stain, should be labeled with the name of the victim, date and hour of alleged rape, hour of medical examination and name of physician. All of this "evidence" should be securely kept under lock until arrangements have been made for transfer to a designated local laboratory or to the office of the Chief Medical Examiner. If it is to be mailed, certified mail or insured mail with return receipt should be used.

The oral administration of 25-50 mg of stilbestrol a

day for 5 days or the oral administration of 2-5 mg a day of ethinyl estradiol for 5 days, beginning therapy the day after coitus, consistently prevents implantation. The primary side effect with this therapy is nausea and vomiting. Sometimes this is quite severe, in spite of the concomitant administration of antiemetic agents. The nausea and vomiting, however, is usually experienced on the first day of therapy and the remaining 4 days are associated with this symptom. The patient may experience breast soreness and the first menses after therapy may be associated with menorrhagia. The mechanism of action is still unclear. The expected basal body temperature rise is frequently inhibited, and the endometrial histologic picture does not progress normally. Perhaps the endometrium is made more acid, and this contributes to failure of implantation.

Since the attacker may have had a venereal disease, some physicians give prophylactic antibiotic therapy. If there is no indication of penicillian allergy, 2.4 million units of benzathine penicillin may be used.

Psychology of Drug Abuse*

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Introduction

Drug abuse in this country and, to a lesser extent, in the industrial countries of Western Europe has become one of the major topics of discussion at all levels of society. Volumes are being written about it, millions of dollars are being spent to control it, but comparatively little effort is devoted to deeper understanding of the phenomenon. It has become part of the age long struggle between the young and the old, between the rich and the poor, between the white and the black, and between the lawless and the law abiding. It has certainly added to the polarization between the younger generation and the establishment. It has evoked numerous presidential pronouncements, appointments of congressional committees, and has given birth to new breeds of martyrs advocating legalizing use of all drugs by all adults, plus saviors of national morals and safety on the other side who advocate even stiffer penalties for possession of marijuana. As a result of prolonged and growing publicity regarding the issue of drug abuse, there has been a direct financial benefit to all news media, publishing companies, illicit drug sellers, and pharmaceutical firms.

While all drugs, in fact, are being abused, I shall concern myself only with those drugs which are being abused because of their potential for producing a change of mood and/or an altered state of consciousness. This group of drugs has been used since prehistoric times; for example, the cannabis group has been known and written about for some 5000 years. The early man, who largely relied on plants for food and medicine, soon found that a number of plants, when ingested, could produce in him altered states of consciousness, abolition of pain and change in mood. These drugs which we now call hallucinogens or psychedelics were used with great ceremony, and some were thought to be sacred. They were not used with levity but were closely guarded and usually used by priests for purposes like religious sacrament, healing, foretelling the future, communication with the gods, communication with the dead, or foretelling the disposition of the enemy on the other side of the mountain.

Motivation for Drug Abuse

Berger and Porterfield (1969) state: "Persons may use drugs to obtain one or more of the following goals":

1. To achieve detachment from personal problems and troubles and to produce a state of well-being
2. To establish an involvement with the subculture that offers an identity and an identification in society
3. To express hostility towards respectable society and as a protest against the injustices and restrictions imposed by the establishment.

Motivational factors may be divided into personal and societal.

Personal

Personal motivation for drug abuse may center around overwhelming intrapsychic conflict, present especially during adolescence and centered around adult sexuality, hostility, dependency-independency issues, and identity diffusion. Secondary factors, arising largely from this first group, may be:

1. Fear of competition and failure
2. Fear of homosexuality
3. Fear of threatening mental illness or disintegration
4. The need to rebel
5. The need to be caught and punished
6. The need to explore the limits of one's body and psyche and to challenge one's resources
7. The need for a hedonistic or orgiastic experience
8. The need to belong to a group or subculture
9. The need for instant relief or instant answers (chemicals produce the most instant change).

Societal

In the last 20 years, the pharmaceutical industries have made enormous strides in alleviating or even curing a vast number of conditions.

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The information explosion, the constant bombardment that we experience from all the media of communication have drastically altered our concept of time and space and have made us aware of some enormous problems, like hydrogen bombs, pollution and over-population, with the resulting increase in frustration, anxiety and, indeed, despair.

Society is in constant search of escape, one of the quickest temporary means of escape being drugs.

The *television,* from a simple machine, has become the national babysitter, the substitute parent, the teacher, the preacher, the indoctrinator, and almost an extension of our bodies. Children spend an enormous amount of time in front of television before they are old enough to select and judge. Mothers in India may put opium on the children's breakfast and mothers in California may put marijuana on the children's breakfast cereal as a form of tranquilizer. Our children are stuck in front of the television set which then will act as a tranquilizer so that mother can get on with her housework or so that the parents may entertain their friends uninterrupted. On Saturday mornings, for instance, every channel on television is directed at the children, with roughly the same nonsensical horror comics which give the child most bizarre ideas about aggressive behavior. The side effects of television programming are becoming more and more obvious:

1. By the time the child has reached six years of age, he or she may have seen on television over 20 thousand acts of violence. He also learns that violence is all right and that death is reversible because, "If the guy gets killed today, he still comes back next Saturday."
2. The child's fantasies about his own omnipotence are maintained by the fact that he can, at will, change the channel or switch off the program he does not like. Children deprived of communication with their parents or with other children lack the ability to express themselves verbally; their own initiative, inquisitiveness, and exploratory behavior is stifled. They begin to talk in monosyllables and by identifying with the television set, talk in terms of "turning on," "tuning in," "tuning out," "turning off," and "dropping out." This, of course, has also become the language of the new psychedelic generation.
3. Intermingled with the scenes of violence, there are news programs or debates which have primarily to do with the bad news of war, murder, arson, rape, robbery, crime, and drug abuse just to mention a few.
4. A third ingredient on television is *the solution* and includes the numerous and very seductive pharmaceutical advertisements to do with drugs which make you feel more tranquil, happier, younger, sexier, and more attractive to the opposite sex. The advertising industry has for many years employed some of the best psychologists in order to find out the psychology of buying and selling. They know that the best way to persuade people to buy is to have the product promise to alleviate some of the sources of suffering and the feelings of inadequacy. Sex, strength, youth, and virility are implied; we are further lulled into a delusional belief that chemicals are necessarily safe.

Drug Abuse—Some Important Issues

The Struggle Between the Young and the Old

This is very deeply symbolized by the present drug culture. One of the issues is not just whether drugs are safe but "who tells whom what to do." Another issue is that the young are unconsciously, at least, convinced that the old are jealous of the strength, youth, and virility of the young people and that they send them to wars to be exterminated.

The Stereotype of the Drug User

When people talk about drug abuse, the stereotype which is evoked in the imagination is of a heroin addict from the ghetto who may be violent and sexually deviant. At an unconscious level, drug abuse is linked with self abuse; often the punitive over reaction has to do with our suspicions that drug abuse is synonymous with loose sexual practices, forbidden masturbation, and cannibalism. Adam and Lohrenz (1970) document this well in their recent article.

Drug Abuse and the Adolescent Period

This generation has inherited a world which is vastly different from anything that existed before the second world war. Previous concepts of space, time, distance, feasibility, and predictability have been vastly altered, if not completely shaken, by speed of travel, speed of dissemination of information, the information explosion itself, the contraceptive pill, and the invention of the ultimate weapon—the hydrogen bomb. The fact that we are facing vast and apparently insoluble problems such as prospects of continuing wars, pollution, and overpopulation produces a generation of people who, while certainly more informed and more aware, are at the same time more frightened, anxious, and in need of escape. One method of escape, of course, is drugs. Adolescence has always been a difficult period. In this society the difficulties have been compounded by disruption of family life, by the rapid speed of change, by protracting adolescence for extended education, and by the adolescent's growing realization that the adult world seems unable to cope with the enormity of the problems.

Freud, in 1905, described it as a period of final

transformation; Ernest Jones, in 1922, stressed the correlation between adolescence and infancy. He pointed out that the adolescent recapitulates developmental stages of the first five years of life and thus the successful or unsuccessful emergence from adolescence will be determined largely by the ease with which the early developmental stages were dealt with. Anna Freud, in 1936, described adolescence as a struggle for survival in which all defense mechanisms are brought into play and strained to the utmost. In connection with this, I feel that adolescence may be the worst period to experiment with drugs because hallucinogens and psychedelics especially further loosen the already brittle adolescent defenses. Anna Freud went on to say, "Adolescents are excessively egoistic, regarding themselves as the center of the universe and the sole object of interest, and yet at no time in later life are they capable of so much self-sacrifice and devotion. They form the most passionate love relations only to break them off abruptly as they began them. They oscillate between blind submission to some self chosen leader and defiant rebellion against any and every authority." Here again some of the motivations for drug abuse become apparent: as a form of self-medication, to allay anxiety, but also as a form of rebellion against authority, and at times as a statement of allegiance to chosen leaders or martyrs. Going back to Anna Freud, I quote, "Their moods veer between lighthearted optimism and the blackest pessimism." Here we can understand how drugs may be used as a form of slow destruction or sudden suicide.

