

Functional Job Analysis

Paramedic Characteristics

The Paramedic must be a confident leader who can accept the challenge and high degree of responsibility entailed in the position. The Paramedic must have excellent judgement and be able to prioritize decisions and act quickly in the best interest of the patient, must be self disciplined, able to develop patient rapport, interview hostile patients, maintain safe distance, and recognize and utilize communication unique to diverse multicultural groups and ages within those groups. Must be able to function independently at optimum level in a non-structured environment that is constantly changing.

Even though the Paramedic is generally part of a two- person team generally working with a lower skill and knowledge level Basic EMT, it is the Paramedic who is held responsible for safe and therapeutic administration of drugs including narcotics. Therefore, the Paramedic must not only be knowledgeable about medications but must be able to apply this knowledge in a practical sense.

Knowledge and practical application of medications include thoroughly knowing and understanding the general properties of all types of drugs including analgesics, anesthetics, anti-anxiety drugs, sedatives and hypnotics, anti-convulsants, central nervous stimulants, psychotherapeutics which include antidepressants, and other anti-psychotics, anticholinergics, cholinergics, muscle relaxants, anti-dysrhythmics, anti-hypertensives, anticoagulants, diuretics, bronchodilators, ophthalmics, pituitary drugs, gastro-intestinal drugs, hormones, antibiotics, antifungals, antiinflammatories, serums, vaccines, anti-parasitics, and others.

The Paramedic is personally responsible, legally, ethically, and morally for each drug administered, for using correct precautions and techniques, observing and documenting the effects of the drugs administered, keeping one's own pharmacological knowledge- base current as to changes and trends in administration and use, keeping abreast of all contraindications to administration of specific drugs to patients based on their constitutional make-up, and using drug reference literature.

The responsibility of the Paramedic includes obtaining a comprehensive drug history from the patient that includes names of drugs, strength, daily usage and dosage. The Paramedic must take into consideration that many factors, in relation to the history given, can affect the type medication to be given. For example, some patients may be taking several medications prescribed by several different doctors and some may lose track of what they have or have not taken. Some may be using non-prescription/over the counter drugs. Awareness of drug reactions and the synergistic effects of drugs combined with other medicines and in some instances, food, is imperative. The Paramedic must also take into consideration the possible risks of medication administered to a pregnant mother and the fetus, keeping in mind that drugs may cross the placenta.

The Paramedic must be cognizant of the impact of medications on pediatric patients based on size and weight, special concerns related to newborns, geriatric patients and the physiological effects of aging such as the way skin can tear in the geriatric population with relatively little to no pressure. There must be an awareness of the high abuse potential of controlled substances and the potential for addiction, therefore, the Paramedic must be thorough in report writing and able to justify why a particular narcotic was used and why a particular amount was given. The ability to measure and re-measure drip rates for controlled substances/medications is essential. Once medication is stopped or not used, the Paramedic must send back unused portions to proper inventory arena.

The Paramedic must be able to apply basic principles of mathematics to the calculation of problems associated with medication dosages, perform conversion problems, differentiate temperature reading

between centigrade and Fahrenheit scales, be able to use proper advanced life support equipment and supplies (i.e. proper size of intravenous needles) based on patient's age and condition of veins, and be able to locate sites for obtaining blood samples and perform this task, administer medication intravenously, administer medications by gastric tube, administer oral medications, administer rectal medications, and comply with universal pre-cautions and body substance isolation, disposing of contaminated items and equipment properly.

The Paramedic must be able to apply knowledge and skills to assist overdosed patients to overcome trauma through antidotes, and have knowledge of poisons and be able to administer treatment. The Paramedic must be knowledgeable as to the stages drugs/medications go through once they have entered the patient's system and be cognizant that route of administration is critical in relation to patient's needs and the effect that occurs.

The Paramedic must also be capable of providing advanced life support emergency medical services to patients including conducting of and interpreting electrocardiograms (EKGs), electrical interventions to support the cardiac functions, performing advanced endotracheal intubations in airway management and relief of pneumothorax and administering of appropriate intravenous fluids and drugs under direction of off-site designated physician.

The Paramedic is a person who must not only remain calm while working in difficult and stressful circumstances, but must be capable of staying focused while assuming the leadership role inherent in carrying out the functions of the position. Good judgement along with advanced knowledge and technical skills are essential in directing other team members to assist as needed. The Paramedic must be able to provide top quality care, concurrently handle high levels of stress, and be willing to take on the personal responsibility required of the position. This includes not only all legal ramifications for precise documentation, but also the responsibility for using the knowledge and skills acquired in real life threatening emergency situations.