In 1958 Anna Freud likened adolescence to mourning over a previously occupied position in the family. She talks of "the urgency of their needs and their intolerance for frustration." "The height of elation or depth of despair, the quickly rising enthusiasm, the utter hopelessness, the burning or at other times sterile, intellectual, and philosophical preoccupations, the yearning for freedom, the sense of loneliness, the feeling of oppression by the parents, the impotent rages or active hate directed against the adult world, the erotic crushes whether homosexually or heterosexually directed—the suicidal phantasies." These are some of the states of mood and perception that the adolescent may attempt to correct or prolong by the use of the various drugs. He may crave the hallucinogens or psychedelic experience which will give him some relief from pain, some euphoria, some detachment from a hostile and ununderstanding world. At other times, these drugs give a sense of belonging, of understanding, of communion, and of meaning. Some of these are valid, some are delusional, of course.

Erickson (1950) commented on the need that the adolescent has for final establishment of an ego identity. He said, "In their search for a new sense of continuity and sameness, adolescents have to refight many of the battles of early years, even though to do so they must artificially appoint perfectly well-meaning people to play the role of adversaries and they are ever ready to install lasting idols and ideals as guardians of a final identity. Erickson's words have become especially pertinent now. Present adolescent behavior, whether just simply delinquent or drug abusing, is a good illustration of what Erickson talks about. One meaning of drug abuse, as well as dress and hairstyle, is to form a sense of group identity, a sense of belonging; but also to reject parents and parental standards as well as to provoke a punitive response. This need to provoke, to argue, to destroy, to ridicule, and generally to "bug" the older generation brings the question frequently asked by adolescents, "If you have legalized alcohol, why don't you legalize marijuana?" It can be easily seen that this sort of question is not posed to be resolved but to continue the conflict; both the young and the old fall into the trap of using this senseless argument in order to "clobber" each other over the head.

To survive and remain sane in the face of external pressures and eruption from within, the adolescent must use a vast variety of defense mechanisms, some of which have been well established and some of which have become available more recently, namely drugs. Instead of gradual detachment from parents, they attempt to leave them suddenly and altogether. They may seek out parent substitutes or leaders or may form passionate new ties to members of the opposite or their own sex. Here again, escaping to drugs aids this type of defense. The user may achieve either actual or delusional feeling of closeness or belonging. He may also identify with charismatic and messianic figures such as Timothy Leary; these figures, in every case, will be as unlike the drug user's parents as possible. Love for parents changes into hate, dependency into revolt, respect and admiration to contempt and derision. All this is done in order to ease the separation. Others may show ideas of grandeur or suffering which may assume Christ-like proportions with corresponding phantasies of saving the world (Freud, 1958). This defense again can be closely linked with drug abuse, especially drugs of the psychedelic type. These drugs aid in the dissolution of ego defenses and give rise to depersonalization, derealization and oceanic feelings with transcendental or mystical experiences. Some adolescents, at the beginning of the psychotic state, are to some extent aware of threatening disintegration and are profoundly anxious about it. They may use drugs as a form of self-medication or as an unconscious or even conscious suicidal attempt. The conflict areas of the adolescent are: coping with aggressive feelings, adult sexuality, dependency-independency issues, and identity diffusion. The adolescent defenses tend to be brittle

and a whole host of auxiliary defense mechanisms have to be brought into action. The adolescent may be tempted to use drugs in order to deny or mortify his impulses. Here, the powerful drugs of addiction as well as hallucinogens may be used. Heroin is a drive suppressant, modifying primarily sexual and aggressive feelings as well as thirst and hunger. Prone to use heroin will be those who are already in physical and psychic pain and those who tend to cope with problems by withdrawal and oblivion. Some of the psychedelic users are good evidence for the use of these drugs in order to control aggression and deny hostility. If we listen very carefully to what they say, they will claim that these drugs make them more at peace with themselves, more at peace with the world, more tolerant, more understanding of the other man's point of view. These are the "flower children" and the "love is all children" who insist that the way to solve problems of modern materialist oriented, war addicted society is to withdraw into communes, return to the uncomplicated life and organic foods, and to share all possessions. They may live in communes which are closely knit incestuous communities devoted to peace. Some provoke aggression in the surrounding community. Occasionally this massive denial of hostility may fail and allegedly one or more members of the commune will break out and commit some bizarre murder in the community. For some individuals prolonged use of strong psychedelics produces profound attitudes of passivity and dependence. Many of them may see it as a result of insight gain, but in many cases, it is obvious to the psychiatrist that the picture is that of profound regression, precipitated by the drug use and maintained by normal stress of life. If in college or at work, this person may become a "drop-out." He will rationalize his action by claiming that work is uninteresting or that his study is irrelevant. Privately, he will admit that he has difficulties in concentration and in relating to other people. He may also begin to have sleep difficulties and hypochondriacal concerns.

The Need for and Fear of Isolation

Winnicott, speaking on adolescence in London in 1962, said, "The adolescent is essentially an isolate . . . in his respect, the adolescent is repeating an essential phase of infancy."

The hallucinogens or psychedelics may be used in order to deny isolation or produce an illusion of sharing and communion with others. For many it may be a valid interpretation and experience. But for the prepsychotic, or the already anxious adolescent, the feeling of unity with others is illusory and transient and he may be tempted to repeat again and again the drug experience in order to recapture the feeling which escapes him as soon as the drug action is terminated. If he should progress to the hard narcotics and become addicted, he may have achieved profound regression and, in Winnicott's view (1953), the drug may be used as a transitional object.

Savitt, in 1963, gave an excellent description of the addict: "The addict is unable to experience love and gratification through the usual channels of incorporation and introjection. Because of the inability to tolerate delay, he seeks an emergency measure which by-passes the oral route of incorporation in favor of a more primitive one, the intravenous channel."

Psychiatrists, psychologists, and sociologists have for a long time been trying to determine a personality pattern which would be common to all drug abusers. There are some basic differences between addictions and psychological habituation, even though we insist on lumping all of these together now as drug dependence. The diagnostic and statistical manual of mental disorders treats drug dependence as a personality disorder: "characterized by deeply ingrained, maladaptive patterns of behavior that are perceptibly different in quality from psychotic and neurotic symptoms. Generally, these are life-long patterns, often recognizable by the time of adolescence or earlier."

Fenichel (1948) classified drug addiction with the impulse neurosis. They show "the need to get something that is not merely sexual satisfaction, but also security and assurance of self-assertion and as such essential to the person's very existence." He further said, "Persons of this kind react to situations that create the need for sedation or stimulation differently from others. They are intolerant of tension, they cannot endure pain, frustration, situations of waiting." And, he added, "All other strivings become gradually more and more replaced by the pharmatoxic longing. Interests in reality gradually disappear, except those having to do with procuring the drug. In the end, all of reality may come to reside in the hypodermic needle." The sexual symbolism of the repeated penetrations by injection is obvious; as one addict mentioned to James Mathis (1970), "You know Doc, the addict screws himself."

Ewing (1967), writing on non-narcotic addictive agents, says, "Often the patient can be characterized as a passive-aggressive personality, passive dependent type. A history of weak or absent father and an indulgent, but rejecting, mother is common. A tendency to be manipulative of others is often observed as the patient seeks gratification from the environment."

Wikler (1970) expresses the importance of primary reenforcement in conditioning leading to drug abuse: "Thus, alcohol, barbiturates, and minor tranquilizers may be used to release inhibitions; narcotics to reduce aggression as well as hunger, pain, fatigue, sexual desire, and fantasy; and amphetamines to reduce hunger, fatigue, and depression. Hallucinogens may be used to intensify fantasy."

Blachly (1970) considers drug abuse as a seductive behavior and says, "Seductive behaviors have the following qualities: (1) The victim actively participates in his own victimization; (2) Negativism (he knows the danger but does it anyway); (3) Short term gain; (4) Long term penalty." Among seductive behaviors he includes drug abuse, sex deviations, truancy, rape, robbery, smoking, rioting, gambling, alcoholism, and divorce. Persons engaged in one seduction are likely to be involved in others. He points out that different persons have different seductive thresholds. There are also different seductive thresholds for each individual during different stages of life. Risk is increased during *traumatic periods* in which are included adolescence, marriage, job loss, menopause, retirement, and debility. When speaking of adolescence, there are also periods of greater danger of exposure to seduction. These are parental divorce, move to a new neighborhood, loss of school satisfaction, persuasion by peer consultants, and the release from jail.

Maurer (1970), speaking about students and drugs, says, the drug user feels, "The society has not provided me with the emotional competence to cope with the world without the chemical." He further says, "It indeed is a society in which the pursuit of escape by chemical and other means is a well entrenched value." He documents it by saying that in 1968, Americans spent 794 million dollars in amusement parks, 30 billion dollars on vacations, 14.4 billion dollars on alcohol, and 420 milion dollars on headache remedies. They smoked 500 billion cigarettes, and tranquilizers were the most prescribed drugs in 1968.

Conclusion

The history of drug abuse is as long as history. While all drugs are being abused, this paper has attempted only to elucidate some of the psychological reasons why the western adolescent might be attracted to excessive drug use or experimentation. There has grown in the past 8 years a great interest in drugs which produce an altered state of consciousness. It is the opinion of this writer that the adolescent years may be the worst years to experiment with the strong hallucinogens like LSD, mescaline, or psilocybin. The adolescent is already under enormous pressure, both from within and without, and any drug which further loosens ego defenses may produce flooding with little opportunity for integration. Early drug experimentation is usually haphazard and involves numerous drugs at the same time. There is some evidence that different individuals may eventually become dependent on a drug or a combination of drugs which particularly suits individual psychological needs. Wieder and Kaplan (1964) try to document this in their article "Drug Use in Adolescence, Psychodynamic Meaning and Pharmacogenic Effect." Another complicating factor in our society is the extent to which adolescence is being prolonged, especially through the educational system. Peter Blos (1962) says, "The term prolonged adolescence as used here refers to a static perseveration in the adolescent position which under normal circumstances is of a transitory nature. A maturational phase which is intended to be left behind after it has accomplished its task becomes a way of life."

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Current Trends in College Health Medicine*

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Introduction and Background

One might well ask the question, "What is a talk on College Health doing in a conference on Adolescence?" This is not so strange when one realizes that some of the most enthusiastic college health professionals are leaders in the specialty of pediatrics: I mention a few of them, Henry Bruyn of Stanford University, Ross Johnson of Brown and Sprague Hazard of Brandeis. These and others have found their greatest challenge in caring for those older teen-agers who, though they may have attained the stature and physique of adults, still retain the thinking and behavior of juveniles. Each physician has his reason for entering this relatively new specialty of College Health. For some it is the fascination with the problems of the late adolescent; for others it is the opportunity to work in the college community; and some may have a penchant for teaching, or administration. Some may desire emancipation from the mother figure that dominates so much of pediatrics so that they may at last enjoy the man-to-man, one-to-one relationship between college student and his physician. But when all is said and done, the student when he enters college is very much an adolescent, and remains so throughout most of his college career; hence he and his problems and the organization which takes care of his health are of concern to us here today.

All of us have our own preconceived ideas of college medicine, some not very flattering. My own thoughts go back to my college days. I recall the aging, balding Doc, whose office was in the Phys Ed building, running heavily from the bench onto the football field between plays to administer to one of the players stretched out on the field. Or I think back about the small Infirmary, with few beds, supervised by a nurse of the old school who ran the show while the doctor took care of what was to him his much more important general practice. Most of us as students rarely visited the Health Service, even though we knew we should; we thought that there was some sort of a nefarious collusion between the Health Service and the Dean's office and, well, we could buy aspirin and take it on our own. The truth was that most of the health services of 25 years ago deserved the suspicion and the lack of respect shown them by the students.

But there has been a vast change in the past two decades as the College Health field has grown in prestige and influence, under such outstanding leaders as Dana Farnsworth of Harvard University who, incidentally, is to retire next June after 16 years of meritorious service as director of the Health Service. At present the College Health Service has attained a salient place in the life of most college campuses. From a facility for purely episodic medical treatment, it has become the important center for education in health matters for all members of the college community, and a work-shop where group medicine in its broadest sense receives as much emphasis as individual medical care. Of course, there are those college health services which have not yet attained this ideal of comprehensive service, and the need for new leaders with vision and fresh ideas is very great. However, as the vital importance of a good college health service is recognized as of first priority by the students, administration and trustees, changes will be inexoribly made no matter what the monetary cost.

Student Participation in College Health Services

What are some of the trends in College Health Medicine in the current scene, in the 70's? First, we must be reminded of the phenomenal growth in the number of colleges and college students in the 60's; according to the present rate of expansion, by the year 1975 in America there will be 10 million young adults, adolescents if you will, in higher education. This will mean a rapid increase in the overall number of colleges, especially in the state-controlled colleges and universities as the trend seems to be, and the smaller private 2 year colleges. This growth is occurring synonymously with an unprecedented wave of

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campus unrest, where the very foundations of the American College System are under severe student criticism and sometimes open attack. No longer are students passive receivers of educational processes promulgated by their elders. They are, more and more, demanding to be heard and made partners in the serious business of getting an education. As their numbers increase and their voices become louder, college administrations are beginning to listen and to find in student ideas and opinions much forward thinking, common sense, ideas and opinions not as far-out or revolutionary as was first thought. What would most of us have thought 10 years ago, even 5 years ago, of co-educational dormitories, abolishment of parietal rules in girls' dorms, or birth control counseling centers on campus? We could go on to list many other innovations and changes brought about in college life by student pressure and intervention. But getting back now to my original question, "What are the trends in College Health Medicine at the present time?" I would say, and you have probably anticipated my next remark, that student intervention and participation in the College Health Service is the number one trend in this area today, both officially and unofficially. I quote from a paper drawn up by students who were for the first time last April officially represented as a group at the Fifth National Conference on Health in College Communities in Boston: "We believe that students should be involved in policy making for college health services because (1) students represent student interest best, (2) students, as people, have good ideas which would be valuable to college health services, and (3) it would be educational for students to be involved in policy-making for the college health services. Furthermore, students should be *fairly* represented with full speaking and voting rights for the committees on which they serve. ANY OTHER STATUS IS SECOND CLASS, AND SECOND CLASS STATUS INSURES SECOND CLASS PARTICIPATION!"

This is a far cry from the old doctrine of *in loco parentis* in which the college assumed the role of parent; this doctrine has been virtually abandoned. No longer does the college, or the Health Service, seek to control students' lives—but gives them a new freedom of action that they did not know 10 years ago. As consumers in the Health Program they have at last begun to question policies and are demanding a voice in them. In a set of interviews at a large western university, students said that they desired the following: a board of students making recommendations and voting on policies of the health service; a combination of mental and physical health services in the same building; specialists in the health service and provisions for seeing specialists in the community; a doctor on duty 24 hours a day; reduced rates and care for husbands, wives and children of students; birth control clinics; supplemental insurance programs; health care for university employees at reduced rates; group therapy programs on smoking, drugs, and weight reduction; dental clinics; and better orientation programs for the health services. Quite an order. If only we all had unlimited budgets! For all their good intent sometimes student demands are made with more enthusiasm than wisdom. I recall one morning last fall I was faced first by a petition signed by 300 members of the Women's Liberation Movement demanding services of a gynecologist at the College Infirmary, then a little later by five representatives of this group who were not to be talked out of their demand. The fact that the Health Service general physicians were handling four out of five gynecological problems of the female students sucessfully, and that a gynecologist at the Health Service would be restricted by Massachusetts laws from giving out birth control devices, did not deter them from their fixation on the need for a "specialist." I quote what one student representative at last year's conference said about college health services in general: "The college health service as it exists on many campuses is an anachronism. Not only is it inefficient and ineffective from both a clinical and an economic perspective, but its inherent ambiguity about its own goals and philosophy coupled with its ignorance and lack of responsiveness to student health concerns have all been reflected in student ambivalence, distrust, and animosity toward the health center." Quite a criticism. Okay—let's get students in and listen to them air their gripes; let's see if they are as willing to work as well as to criticize, to listen as well as to expostulate, to learn as well as to dictate. On the whole, student participation in the workings of the Health Service has been a salutary experience, though not without its rough moments—young people want quick results and are not ready to sacrifice present gratification for delayed rewards in the future. The majority of students, however, are eminently reasonable people. I have had a Health Liaison Committee made up of students working for me on a regular basis for 2 years, and their enthusiasm and ideas have been invaluable in pointing out weaknesses in the Infirmary routine and suggesting new thrusts and new emphases in the College Health Program. This group, working with me, organized a program for sex education, securing resource people on their own and running the program of sessions themselves. This same group at present is setting up a course in sex education which will be given in the Experimental College at our school next fall. At the University of Nebraska selected undergraduates living in residency halls act as "student health aids." These students, trained by the Health Service, are in ready contact with it, thus serving as go-betweens or advocates for the Health Service and the student body. Students have

played a major role in drug education on campuses as well as in the treatment of drug abuse cases; on our campus, whenever we have a student on a "bad trip," a victim of drug abuse, we call on several student volunteers who have indicated their willingness to sit with the patient and administer psychological support to him during his bad hours. These students have been through a course on drugs and drug management; many of them have been through the drug mill themselves and are willing to help out their peers. They man a 24 hour drug crisis hot-line to help out their fellow students who go overboard with drugs and need immediate help. Though this organization is generally not formally allied with the Health Service, for several reasons, it does work closely with the physicians. Even in the delivery of actual medical care in the Clinic, medical students in training and residents in various specialties are being employed under supervision. In all this student participation in the work of the Student Health Center, the Center is assuming its rightful role in the educational process.