The Paramedic must be able to deal with adverse and often dangerous situations which include responding to calls in districts known to have high crime and mortality rates. Self-confidence is critical, as is a desire to work with people, solid emotional stability, a tolerance for high stress, and the ability to meet the physical, intellectual, and cognitive requirements demanded by this position.

Physical Demands

Aptitudes required for work of this nature are good physical stamina, endurance, and body condition that would not be adversely affected by frequently having to walk, stand, lift, carry, and balance at times, in excess of 125 pounds. Motor coordination is necessary because over uneven terrain, the patient's, the Paramedic's, and other workers' well being must not be jeopardized.

Comments

The Paramedic provides the most extensive pre-hospital care and may work for fire departments, private ambulance services, police departments or hospitals. Response times for nature of work are dependent upon nature of call. For example, a Paramedic working for a private ambulance service that transports the elderly from nursing homes to routine medical appointments and check-ups may endure somewhat less stressful circumstances than the Paramedic who works primarily with 911 calls in a districts known to have high crime rates. Thus, the particular stresses inherent in the role of the Paramedic can vary, depending on place and type of employment.

However, in general, in the analyst's opinion, the Paramedic must be flexible to meet the demands of the ever-changing emergency scene. When emergencies exists, the situation can be complex and care of the patient must be started immediately. In essence, the Paramedic in the EMS system uses advanced training and equipment to extend emergency physician services to the ambulance. The Paramedic must be able to make accurate independent judgements while following oral directives. The ability to perform duties in a timely manner is essential, as it could mean the difference between

life and death for the patient.

Use of the telephone or radio dispatch for coordination of prompt emergency services is required, as is a pager, depending on place of employment. Accurately discerning street names through map reading, and correctly distinguishing house numbers or business addresses are essential to task completion in the most expedient manner. Concisely and accurately describing orally to dispatcher and other concerned staff, one's impression of patient's condition, is critical as the Paramedic works in emergency conditions where there may not be time for deliberation. The Paramedic must also be able to accurately report orally and in writing, all relevant patient data. At times, reporting may require a detailed narrative on extenuating circumstances or conditions that go beyond what is required on a prescribed form. In some instances, the Paramedic must enter data on computer from a laptop in ambulance. Verbal skills and reasoning skills are used extensively.

Source:USDOT 1998 National Standard Paramedic Curriculum

Job Analysis Schedule

1. Establish Job Title: Emergency Medical Technician—Paramedic
2. D. O. T. Title, Industry Designation and Code 079.374.010
3. WTA Group: Occupations in medicine and health,
4. SIC Code
5. SOC Code 3690 Emergency medical technicians
6. GOE 10.03.02 (medical services)
7. Job Summary: In emergency situations, administers all facets of basic and advanced life support medical services to injured and sick persons in pre-hospital settings as directed by physician.
8. Work Performed Estimates:

Worker Functions	Data	People	Things
	3	7	4

3. Compiling
7. Serving
4. Manipulating

Work Field: 294 Health, Caring, and Medical
M.P.S.M.S. 920 (Materials, Products, Subject Matter, and Services) Medical and other health services.

9. Worker Traits Ratings:

General Education Development (GED) encompasses three broad areas which are rated independently in relation to the occupation being assessed: **Reasoning Development, Mathematical Development, and Language Development.** General Educational Development (GED) embraces those aspects of education (both formal and informal) which contribute to the worker's reasoning development, the ability to follow instructions, and to the acquisition of "tool" knowledge such as language and mathematical skills. This is education of a general nature which does not have a recognized, fairly specific occupational objective. Ordinarily, such education is obtained in elementary school, high school, or college. However, it may be obtained from experience and self study. Description of rating on the GED Scale: Level 1= lowest level; Level 6 = highest level.

Low

Hig
h

1	2	3	<u>Math 4</u>	<u>Reasoning 5</u> <u>Language 5</u>	6
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Bolded and underlined areas define the analyst's rating for the Paramedic. (Other numbers are shown for informational purposes only). A detailed explanation follows:

Reasoning development (R)

Level 5

Two relevant examples from text are provided for assignment to Level 5 for the Paramedic:

Example from text: Level R-5:5

Prepares and conducts in service training for company personnel. Evaluates training needs in order to develop educational materials for improving performance standards. Performs research relating to course preparation and presentation. Compiles data for use in writing manuals, handbooks, and other training aids. Develops teaching outlines and lesson plans, determines content and duration of courses, and selects appropriate instructional procedures based on analyses of training requirements of company personnel.