In summary, we could say that the creation and modification of health programs are most successful when there is increased responsible student participation, when those who are receiving the services are involved continually in clarifying their needs and in creating and supporting their services. Consumers need not have the commanding voice in professional decisions, but they can make valuable contributions in planning a program and in encouraging both understanding and support for the program.

From College Health Service to Community Health Center

The trend which we will all see expanding in the next 10 years is the development of the College Health Service into a Community Health Center. Thus we will see a blending of a wide variety of health resources for the entire University, not just for the student body. And the coverage may not stop here but in some cases may spread to include the surrounding community. Such is the case at the present time of Berea College in the community of Berea, Kentucky; a health facility was created to administer not only to the college population but also to the citizens of the town, each group sharing equally in the expense of the medical care. The rising costs of medical care plus the lack of satisfactory medical resources on the outside have made it seem more practical and less expensive to have a prepaid plan for the entire college community, with the college Infirmary and staff performing the services. In the 70's it is highly likely that a program of comprehensive national health insurance will be inaugurated in the United States. Such a program will make the financing of the college health services around the country more uniform. And whether or not you approve of the trend, some form of pre-paid national insurance is in the offing, and college health services will have to adapt to the new system. This will mean radical changes in the structure of the health services, probably to the benefit of most of them that have been struggling along on poor equipment and insufficient funds. We do not know yet how this will all work out. But we can project a bit and envision the individual Health Service more active in the field of preventive medicine—accident prevention, environmental safety, pollution control, sanitation, disaster planning. There will be a steady increase in the use of computers in health services. The college community is a unique dynamic ecological system with specific health needs and goals, and what we will be creating in each college community is a microcosm of community health. As one student has put it, "Health Services have a moral and professional obligation to be as responsive as their competency allows to the needs and demands of the community." And, in this community of medical services, what a marvelous opportunity to train future doctors, health educators, public health professionals, nurses, to say nothing of the ordinary 4 year college students who will work in many of these projects as part of their courses. The activities will be heavily oriented toward health education and preventive care. Far from concerning itself solely with episodic medical treatment as in the past, the Health Service will promote, among other things, health work-shops. Here health hazards can be appraised by students and faculty, information on specific university health problems can be accumulated, college administrators can get advice on health related problems, environmental hazards and problems can be evaluated, pilot programs demonstrating how behavior and attitudes can be changed can be set up. These are but a few of the specific activities with which the health services of the 70's will concern themselves as they move outwards to encompass the college community.

Coming of Age of the Mental Health Division

The third trend that one sees in the current college health scene is the marked increase in and demand for psychiatric services, for the creation of a Mental Health Division. This trend has closely paralleled the current unrest among college students: their questioning of the value and relevance of a college education; their disenchantment with the world of poverty in the midst of plenty; their hatred of the expanding Vietnam War, riots versus civil rights legislation, urban blight versus space travel. All these concerns—plus the knowledge boom, the paradox of creativity, the impersonality of the University, frequently faulty teaching, and a myriad of personal problems—form a shaky ground upon which to expect late adolescents to build their lives. Let's face it: this is a rough time in which to grow up. And as has been said so cor-

rectly, youth often faces these problems with more feelings and emotions than with facts or reason. And to whom does the perplexed student turn for help? Where formerly students sought out their clergymen, parents or peer leaders, they are now seeking out psychiatric help—psychiatrists, psychologists, counselors. No longer does a visit to the psychiatrist carry the stigma of weakness or shame. On the contrary, the demand for psychiatric help usually far exceeds the supply on most campuses; the creation of departments of mental health under the college health umbrella is almost a necessity today, with counselors trained in psychotherapy and case workers working along with the psychiatrists. At Tufts we are currently experimenting with a unique counseling service run by third year medical students, under supervision, who may choose this project as an elective in their junior year. Undergraduate students may consult them anonymously if they do not wish to reveal their names, and no formal records are kept. Medical students are learning to be psychotherapists by treating. The modern college student is certainly more sophisticated than the student of former years in his awareness of the value of psychiatry; the popularity of courses in psychology and sociology as well as interest in group dynamics and such activities as sensitivity sessions is evidence of a growing fascination for the general field of psychiatry and psychodynamics. This does not imply that we are having an upsurge of mental illness. It means, rather, that students are seeing the value of psychiatry, and that psychiatric services, where confidentiality is scrupulously observed, are becoming more available with personnel that is far better trained. Not just the students seek these services—members of the college administration and faculty often meet with the mental health professionals to get help with college policies, practices, and at times college crises. Could not we call this "community psychiatry" one of the trends of the future?

Summary

All the complex factors which are bringing about changes in college education—economic, social, political and cultural—are profoundly affecting college health medicine. These changes are occurring with unusual rapidity, and are certainly causing strains to the old establishment thought to be so secure and unassailable a few years ago. However, in the new trends—student participation in the work of the Health Service, expansion of the work of the Health Service to include the entire college community, and the coming age of the Mental Health Program—we recognize new and more effective ways to deliver health care to our college youth and their community, and to make the health service an integral part of the educational process.

The Adolescent and Competitive Athletics*

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Definition

To initiate any discussion of such a broad topic as will be here presented requires that a precise definition of terms be firmly established, to limit our scope within workable dimensions and to focus our attention on certain details within this defined area.

Accordingly, consideration must first be given to the precise definition of "adolescent," which, according to Dorland's Medical Dictionary, is that individual passing through the "period of adolescence," which, in turn, is defined as that period of life between the first appearance of secondary sexual characteristics and the cessation of somatic growth. From the above, it can be seen that adolescence, though clearly defined in medical terms, spans an infinitely variable interval of age-years within the overall human population. For example, the age of onset of secondary sexual changes is a well-recognized variable, from girl to girl, girl to boy, and from boy to boy. Similarly, the cessation of somatic growth is very difficult to define exactly; under this definition, adolescence would certainly include, in its upper scale, virtually all the athletes who come under my own purview as physician to Yale Varsity Football and surgeon to the entire Yale Intercollegiate Athletic Program. Yet the visible physical differences between an incoming freshman athlete and his senior counterpart, not only in height, weight, strength, muscularity, but even in facial maturity has always been striking and will always continue to be so. Furthermore, and rather interesting of itself, under this same definition virtually all college students are, in fact, adolescents, no matter how much college administrators, college faculty, New-Left politicians, and Jerry Rubin may desire to consider them mature adults!

Having thus defined, for better or for worse, the term "adolescent," we must also define "athletics," to create some order in our overall discussion, and to mark, thereby, the limits beyond which remarks made herein cannot be assumed to apply. Surely, athletics, or athletic activity, cannot be considered to include hiking, camping, boating, going to football games, and other similar pursuits of sport-minded Americans. Nor can it be extended to include such activities as jogging, bicycling, playing a wild game of poker, or (despite the physical exertion and unquestionable neuromuscular coordination involved) go-go dancing. In truth, to properly define "competitive athletics" is quite difficult. The best definition we can devise is, "any and all organized activity requiring physical exertion, which activity is pursued according to certain competitive rules." Included therein would be all of our 18 intercollegiate sports at Yale, but not some of our club sports, such as sailing and tiddleywinks—yes, we do have a Yale Tiddleywinks Team! Common to all competitive athletics is the element of neuromuscular competition, according to certain agreed-upon rules of the game.

Competition and the Adolescent

This brings us to a direct confrontation with that concept, the subject and the core of bitter controversy in any discussion of athletics and the adolescent: competition, is it good, or is it bad? To attempt to answer this central issue in a few words is impossible, and with my commitment to the Yale Athletic Program, it is clear that I cannot claim an unbiased viewpoint. Nonetheless, careful consideration to this key question must be given, otherwise all further discussion becomes valueless in the face of a basic disagreement.

There are many psychiatrists, psychologists, and pediatricians who feel very strongly that competition has no place in the life of a growing child or adolescent. Many deplore the permanent psychological ill-effects of competition with one's peers. There can be no argument that the establishment of rigid physical norms and the encouragement of cut-throat sports competition can be and has been carried to grossly harmful extremes. However, it is our contention that in our competitive society, competition, per se, has been and always will be a prime requisite, unless one is willing to condone a total "dropping out." And

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it can hardly be denied that, in any children's playgroup, leaders emerge, followers follow them, and a pecking order is very rapidly established. The irrational insistence by many that such does not occur appears, to me, to be a matter of wishful thinking. Every group of school children down to and into nursery school has its dominant members and its passive members. Although some authorities argue that this "fault," if you will, traces back to the parents and would not normally be present, such logic simply represents another example of the perpetual "shifting of blame" further and further backward in time, to a point where some educators are quite seriously recommending that all mothers start assiduously teaching their children from the time of birth, possibly to eliminate just those traits which these "authorities" persistently refuse to admit are, perish the word, innate. No matter the rationalization, the fact remains that competition, dominance, and aggressive behaviour are part and parcel of our human existence in every society throughout the world, and simply must be accepted as facts of life.