Example from text: Level R 5:6

Renders general nursing care to patients in hospital, infirmary, sanitarium, or similar institution. Administers prescribed medications and treatments in accordance with approved techniques. Prepares equipment and aids physician during treatments or examination of patients. Observes, records, and reports to supervisor or physician patient conditions, reactions to drugs, treatments, and significant incidents.

Examples of job duties of the Paramedic that align themselves with the above examples related to "Reasoning" include:

Visually inspects and assesses or "sizes up" the scene upon arrival to determine if scene is safe, determines the mechanism of illness or injury, the

total number of patients involved, and remains calm and confident while demonstrating leadership and responsibility. Reports verbally to the responding EMS unit or communications center as to the nature and extent of injuries and the number of patients. Recognizes hazards. Conducts triage, sorting out and classifying priorities for most immediate need for treatment. Uses excellent judgement to identify priorities based on the most critical needs for patient survival. Directs Basic EMT to assist.

Determines nature and extent of illness or injury in patient, takes pulse, blood pressure, and temperature, visually observes patient, recognizes the mechanisms of injury and takes comprehensive medical history of patient, including patient's current usage of prescribed and non-prescribed medications/drugs.

Accepts primary responsibility for all aspects of advanced life support given to the patient, including use of advanced life support equipment and administration of medication that includes narcotics; responsible for thorough written documentation of all activity related to patient care and medication dispensation. Uses good judgement to draw conclusions with often, limited information; verbally communicates effectively to provide quality treatment to diverse age and cultural groups. Provides family support, manages the difficult patient, conducts fundamental mental status assessment, restrains patient, and intervenes pharmacologically.

Uses advanced life support equipment and administers medication through the patient's most appropriate body route, including intravenous. Provides pre-hospital emergency care of simple and multiple system trauma such as controlling hemorrhage, bandaging wounds, manually stabilizing painful, swollen joints and injured extremities, and immobilizing spine. Uses automatic defibrillator apparatus in application of electric shock to heart, manages amputation, uses anti-shock garment, conducts peripheral venous access, intra-osseous infusion, manual defibrillation, interprets EKGs, manually stabilizes neck and body of child and adult, immobilizes extremities, straightens selected

fractures, and reduces selected dislocations. Delivers newborn. Complies with practices and policies, established protocols within organization of employment according to state regulations. Maintains confidentiality, responsible for the safe and therapeutic administration of drugs including narcotics, must be able to apply this knowledge in a practical through a thorough knowledge and understanding of the general properties of all types of drugs including analgesics, anesthetics, anti-anxiety drugs, sedatives and hypnotics, anti-convulsants, central nervous stimulants, psychotherapeutics which include antidepressants, and other anti-psychotics, anticholinergics, cholinergics, muscle relaxants anti-dysrhythmics, anti-hypertensives, anticoagulants, diuretics, bronchodilators, ophthalmics, pituitary drugs, gastro-intestinal drugs, hormones, antibiotics, antifungals, antiinflammatories, serums, vaccines, anti-parasitics, and others.

The Paramedic is personally responsible legally, ethically, morally for each drug administered, using correct precautions and techniques, observing and documenting the effects of the drugs administered, keeping one's own pharmacological knowledge base current as to changes and trends in administration and use, keeping abreast of all contraindications to administration of specific drugs to patients based on their constitutional make-up, and using drug reference literature.

Note: In the analyst's opinion, while many aspects of Level 4 "Reasoning" are pertinent to the Paramedic role such as "using rational systems to solve practical problems where limited standardization exists", and "cares for patients and children in private homes, hospitals, sanitariums, and similar institutions, takes and records temperature, pulse and respiration rate, sterilizes equipment and supplies using germicides, sterilizer or autoclave", this definition is somewhat limiting. There are also many abstract variables with which the Paramedic must contend on a regular basis. Strong reasoning ability is required to deal with the complexity and variety of the situations in which the Paramedic works. This includes not only the aspects of providing quality advanced emergency medical care requiring the use of logic and reason to define problems

and arrive at solutions on a practical basis, but also contributing to the Paramedic profession by using reasoning to define and analyze problems and arrive at solutions to enhance the field through teaching, and contributing to research through written media/journals. Thus, the reasoning level for the Paramedic is more like a level 5 than a level 4.

Mathematical development (M)

Level 4

Example from text: Shop math: Practical application of fractions, percentages, ratio and proportion, and measurement.

Examples of the above level (math) in relation to work performed by the Paramedic include:

Calculating correctly the amount of medication to be given in relation to patient's weight, age, and other factors that warrant adjustment of volume. Measuring and re-measuring drip rates of medications/controlled substances administered intravenously. Sending back to inventory area, any unused portions. Completing log sheets that detail the numbers and totals of services provided and amounts of medications used.

Note: The Paramedic is legally accountable and responsible for maintaining Class I Medications (narcotics) and must keep accurate count and inventory of such items.

Language development (L)

Level 5

Reading-Read literature, book and play reviews, scientific and technical journals, abstracts, financial reports and legal documents.

Examples of job duties that align themselves with the above examples in relation to the reading level assigned include that:

The Paramedic must be able to accurately read a Drug Reference Manual to determine not only the name of the drug on a label, but to recognize that a generic

name and a brand name may not always appear on a prescription label, thus the need for cross/referencing through written reference materials. The Paramedic needs to know what type of drug(s) the patient is taking, how long ago it was taken, how long the effects are expected to remain in the body based on the patient's constitutional make-up, what condition for which it was prescribed, general information, cautions and warnings, possible side effects, possible adverse side effects, drug and food interactions, the usual dosage an duration of dosage for adult and child, antidotes for overdoses, and other special information.

The Paramedic also takes a comprehensive medical history of patient, including patient's current usage of prescribed and non-prescribed medications/drugs.

At times, the patient does not know when or if he/she took a certain medication. Often, many individuals are taking multiple medications simultaneously and it will be up to the Paramedic to read from the medication bottles or containers the exact names of the medications and the dosages. It is absolutely essential that the Paramedic read correctly and expediently. For example, the drug "Milontin" must not be construed as "Melatonin". Milontin, a drug used for control of petit mal seizures may be associated with severe reduction in white blood cell platelet counts and when used alone for both grand mal and petit mal seizures may increase the number of grand mal seizures and necessitate more medicine to control the seizures. It can also cause a person's urine to turn pink or brown. Although the discoloration is harmless, it could cause alarm in the patient. In addition, sudden stoppage of this medication may bring on more seizures. While it is a good idea for patients using this drug to wear identification, they may or may not be. On the other hand, Melatonin, a currently popular over the counter remedy purported to improve sleep and general well being has none of the ramifications as Miltonin. The preceding is but one example. There are numerous examples of names of medications which if not read correctly, could mean the difference in the treatment administered, and ultimately, whether or not the patient lives or dies.

The Paramedic must also be able to read and interpret EKGs. In addition, as a basic part of emergency care, the Paramedic searches for medical clues/identification on a patient. These are generally in written form on a bracelet. In addition, the Paramedic gathers demographic patient information that must be recorded during the interview. At times, if the patient has poor vision and cannot see, hear or cannot read, and there is no family member to assist, the Paramedic may be asked to gather pertinent data through reading such documents as a driver's license, a health care provider form or human services agency card. The Paramedic must be able to accurately read a street map, both for name of street and number of building/residence location.

Detailed written reports are an essential part of the Paramedic's job and the Paramedic must be able to review the narrative he/she writes to verify for accuracy. Legally, the Paramedic is accountable for what is written.

It is ideal that the Paramedic read professional journals to keep current with his/her profession. However, it is mandatory that the Paramedic keep abreast of new equipment, techniques for using the equipment and new medications on the market. Information of this nature is generally transmitted through written literature and manuals. The Paramedic, in practice, will refer to algorithms and basic care protocols (which do vary), in much the same manner that a physician uses the Physicians' Desk Reference or a licensed professional therapist uses the Diagnostic & Statistical Manual IV. The Paramedic must successfully complete continuing education programs that involve accurate reading of course materials to update skills and competencies as required by employers, medical direction, and licensing or certifying agencies.

The Paramedic is personally responsible legally, ethically, and morally for each drug administered, reading the labels, using correct precautions and techniques, observing and documenting the effects of the drugs administered, keeping one's own pharmacological knowledge base current as to changes and trends in administration and use,

keeping abreast of all contraindications to administration of specific drugs to patients based on their constitutional make-up, and using up to date drug reference literature.

Writing - Write novels, plays, editorials, journals, speeches, manuals, critiques, poetry, and songs.

Example from text: L5-4

Write service manuals and related technical publications concerned with installation, operation, and maintenance of electrical, electronic mechanical and other equipment. Interviews workers to acquire or verify technical knowledge of a subject. Rewrites articles, bulletins, manuals or similar publications.

Examples of the above (writing) in relation to work performed by the Paramedic:

Writes detailed comprehensive narrative report on patient care given. Writes professional journal articles for Emergency Medical Technician literature. Writes and prepares lesson plans, manuals and curriculum for instructional purposes.

Speaking - Conversant in the theory, principles, and methods of effective and persuasive speaking, voice and diction, phonetics, and discussion and debate.