More specifically, observation of children at play reveals a competitive urge which can be easily seen, even in so simple a game as tag where running speed is paramount. Running speed was never my own particular forte, hence I myself was, ruinously by some standards, never very good at tag! In like manner, virtually all the accepted games played by children involve certain skills; the best exponent of these skills is rewarded, by-the-rules, be it jumping rope, throwing stones, or playing baseball. And, even at the grade-school level, this constant competitive urge emerges as compensatory activity in a number of clearly visible directions. For instance, a lack of physical coordination or stamina not infrequently coincides with a devoted interest in the arts, the accomplished playing of a musical instrument, excellence in didactic studies, ability to converse at length on an adult level, and/or a staggering summer reading list! Here can be seen the early division of competitive thrust, which is later reflected in the "brain" and the "jock," a distinction which is unquestionable and, moreover, well-accepted in all schools of higher learning. Some "jocks" manage to bridge the gap quite well, and are, indeed, as brilliant intellectually as some of their non-athletic competitors. Nonetheless, a critical observation of this compensatory differentiation will confirm a persistence of this dichotomy even into later life. In short, the successful competitive athlete, blessed by nature with certain neuromuscular skills and a specific, driving urge to win, finds himself progressively estranged from his contemporaries. Because of an innate physical inability to compete successfully in athletics, these contemporaries have turned to more intellectual pursuits and have inexorably drifted toward the harsh, unyielding position of the non-athletic, yet cruelly articulate sports-haters. They view all "dumb jocks" and their accomplishments as beneath contempt, sneer at all interest in sports, while they revel in the Seven Arts and, in particular, their close acquaintance therewith in contrast to those same "dumb jocks." Yet, if this attitude is carefully scrutinized, is it not identical in terms of basic competition? Does not each aesthete, does not each "intellectual" strive just as avidly to be more knowing in his chosen field of endeavor than any of his contemporaries? Does it not eventually narrow down to a continuing competition, sociological, economical, intellectual, or athletic, but, by whatever name, common to all? Should not, then, competition be considered something to be properly channeled and encouraged, rather than scorned as the source of all evil? Those blessed with neuromuscular coordination and an urge to win should be encouraged to enter competitive athletics as defined below, while those talented in other directions should be, just as vigorously, urged to follow their own particular "star" without needless perjoratives.

Criteria for an Organized Adolescent Athletic Program

If we can be sufficiently persuaded by the above that competition is indeed inevitable, be the pursuit athletic or non-athletic, what then must we require of athletic competition? Aside from the philosophical discussion above, certain criteria must be met in any worthy athletic program for adolescents, not only to protect all participants from certain real dangers associated with any such program, but, at the same time, to assure a minimum of criticism from those segments of our society who are most anxious to prove all athletics and athletes to be useless.

First of all, whether one believes that competition is good or bad, competitive athletics must, if anything, be adequately organized to accomplish its goal. By adequate organization we mean establishment of fixed administrative rules over all such competition, rules that will assure reasonable equality among participants. This means that detailed codes must be promulgated that will assure that all participants will get a "fair shake," with specific sections governing the differences in physical maturity between adolescents of equal chronological age: division by weight-classes, for example, is quite applicable in some sports, though, unfortunately, useless in others. But, most important, all organization, scheduling, and administration must be carried through on an intelligent adult level, efficiently, fairly, and with constant attention to the well-being, both physical and psychological, of the participants themselves; not the parents, not the coach, not the sponsor paying for the uniforms! Though this last may seem obvious, many of the most blatant examples of abusive treatment of adolescent athletes

lies within just these particular areas. If the adults managing the program are seeking some sort of personal or political power, if the sponsors paying for the uniforms and equipment are expectant of success on the field as a reflection of the excellence of their product, if parents are allowed to interfere with the administration and selection of a team, if the coach is "using" his young participants as a means of increasing his own reputation and subsequent graduation into higher brackets of coaching—there can be little hope of a successful and truly balanced athletic program. This applies in Little League, age-group AAU, secondary schools and colleges; all have been and/or are equally guilty of one or another violation, if not all at one time!

If these administrative and management requirements are fulfilled completely, something which is far from true in any area of adolescent athletic activity of which I am aware, there still remains a number of other areas which must be equally well-controlled. Thus, careful overall adult supervision of all participants is a necessity at all times, since they are, by definition, adolescents. They cannot be expected to always use mature judgement, either before, during, or after a contest, or, as must always be considered, on the road to or from a distant contest. An adult with the wisdom of Solomon and patience of Job would be ideal in such a position of direct responsibility, but, lacking same, the closest approximation thereto must suffice. In any event, adult responsibility for the overall well-being and behaviour of any organized athletic squad cannot be avoided by specious philosophizing about the "Now" generation, the "generation gap," or the oft-heard "they're so much smarter and grown-up these days!"

Of equal importance, the officiating in all contests must be above reproach, not only to protect the participants directly from the physical dangers of any one sport, but furthermore, to instill an early and lasting respect for duly-appointed officials and playing the game, any game, "by the rules." Provision of cheap, incompetent officials in these early formative years can lead to a deplorable contempt for all authority, the wholesale adoption of "dirty play," and every other reprehensible aspect of much in "big-time" athletics that we cannot afford to ignore!

By the same token but even more important, the coach of any adolescent team must be one in every sense of the word, not just a "winner." To expect this of men who, quite frequently, give unpaid time voluntarily to carry out their duties, may seem unreasonable and is, indeed, almost hopelessly idealistic. Nonetheless, it is the coach, the father-figure, the moral leader of the team, who will have the most profound effect on the morals and ethics of every child with whom he is associated. If the coach is a "cheater," an "angle-shooter," a "wild man," these traits cannot fail but "rub-off" on the adolescent participant. And beyond morals and ethics, techniques of the sport must be accurately and carefully coached, dangerous techniques must be eliminated from the start, and proper conditioning and regular work-outs must be inculcated into each participant as the very necessary "price" to be paid for the privilege of participating on an organized athletic team. Lastly, every coach should be acutely and constantly aware of the motivation and psychological make-up of each and every participant in his program—alert to early discouragement, prompt with words of encouragement and approval, and gentle with necessary reproval. Unforunately, most such capable coaches soon gravitate to the college level, where it has been my privilege to call many of them friends. Yet, the need for such men is infinitely greater at those lower echelons, where every minute facet of coaching leaves a lasting imprint.

To complete this ideal picture, though certainly not to place the factor last in importance, medical care must be made available even at the earliest age-level. Such medical care must recognize the problems peculiar to each individual sport. More important, it must appreciate in the competitive athlete the *disastrous outcome* of blanket athletic disapproval; of scornful belittling of competitive athletics; of the all-too-common tendency to bar all further competition simply because detailed diagnosis and treatment is too much trouble; or, even worse, of overenthusiastic, "gung-ho" therapeutic compromise that can thrust that injured athlete back into the fray at the very real risk of life and/or limb! A good medical program, geared to the needs of the competitive athlete regardless of his age, is a must in any program, and, contrary to what is generally believed, coaches are the first to call for and cooperate with such medical help. It is only when medical help is, indeed, scornful and sneering in its delivery that coaches, with good reason, turn their backs on all doctors, to the ultimate detriment of all participants.

Finally, let it be understood that all the above remarks, recommendations, and criteria apply, in equal measure, to junior college, college, as well as to all lower athletic levels; violation of each and every tenet can be seen, in graphic counterpart, in "big-time" and professional athletics, again and always to the ultimate detriment of the helpless and trusting participants!

Organized Medical Care in Competitive Athletics

With the many requirements already outlined, it would appear that provision of medical care to an organized athletic program, be it in grade school, age-group AAU competition, big-time high school, or big-time college, must, of necessity, be equally organized. Disapproval of competition cannot be used as a phil-

osophical reason to deny medical care, nor can disapproval of a specific sport justify half-hearted medical care. The fact remains that adolescent athletics does constitute an integral part of every area of society in this country, and the medical profession simply cannot turn its back thereto. Nor can medicine refuse to deliver efficient care, because of an outmoded insistence on private enterprise. The adamant position of some organized medical societies—that the care of secondary-school athletes must remain totally fragmented between all of many competing private-practitioners of varying competence, denying, at times by rule and edict, the right of any one doctor to organize and control the medical care provided—cannot be condoned. Organized athletic programs require that medical treatment be equally controlled and organized, to afford the most efficient, the most skilled, as well as the most sympathetic care to each and every injured participant. This is a simple fact and must, sooner or later, be accepted by the medical profession!

Whether this can be accomplished nationwide in the near future remains a moot question. But the fact remains that such organization, of necessity, has already taken place in most of the colleges that participate in organized athletic activity, which fact is further attested to within our own Athletic Medicine Section of the American College Health Association. This latter organization includes over 100 team physicians, who ply their trade within organized medical programs, each designed to fulfill the needs of the intercollegiate athlete on a nationwide scale. To the same measure, something must be developed on the secondary school level!

Once established, such a program can insist on a number of requirements which are pivotal. For example, thorough and complete physical examination and evaluation must be performed on each and every participant; examination that is (1) alert to the many pitfalls within organized athletics that must be guarded against, and (2) in the younger age-group lays emphasis on cardiopulmonary parameters *after exertion* to uncover hitherto unrecognized pathology that can, at worst, result in sudden death on the field! A definite differentiation must be made between contact and non-contact sports, with specific and inviolable prohibitions against contact sports for certain candidates with certain permanent disabilities. A boy with significant CNS disease or a history of multiple concussions, for example, must be barred from contact sports, as must a boy with a single kidney, for whatever reason, or a single eye, for whatever reason; in short, this is the *paired organ* concept.

Even with such differentiation established, certain additional criteria must be followed, insofar as physical disability in any particular sport is concerned. A cold, of little significance to a football player, is totally disabling to a long-distance runner or, equally, a long-distance swimmer. A backache is of little significance to a soccer player, but is crippling to an oarsman. A sprained thumb is of no significance to a football lineman, but could be disastrous to an offensive center or quarterback! And infectious mononucleosis, our most frequent serious medical problem, presents an even more ominous pitfall to the unwary: the associated and frequently long-lasting splenomegaly must be anticipated and evaluated accurately, else ill-advised contact athletics may end in catastrophe!

Over and above such injuries and disabilities, which have been detailed in many available references and cannot be individually categorized here, there remain the specific problems encountered in growing adolescents. Certainly a prominent one is the throwing of "breaking pitches" by adolescents who have yet to reach bone-maturity; the effect on the medial humeral epicondyle of repeatedly throwing a "slider" can be disastrous in a 12-year-old. And, even more worrisome, the epiphyseal fracture, with its subsequent distortion of bone-growth and leg-length, must be considered a frightening, omnipresent risk!

In any event, treatment of all injuries must be as efficient and as accurate as possible, no matter what the age of the participant or the level of competition. Certainly, the fourth-string tackle of a junior-high-school football team deserves as prompt, efficient, and expert service as do the most highly paid mercenaries in the professional football leagues. This would seem to be an obvious requirement, yet it is more notable in its omission than not. It has been our sad experience over a 16 year period in Yale athletics to see more than a few incoming freshman with serious injuries incurred during secondary-school athletics, injuries neglected or missed entirely during secondary-school athletics, and injuries already rendered permanently disabling in secondary-school athletics. Such a situation is clearly intolerable, and must not be allowed to continue! Each young participant must be seen promptly and regularly thereafter; rehabilitated vigorously; and, if surgery is indicated, it should be as expertly performed as that available to a John Brodie or Joe Namath. To provide anything less is inexcusable!

Finally, any medical delivery-system geared to an organized athletic program must be constantly sensitive to the immense psychological damage which can be done by poor coaching, uncontrolled parental pressure and abuse, or, as occasionally happens, abuse by an irresponsible press. These are, indeed, adolescents; they are not, by any stretch of the imagination, mature individuals. The poise and self-reliance that successful competitors reveal on the field is an immensely satisfying sight to anyone close to athletics, and, if nothing else, is a tribute to the effect of competitive athletics on some individuals. However, the pressures with which the star athlete is called upon to cope

are, at times, staggering, and it is little wonder that permanent personality damage can be inflicted thereby. We see less of this on the college level, the damage having already been done and the thus-wounded participant long-gone from the sport scene. Nonetheless, it behooves all of us engaged in the provision of medical care to athletes to recognize this constant factor. We must seek, at all times, to understand each individual participant, his motivations, his problems, his hang-ups, and his desires. The team doctor can at times interpose himself between a boy, crushed by failure and a sense of inferiority, and a furious coach, bent upon fierce reproval. Similarly, the team physician can encourage the not-atypical injured athlete, who is obviously "babying" himself; he can strive to help this boy face himself and his injury and correctly assess his own true motivation toward the sport. Occasionally this means providing a specific medical excuse to discontinue the sport without an objective reason, rather than forcing that boy to prove himself inadequate before his parents, girlfriend, and/or teammates. In equal measure, the team doctor can absorb the fury of a frustrated father, whose son has failed to measure up to the All-American and All-Pro future already carefully charted for him at birth. Such a problem is not uncommon, and can lead to some of the more frightening examples of alienation and "dropping out" that it has been my sad duty to observe. Individual effort by the team physician will sometimes soften the blow of such alienation and help to prevent that disastrous slide into an ever-waiting drug-culture; surely this is an effort worth making!

If anyone doubts the psychological impact of parental disapproval, he need only attend an average AAU age-group swimming meet. He can witness six and eight-year-olds berated mercilessly by furious parents (in full view and earshot of an onlooking and, worse, approving crowd of other parents) for having "missed the turn" or "blown the start," or simply "why didn't you swim faster?" An understanding physician can frequently readjust the balance, but, first of all, he must be willing to take the time to understand fully the needs and motivations of his athletes.

Summary

An attempt has been made to view the adolescent in organized athletics—sympathetically and understandingly. In doing so, an admittedly-biased vantage point has been selected—the better to evalute the philosophical desirability of competition, as of itself, and, secondary thereto, the positive or negative value of organized competitive athletics. Since, philosophy or no, athletic programs have long been established in almost every conceivable sport and in almost every age group from grade-school onwards, a pattern of organized medical care to cope with this established need has been advocated, much as it already exists in most colleges, large and small. Based on experience within one such organized medical program, certain recommendations and principles have been outlined, upon which framework any ideal program of medical care must be based. In short, the athlete, whether in early or late adolescence, deserves the best medical care we can provide—hopefully better, but certainly no worse than his adult counterpart in professional athletics receives. To so state does not make it so, but, in equal measure, requires that we, all of us, work ceaselessly toward that ideal goal!

Psychological Aspects of the Management of Adolescents with Malignancy*

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Introduction

The approach to total patient care in a teenager with malignant disease represents one of the greatest challenges to any physician. To bridge the generation gap and communicate in an area of medicine where we cannot always cure, but often only palliate, guide, comfort and listen, is often difficult for we physicians who are so often taught only how to win therapeutic battles.

Malignancy is the leading medical cause of death in the 10–21 year old age group in the United States (Table 1). Leukemia, Hodgkin's disease, bone and brain tumors are the most commonly encountered forms of cancer during this period (Heald, 1960).

Problems involved in management of the adolescent who is undergoing the stress of having a malignant disease added to the inherent physiological and psychological problems of this age group are at times overwhelming. They are not the problems of the pediatrician who deals with an infant or child too young to understand the significance of having cancer and who has not developed a concept of self as it relates to death. Nor are these the problems of the internist who is treating adults who may have lived a full life and developed effective ways of adapting to this particular stress.

The teenager is mature enough to appreciate the implications of his diagnosis and prognosis but in some cases the integration of personality and mechanisms of defense are inadequate.

TABLE 1*

Death Rates per 100,000 for Males and Females in the 10–4 and 15–19 Year Age Groups in 1960 in Five Categories and in Four Countries

	10–14		15–19	
Motor Vehicle Accidents	Male	Female	Male	Female
USA	9.9	4.2	51.7	16.0
Netherlands	7.7	3.8	19.9	5.1
Japan	4.8	1.8	21.1	3.4
Venezuela	12.6	2.4	26.2	3.5
Tuberculosis (all forms)				
USA	0.1	0.1	0.3	0.3
Netherlands	—	—	—	0.2
Japan	1.6	2.0	4.4	4.9
Venezuela	2.1	3.3	6.5	8.7
Malignant Neoplasms (all sites)				
USA	6.5	5.7	9.6	5.8
Netherlands	6.4	5.4	10.7	3.8
Japan	4.8	4.0	6.2	5.1
Venezuela	6.2	6.5	7.1	4.5
Suicide & Self-Inflicted Injury				
USA	0.9	0.2	5.6	1.6
Netherlands	0.2	—	2.6	0.9
Japan	0.7	0.4	25.3	22.6
Venezuela	0.5	2.4	7.8	11.2
Cardiovascular Diseases				
USA	2.6	2.6	5.4	4.4
Netherlands	1.3	0.9	3.6	2.2
Japan	5.8	6.1	9.5	9.2
Venezuela	4.5	3.8	10.7	6.7

* *From* Annual Epidemiological and Vital Statistics. World Health Organization, 1960. Reprinted with permission.

* Presented at the 24th Annual Stoneburner Lecture Series, February 25, 1971, at the Medical College of Virginia, Richmond.

Advances in surgery, radiation therapy and chemotherapy have resulted in prolonged survival in adolescents with malignancy. In addition, secondary schools are teaching human biology and physiology in depth; two of our patients suspected and made their own diagnosis and went to the doctor for its confirmation. Television medical dramas portray adolescents with cancer. In one evening I saw a movie concerning a student nurse with osteogenic sarcoma in love with the young pathologist who confirmed the diagnosis, followed by a weekly medical drama concerning a journalism student diagnosed and under treatment for Hodgkin's disease. These shows make the public more aware of the cancer problem in teenagers but facts may often be over-dramatized. Parents have asked if they should turn off the television during shows dealing with cancer; I think this has to be individualized with the patient and we should be prepared to answer any questions stimulated by these shows.