Examples of the above (speaking) in relation to work performed by the Paramedic:

Answers verbally to telephone or radio emergency calls from dispatcher to provide advanced efficient and immediate emergency medical care to critically ill and injured persons.

Interviews patient and or significant others to gain comprehensive understanding of patient's condition for development of workable patient diagnosis. Adjusts/alters verbal communication with patient and family/significant others to reflect and ensure adequate and appropriate care and treatment with respect to the age of the patient, i.e. child,

adolescent, or geriatric, and cultural status. Provides family support through good communication and responding appropriately verbally, manages the difficult patient through use of voice and choice of words, conducts fundamental mental status assessment by asking pertinent questions, restrains patient often using persuasive verbal techniques to which patient can relate. Teaches curriculum to other EMTs, communicates with other EMS providers, physicians, hospital staff, police departments, fire departments, and relays findings verbally.

Note: With respect to Language Development, there are components of both "Level 4" and "Level 5" in the role of the Paramedic, such as Level 4's "reading novels, poems, newspapers, periodicals, journals, manuals, dictionaries, thesauruses, and encyclopedias; writing and preparing business letters, expositions, summaries and reports, using prescribed format and conforming to all rules of punctuation, grammar, diction and style; and speaking by participating in panel discussions, dramas and debates, and speaking extemporaneously on a variety of subjects".

However, there are more Level 5 components as are shown above, than there are Level 4, thus it is deemed to be at Level 5.

10. FORMAL EDUCATION: High school diploma/GED with advanced training and certification

11. SPECIAL VOCATIONAL PREPARATION (SVP) (Time requirement of an additional 900-1200 classroom hours beyond the 110 hours acquired at the Basic EMT level SVP is defined as the amount of lapsed time required by a typical worker to learn the techniques, acquire the information, and develop the facility needed for average performance in a specific job worker situation. Level 6 is the approximate time ascribed for completion of preparation for a Paramedic (other numbers are listed for informational purposes only).

SVP	1	2	3	4	5	<u>6</u>	7	8	9
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Explanation of scale:

<u>Level</u>	<u>Time</u> ¹
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- 1 Short demonstration only
- 2 Anything beyond short demonstration up to and including one month
- 3 Over one month up to and including three months
- 4 Over three months up to and including six months
- 5 Over six months up to and including one year
- 6 Over one year up to and including two years
- 7 Over two years up to and including four years
- 8 Over four years up to and including ten years
- 9 Over ten years

NOTE: The levels of this scale are mutually exclusive and do not overlap

¹ Time that applies to General Educational Development is not considered in estimating SVP

APTITUDES

Aptitudes, a component of Worker Characteristics, are the capacities or specific abilities which an individual must have in order to learn a given work activity. There are 11 Aptitudes used for job analysis. Aptitude estimates are useful as analytic and descriptive tools and can be expressed in terms of the following levels or categories which reflect the amounts of the aptitudes possessed by the segments of the working population.

These ratings are explained by the number preceding the rating.

1. The top 10 % of the population. This segment of the population possesses an extremely high degree of the aptitude.
2. The highest third exclusive of the top 10% of the population. This segment of the population possesses an above average or high degree of the aptitude.
3. The middle third of the population. This segment of the population possesses a medium degree of the aptitude, ranging from slightly below to slightly above average.
4. The lowest third exclusive of the bottom 10 % of the population. This segment of the population possesses a below average degree of the aptitude.
5. The lowest 10% of the population. This segment of the population possesses a negligible degree of the aptitude.

Level 1 indicates a higher degree of particular aptitude

whereas Level 5 indicates a lower degree of an aptitude pertinent to a job. If an aptitude is rated as a Level 5, it means that for the job under study, the amount of aptitude required is negligible or not required at all. The ratings for aptitudes for the Paramedic are as follows and are explained below in further detail: C1 G 2 P 2 K 2 M 2 E 2 V 3 N 3 S 3 Q 3

1. Highest 10 % of the population has this aptitude	C= Color Discrimination
2. Highest middle third	G= General Learning Ability P= Form Perception K= Motor Coordination M= Manual Dexterity E= Eye, Hand, Foot Coordination
3. Middle middle third	V= Verbal N= Numerical S= Spatial Q= Clerical
4. Lower middle third	N/A
5. Lowest 10 % of the population has this aptitude	N/A

The following is an explanation of each of the above aptitude ratings.

G - Intelligence (General Learning Ability)

Level 2 Represents a high degree of aptitude or ability. This ranks the Paramedic in the highest third of the population, excluding the top 10 percent.