These three developments may contribute to the accentuation of the adolescent's problems in coping. Today's adolescents are more knowledgeable about life and living; they are curious about their disease and ask deeply penetrating questions. They must ask the same questions all other growing adolescents face, yet these questions are related to the framework of their illness: "What shall I tell my friends?" "Can I go to college?" "Will I be able to marry?" "Will I be able to bear children?"

Approximately 376 cancer patients in the 10–21 year age group have been treated and followed at the Denver Children's Hospital (Table 2) and St. Jude Children's Research Hospital (Table 3) over the last 25 years. Data in this paper reflect personal clinical experiences in dealing with this group over the last 6 years at both institutions. In the recently developed Denver Children's Hospital Oncology Center we have been followiing 69 patients since January 1, 1969. These youngsters are referred from states all over the Rocky Mountain region.

Psychological problems encountered most frequently by adolescents fall into five categories: alteration of self concept, alteration of body image, interpersonal relationships, future plans, and management of death (Moore, Holton and Marten, 1969).

TABLE 2

Malignant Diseases Seen in the 10–21 Year Age Group at Denver Children's Hospital in the Past 24 Years

	Age at Diagnosis						
Diagnosis	10–11	12–13	14–15	16–17	18–19	20–21	Total
Leukemia	31	12	36	2	3	1	85
L.S. to All	5	2	5	1	0	0	13
ALL	11	6	7	0	1	1	26
AML	8	11	11	1	1	0	32
Blast	7	4	3	0	1	0	14
Lymphosarcoma	9	4	4	0	1	0	14
Hodgkin's Disease	5	7	8	4	0	1	25
Reticulum Cell Sarcoma	3	2	1	0	2	0	8
Osteosarcoma	6	4	3	4	0	0	17
Ewing's Sarcoma	3	0	2	2	0	0	7
Rhabdomyosarcoma	0	0	1	0	0	0	1
Fibrosarcoma	1	1	0	0	0	0	2
Neurofibrosarcoma	1	0	0	0	0	0	1
Hemangiosarcoma	1	0	0	0	0	0	1
Wilm's Tumor	3	2	0	0	0	0	5
Neuroblastoma	0	1	1	0	0	0	2
Brain Tumors	4	5	4	0	0	0	13
Adenosarcoma	2	1	1	0	0	0	4
Dysgerminoma	0	0	1	0	0	0	1
Teratoma	0	1	0	0	0	0	1
Melanoma	0	1	0	0	0	0	1
Others	0	2	0	1	0	0	3
Totals	69	42	62	13	5	2	194

TABLE 3

Malignant diseases seen in the 10–21 year age group at St. Jude Children's Research Hospital in the past 5 years.

	Age at diagnosis							
Diagnosis:	<10	10–11	12–13	14–15	16–17	18–19	20–21	
Leukemia								81
Acute lymphocytic	7	22	13	7	6			(55)
Acute myelocytic		5	5	8	6			(24)
Chronic myelocytic		1		1				(2)
Hodgkin's disease	3	6	1	8	3	2		23
Lymphosarcoma	3	4	4	3	1	1		16
Osteogenic Sarcoma	1	4	1	2	4		1	13
Ewing's Sarcoma	1	3	1	1	1		1	8
Reticulum cell sarcoma		3	2	1	2			8
Rhabdomyosarcoma	1	1	1	2	2	1		8
Wilm's tumor	2	1	1					4
Neurofibrosarcoma		2	2					4
Lymphoepithelioma		4						4
Neuroblastoma	1	2						3
Retinoblastoma	1							1
Other	1	1	4	3				9
	21	59	35	36	25	4	2	182

Alteration of Self-Concept

The teenager's knowledge that he has a disease that medical science does not yet know the true cause of and cannot yet promise a cure for, makes this patient feel he is "different." The immediate concern is not, "Will I die?" but, "How will this disease make me different?" or, "Will I be rejected by my friends?" A feeling of inferiority and loss of self-esteem may even cause the youngster to keep his illness a secret.

A 19-year-old boy with Hodgkin's disease, Stage IIIA, was very upset that he was turned down when he tried to join the Army after being active in high school military programs. He tried another branch without telling the officials he had Hodgkin's disease and his parents intervened.

Clinic visits to receive medication may enhance feelings of inferiority and difference, especially if these patients have symptoms of fatigue, anorexia, malaise or nausea from their disease or treatment.

A physician's son with letters in football and wrestling presented with a painful lump on the medial aspect of his thigh and underwent amputation for osteogenic sarcoma (Fig 1). He was forced to limit his activities for several months, and this "sitting on the bench" was a constant reminder that he was different and perhaps no longer as strong as his teammates. He later resumed his wrestling and taught mentally retarded children how to swim at Summer Camp.

As soon as youngsters are improved clinically we encourage them to engage in as many of their normal activities as they wish. Physicians must often communicate with teachers, social workers, coaches, employers and other members of the rehabilitation team in order to pave the way for the patient to be treated "like one of the crowd" just as he was prior to the diagnosis of cancer. This is no easy task.

Alteration of Body Image

The adolescent's image of self undergoes rapid change as the body matures (Schonfeld, 1963). Changes in physical appearance secondary to therapy only complicate this physiologic adjustment.

Alopecia may occur from radiation to the skull or various chemotherapeutic drugs and is the most common cause for altered physical appearance (Fig 2). It is often more traumatic than the diagnosis itself. To the girls it means a loss of attractiveness and femininity; to the boys it may mean the loss of sex appeal and virility. They often feel unacceptable and withdrawn from society. Fashion today has made it a bit easier for us to recommend wigs and hair pieces since they are in vogue for both sexes and acceptable to adolescents' peers (Fig 3).

Radiation dermatitis can be a problem for those with solid tumors. These patients must limit their activities to exclude excessive exposure to sun. The darkened, peeling skin and marking used to outline the radiation port may be embarrassing.

J.C. (Fig 4) represents the multiple problem of an already obese teenager recently diagnosed as Hodgkin's. She is a redhead with extra sensitive skin, and wore high necked dresses to cover up her skin changes.

A much more drastic change of body image occurs in patients who, because of bone tumors, may require an amputation of all or part of a limb. Adsett (1963) states, "Paradoxical as it may seem, the fear of unacceptability and isolation secondary to disfigurement can be a much greater source of anxiety than the fear of death itself or recurrence of cancer. There are some patients who would choose to die rather than to be severely disfigured."

An 18-year-old mother of an 8-month-old infant presented with a mass on her leg that was noted 6 months before and initially thought to be bursitis. It was injected with cortisone, without x-ray, and when she failed to improve she was referred to us with her diagnosis confirmed as osteogenic sarcoma. She refused surgery and chemotherapy and now has pulmonary metastasis. According to her mother who is an R.N., this girl, as a child, would lock herself in the family car when she needed DPT shots. She married her present husband after leaving her first, who went AWOL from the military service to try to patch up the faltering first marriage. Her present husband is currently on drugs and jobless. One certainly must realize that a patient's response to illness may be an additional burden to an already stressful life situation; special support is needed even when medical therapy is rejected.

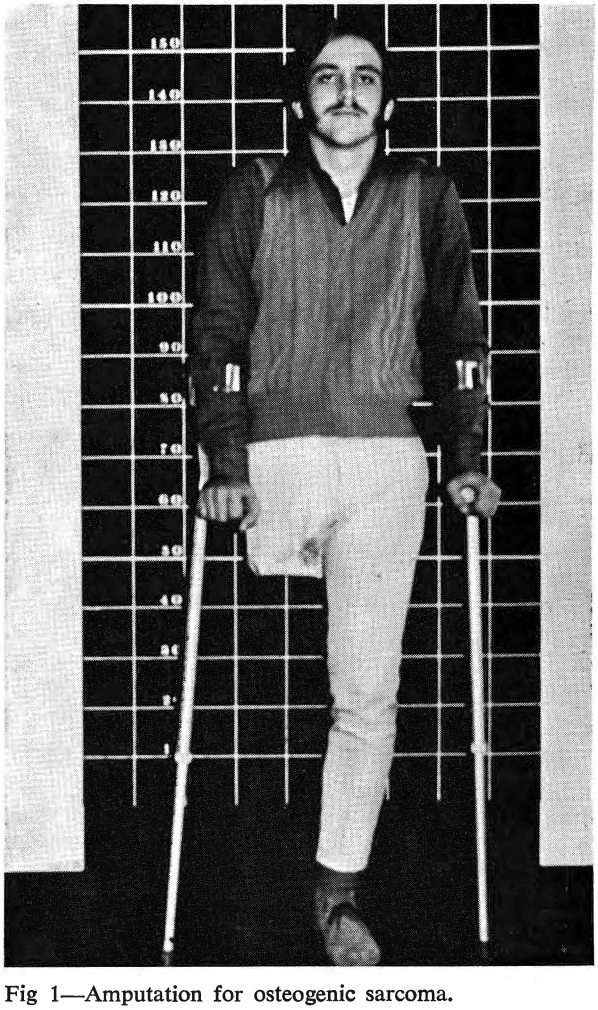

Fig 1—Amputation for osteogenic sarcoma.

Fig 2—Alopecia, the most common cause for altered physical appearance. A 7th cranial nerve palsey is also noted.

Loss of a limb is a traumatic experience. It requires major surgery, and is followed by mourning of the limb and weeks of hard work on behalf of the patient and staff in the rehabilitation phase. Even then, the threat of a recurrence is always present.

At the Denver Children's Hospital we are fortunate to have an Amputee Center that aids in emotional support, early ambulation, prosthetic fitting and physical and occupational therapy. The youngsters are active in golf, riding, swimming and skiing. We have instituted a "buddy system" in which a well adjusted amputee visits, preoperatively, another teenager who must undergo amputation. We have recorded several of these sessions, with parents' consent, but unknown to the teenagers. Questions arise which we physicians are never asked, yet they are important to these youngsters: "Can I wear sandals?" "How do they take your leg off?" "What happens to my leg, do they bury it?" "When can I ski?" Perhaps we will gain more insight as we continue our project.

Endocrine changes secondary to surgery or radiation to the gonads may provoke castration anxieties. The cushingoid appearance with obesity and acne are especially unpleasant for these youngsters; low salt diets, good hygiene and hormonal replacement are helpful (Fig. 5).

Interpersonal Relationships

Ambivalence with respect to dependency-independency is intensified in adolescents with cancer. They may interpret as weakness the dependent role which the disease forces upon them and may resent their parents and physicians for making them appear weak. The frankness of their peers is difficult for the patients whose emotional reserve to respond to everyday trauma is already compromised by illness.

Normal heterosexual relationships may dissolve if the adolescent feels ugly and unworthy because of his illness.

Sympathetic or over-solicitous remarks may be infuriating; one girl changed colleges because she resented these attitudes. We point out to our patients that their friends may also be threatened by the idea of malignancy disfigurement and weakness; they may become self-conscious as does the patient and grope for the right way to react.

The attitude of the parents may be reflected in the adolescent's attitude toward his illness—the well adjusted parents who are eager to aid the physician in the total care versus the frightened or overprotective parents. Pre-existing distrust between the patient and parents or other authority figures may manifest itself in rebellion and resistance to staff and therapy. In general the adolescent must realize his physician is honest, interested, available and willing to spend time talking and listening. We should find out what is "bugging" these patients the most. Often other symp-

Fig 3—17-year-old girl with both hair loss and amputation. She made an excellent adjustment, with help from her family and boyfriend, and is shown with her wig, on the way to the Senior Prom.

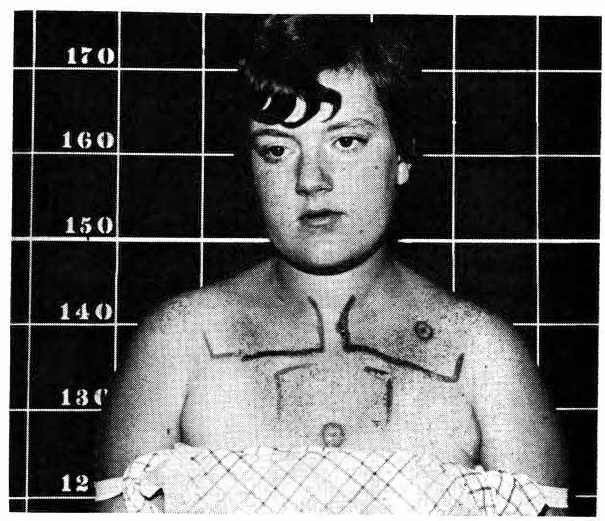

Fig 4—Skin changes in patient with Hodgkin's disease undergoing radiation therapy.

toms may make them feel a recurrence has come and they may be frightened and depressed.

Sibling rivalry may be evident if younger children are neglected by parents. Often their behavior may improve if the physician helps them understand why parents must occasionally devote more time to the sick sibling.

Often the doctor-patient relationship communications are non-verbal and are expressed in term papers patients write on leukemia, poems written when they are frightened or happy (Fig 6), and drawings they share with us. All have a message.

Future Plans

Questions asked often imply longevity: "Should I apply for college?" They really want to know: "Will I live long enough to finsh college?" We are faced with the problem of giving an honest answer without demolishing hope for the future or encouraging false optimism.

The adolescent girl as she approaches adulthood witnesses her friends getting married and having children. She may wonder whether she should marry, have children, and what the effects of her past or present therapy would have on her children.

Pelvic irradiation, teratogenic anti-cancer chemotherapeutic agents, may seemingly make pregnancy impossible. Yet we have had girls conceive in and out of wedlock while on Vincristine, Cytoxan® and 6-Mercaptopurine. Of course, problems of contraception or therapeutic abortion must be realistically discussed based on the girl's life situation.

Fig 5—Prednisone therapy causing cushinoid appearance in girl with leukemia.

The Management of Death

Adolescents may deny the prospect of death as a personal experience for themselves, even as they deny that they will ever grow old. Senescence and death are identified with weakness and imperfection. Any thoughts of death at the time of diagnosis will be smothered by the patient's denial and hope for a cure. During the course of the illness these patients commonly employ coping mechanisms such as denial, overcompensation, intellectualization and regression.

It is of interest that we have not seen any instances of drug abuse; rather there is usually a stoic rejection of pain medication unless it is obviously needed. There have been no overt suicide attempts within this group who are at the age where it is a common occurrence; life becomes precious.

Death is a very personal matter and yet the patient must feel his physicians will not abandon him—will not let him suffer pain or isolation. Many want to be at home in familiar surroundings, and members of the staff visit them at home. Many have asked that their bodies be donated to science and feel that in some way they have contributed through their ordeal of

ALL TOO SOON

All too soon I will be grown up,
Never again to taste the pleasures
of childhood.
The days when rain was not something
to hide from;
The days when snow was not cold,
When snakes weren't slimey,
And Dogs did not smell,
When mud wasn't dirty and to play in.
These things are all past, long gone,
expired.
And I will never be innocent again.

Fig 6—Poem by adolescent patient with malignancy.

To Charlotte

Pain was what she knew.
Too young - but so old in pain.
It took the irony of malady
To bend her straight young back.
But mute, she obeyed the summons
To depart.
Like a hard young tree
Prints its shadow on the snows -
Or reluctantly lets go her leaves
On some sad, summer's day.
She, fading, fading
Will not go from our minds.
What we have seen and felt
(The tragedy of it!)
Etches its designs upon our brains
And we shall know.
Remembering her courage.
It was not in vain.

Helen Monroe
December 1969

Fig 7—By a mother, this poem shows that parents also need emotional support.

Fig 8—Drawing by a patient with Hodgkin's disease. Note the message on the flag; hope is important.

malignancy. Youngsters from broken homes even worry about funeral expenses for the surviving parents. The management of death is merely an extension of our management of life. It is the listening, reassuring and communication between people.

Parents and family must be comforted, guilt must be washed away, and they must be made to feel that everything possible has been done. Parents often visit or correspond with us years after a youngster has died, and must be supported even then (Fig 7).

Conclusion

A discussion on the psychological aspects in the management of adolescents with malignancy would be incomplete if we did not discuss the impact of this task as it relates to physicians and staff. Whether this is a once in a life time experience in a well general adolescent practice or a daily chore on a specialized oncology unit, it has profound emotional impact on all concerned. Those of us who see cancer patients as part of our daily routine develop our own coping mechanisms; they are variable and generally are the ones with which we are most comfortable. Whether it be a relaxed warm friendship or a more formal doctor-patient relationship depends on our own personalities.

Orientation for non-medical personnel, medical and nursing students, and housestaff is essential. Often these people have never faced adolescents with potentially fatal diseases and are often overwhelmed, frightened and depressed. They need a chance to ventilate these feelings and they need to know we have all felt the same way somewhere along the way, and do even now. They must also adapt the philosophy that a job must be done on a day at a time basis, with honesty, warmth, skill and kindness, because that is the way the kids want it. As illustrated by a Hodgkin's patient's drawing (Fig 8), "The show must go on."

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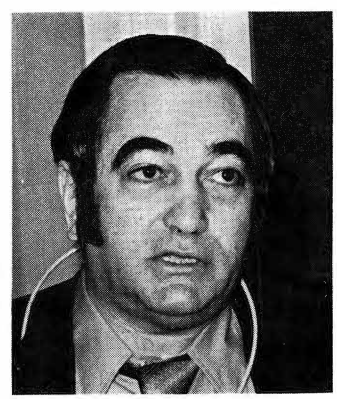

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