Note: Level 2 and Level 3 overlap, thus a rating judgement must be made. Level 3 represents the middle third of the population and includes aptitudes that run slightly above and slightly below average. It is the analyst's opinion that intelligence/general learning aptitude is at least average to slightly above average for the Paramedic position. While with Level 3, intelligence is required to learn and apply principles of anatomy, physiology, microbiology, nutrition, psychology, and patient care used in nursing; to make independent judgements in absence of doctor and to determine methods and treatments to use when caring for patients with injuries or illnesses, Level 2, which is higher, is more appropriate based on the following related, but not specific example:

Example from text G: 2

Compounds and dispenses medications, following prescriptions: understands the composition and effects of drugs and is able to test them for strength and purity. Checks prescriptions to determine whether dosages are reasonable and the drugs chemically and physiologically compatible. Must be able to compound ingredients to form powders, pills, ointments and solutions. Must make sterile solutions, buy medical supplies, and advise medical staff on the selection and effects of drugs.

Another related example from text is G2-5

Intelligence is required to learn the basic principles relating to biochemistry, microbiology, parasitology, blood cells, body cells, viruses, serum and vaccines and the preparation and examination of tissues.

Note: Overall, general intelligence (learning ability) must be of the level required for the Paramedic to acquire the skills and knowledge necessary in applying principles of advanced patient life support in emergency medical situations through extensive knowledge of pharmacological principles. Thus intelligence is more like a Level 2 than a Level 3.

V - Verbal Aptitude

Level 2 Fairly high degree of aptitude required.

No text illustrations in medical area.

Closely related skills appear comparable to text example, V2-3: Studies origin, relationship, development, anatomy, and other basic principles of plant and animal life, usually specializing in research centering around a particular plant, animal or aspect of biology: Verbal aptitude is required to read and comprehend information concerning biological sciences and to express orally or in writing findings from investigations in various fields such as agriculture, animal or plant life, genetics, pharmacology and microbiology.

On the job:

The most relevant applications of the above are speaking, writing, and communicating with physicians, nurses, and other EMS systems, and the findings pertinent to patients in emergency medical situations.

N - Numerical Aptitude (Perform arithmetic operations quickly and accurately)

Level 3 Average degree of aptitude required. No illustrations in medical area.

Somewhat related is text Example N2-3 whereby numerical aptitude is required to compute size of individual portions needed to obtain required nutritional values for regular or special diets, and to calculate total quantity of foodstuffs needed for specific period based on number to be fed, menus for period and individual quantities needed. Numerical aptitude is also required to break down total into number of units by standard sizes to prepare requisitions for vendors, and to maintain and analyze food cost records.

On the job:

Calculates in expedient manner, the amount of supplies/medications needed immediately, especially when occasions of multiple injuries occur. Calculates the amount of medication to be given in relation to patient's weight, age, and other factors that warrant adjustment of volume using oral, auto-injection, sublingual, inhalation, subcutaneous, intramuscular, intraosseous, transcutaneous, rectal, endotracheal, and central intravenous routes, as well as infusion pumps to administer medications. Administers in practical sense, the amount calculated. Tracks and logs all medications/narcotics administered.

S - Spatial Aptitude (Comprehend forms in space and understand relationships to plane and solid objects)

Level 3

Example from text: Level S - 3:1

Spatial aptitude is required to visualize anatomic positions and the relationship between the

point of application of forces and the area affected (as in traction); and to place treatment devices or administer manual treatment in relationship to the affected body part.

On the job :

Mobilizes spine, sets select fractures and dislocations. Sets up and administers intravenous medications and narcotics. Applies manual and advanced life support techniques to resuscitate patient. Carefully transports patient as to avoid further injury.

P - Form Perception (Ability to make visual comparisons and discriminations and see slight differences in shapes and shadings of figures and widths and lengths of lines)

Level 2 High degree of aptitude required

Example from text:

P - 2:6 Form perception is required to perceive pertinent details of size, shape, and form in skeletal structure, organs, tissue, and specimens of various animals.

On the job:

Conducts patient assessment through visually observing any changes in size of pupils, swelling, shrinking, or dislocations/protrusions of all body parts. Checks for most appropriate vein to administer medication.

Q - Clerical Perception (Ability to perceive pertinent detail in verbal or tabular material-proof read)

Level 3

Example from text: Q - 3:13

Assists in care of hospital patients under direction of nursing and medical staff. Clerical perception is required to read and report such data as temperatures, pulse rate and respiration rate, to report patient's food and fluid intake and output, and to read charts and instructions accurately. Generally completes documentation of relevant data on pre-printed form. Must be able to read form accurately and report patient information in appropriate allocated space. Occasionally, may be required to submit short narrative report.

On the job:

Takes and records vital signs, reads EKGs and compiles log of work performed.

K - Motor Coordination (Ability to make a movement response quickly and accurately and coordinate eye-hand)

Level 2 High degree of aptitude required

Example from text: K - 2:5

Renders general nursing care to patients in hospital, infirmary, sanitarium, or similar institution.

On the job:

Coordinates vision, finger and hand movements in taking vital signs, freeing airway including surgery, performing CPR, administering medication/narcotics through grasping of and inserting needle into skin, delivering newborn, setting up equipment, turning equipment off and on, balancing self when lifting /moving or stabilizing patients, and other.

F - Finger Dexterity (Ability to move fingers and manipulate small objects rapidly and quickly)

Level 2 High degree of aptitude required

No illustrations in medical field.

On the job:

Recommended due to necessity of positioning needle for injection, opening and maintaining airway, ventilating patient, controlling hemorrhage, bandaging wounds, administer medications, manually stabilizing painful swollen and deformed extremities, and performing other basic and advanced life support functions.

M - Manual Dexterity (Ability to move the hands easily and skillfully)

Level 2 High degree of aptitude required

On the job:

No illustrations given. Recommended due to nature of work which involves moving the hands skillfully and quickly to perform essential functions of advanced/ skilled emergency patient care.

E - Eye-Hand-Foot Coordination (Ability to coordinate these)

Level 2 High degree of aptitude required

No text illustrations given.

On the job:

Recommended as job may require balancing on ladders, stairs, or walking on uneven terrain while assisting in carrying patients. In the interest of time and safety, may be required to move quickly.

C - Color Discrimination (Ability to perceive difference in colors, shades, or harmonious combinations, or to match colors)

Level 1 Highest degree of aptitude and ability required.

Example from text: C-1:4 Uses color discrimination and color memory in making diagnosis of patients' affliction or condition, by recognizing any deviations in color of diseased tissue from healthy tissue; evaluating color characteristics such as hue and saturation of affected body parts; and making determination as to extent or origin of condition.

Temperament

D	R	I	V	E	A	S	T	U	P	J	M
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Explanation of terms:

Terms bolded and underlined above are those deemed most pertinent to temperament of the Paramedic when performing the job a Paramedic is expected to perform. Temperaments are the adaptability requirements made on the worker by specific types of jobs. Below is a list of various temperament factor definitions. The shaded areas are those deemed applicable to the role of the

Paramedic.

D	Directing , controlling, or planning the activities of others
R	Performing repetitive or short cycle work
I	Influencing people in their opinions, attitudes or judgments
V	Performing a variety of duties
E	Expressing personal feelings
A	Working alone or in part in physical isolation from others
S	Performing effectively under stress
T	Attaining precise set limits, tolerances , and standards
U	Working under specific instructions
P	Dealing with people
J	Adaptability to making judgments and decisions based on sensory or judgmental criteria
M	Adaptability to making judgements based on measurable or verifiable criteria

Interests

Interests	1a	1b	2a	<u>2b</u>	3a	3b	<u>4a</u>	4b	5a	5b
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The Paramedic is seen as having interests that relate to:

4a - A preference for working for the presumed good of the people.

2b - A preference for activities of a scientific and technical nature

Physical Demands

Physical Demands	S	L	M	H	<u>V</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
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The Paramedic's job involves very heavy lifting (50 pounds frequently, no maximum) and involves climbing, balancing, stooping, kneeling, crouching, crawling, reaching, handling, fingering, feeling, talking, hearing, and seeing on a frequent basis. Shaded, underlined, bolded areas above are applicable to the job of the Paramedic.

Explanation of terms:

1. Strengths

S = Sedentary (10 pounds maximum)

L = Light work (10 pounds frequently, 20 pounds maximum)

M = Medium work (25 pounds frequently, 50 pounds maximum)

H = Heavy work (50 pounds frequently, 100 pounds maximum)

V = Very heavy work (50 pounds frequently, no maximum)

2. Climbing and/or balancing
3. Stooping, kneeling, crouching and crawling
4. Reaching, handling, fingering and/or feeling
5. Talking and hearing
6. Seeing

Environmental Conditions

Working Conditions	Location
1 Exposure to weather (outside . atmospheric conditions)	Indoors, Outdoors, Both
2 Extreme cold with or without . temperature changes (Exposure to non- weather related cold temperatures)	Indoors, Outdoors, Both
3 Extreme heat with or without . temperature changes (Exposure to non- weather related hot temperatures)	Indoors, Outdoors, Both
4 Wet and humid (Contact with water or . other liquids or exposure to non- weather related humid conditions)	Indoors, Outdoors, Both
5 Noise intensity levels (Can range from . very quiet, quiet, moderate, loud to very loud)	Indoors, Outdoors, Both
6 Vibration (Exposure to a shaking object . or surface)	Indoors, Outdoors, Both
7 Atmospheric conditions (Exposure to . conditions such as fumes, noxious odors, dusts, mists, gases, and poor ventilation that affect the respiratory system, eyes or the skin)	Indoors, Outdoors, Both
8 Proximity to moving mechanical parts . (Exposure to possible bodily injury from moving mechanical parts of equipment, tools, or machinery)	Indoors, Outdoors, Both
9 Exposure to electrical shock (Exposure . to possible bodily injury from electrical shock)	Indoors, Outdoors, Both
1 Working in high exposed places 0 (Exposure to possible bodily injury	Indoors,

. from falling)	Outdoors, Both
1 Other environmental conditions: mines, 1 slopes, fumes, smoke, dust, high crime . neighborhoods, darkness, law violators	Indoors, Outdoors, Both

Note: In the analyst's opinion, the general environmental conditions in which the Paramedic works cannot be adequately assessed in an indoor evaluative environment. The Paramedic in an actual work situation can be exposed to any working condition listed above. Because of the variance in climate, environmental conditions and locations in the United States and the infinite possibilities in which a Paramedic is expected to provide advanced life support, working conditions, at best, may be less than optimal. The Paramedic must be able to focus on providing the best care possible in often adverse and dangerous situations. This can include servicing neighborhoods known to have high crime rates and performing optimally in situations where multiple incidents and trauma exist, i.e. a major highway accident that involves numerous persons and vehicles. The Paramedic may be required frequently to walk, climb, crawl, bend, pull, push, or lift and balance over less than ideal terrain, such as an icy highway, muddy ground, dilapidated stairs/flooring and any other scenario or combination of scenarios. There may be exposure to a variety of noise levels, which at times can be quite high, particularly when multiple sirens are sounding, and crowds/bystanders/families are upset and may be screaming, crying hysterically, and making demands that may or may not be reasonable.

**U. S. Department of Labor
Manpower Administration**

Analyst: Cathy Cain, Ph. D.

Date: 2/16/98

Physical Demands and Environmental Conditions

ESTAB. JOB TITLE Paramedic **ESTAB. & SCHED. NO.**
DOT TITLE & CODE 079.010
GOE CODE & TITLE 100302 Medical services; SOC 3690
Code: F = Frequently
O = Occasionally
NP = Not Present
C = Constantly

Job Summary: In emergency medical situations, takes leadership role and assumes responsibility for applying specific knowledge and skills related to basic and advanced life support to patients; provides advanced life support to patients under supervision of physician and directs lower level EMTs to assist based on their levels of competency within their scope of practice.

Physical Demands			Comments	
1 Strength				
a	Standing	47 %	1	Walking and standing are major components of this job. Sitting is necessary for transportation to and from scene of emergency.
.	Walking	50 %	a	
	Sitting	3%		
k	Lifting	F	1	The Paramedic is required to assist in lifting and carrying injured or sick persons to ambulance and from ambulance into hospital. May be required to engage in pushing
.	Carrying	F	b	
	Pushing	O		

Pulling	O		and/or pulling to assist other EMS providers to extricate patient from scenes to include but not limited to closed upright vehicles, patient in closed overturned vehicle, patient pinned beneath vehicle, pinned inside vehicle, in vehicles with electrical hazards.
2 Climbing	F	2	Climbing and balancing may be required to gain access to site of emergency, i.e., stairs, hillsides, ladders, and in safely assisting in transporting patient.
Balancing	F		
3 Stooping	F	3	Patients are often found injured or sick in locations where assessment of patient is possible only through the Paramedic's stooping, kneeling, crouching, or crawling.
Kneeling	F		
Crouching	F		
Crawling	F		
4 Reaching	F	4	Required for assessing pulse, assessing breathing, blocking nose and checking ventilation, lifting chin, head, or jaw for opening airway, following angle of ribs to determine correct position for hands after each ventilation, compressing sternum, and assisting in lifting of patient, administering medications through intravenous therapy or other means, and handling of advanced life support equipment, such as mirror airway devices. Extension of arms to use hands and fingers to assess vital signs, feeling and touching of patient's skin to assess body warmth, handling limited equipment, and transporting of patient are important aspects of this position. Finger dexterity needed to insert needle, and prepare fluids/medication for administration and to operate equipment.
Handling	F		
Fingering	F		
Feeling	F		

5 Talking		5	Responding to patients, physicians, and co-workers through hearing is necessary in transmitting patient information and following directions.
Ordinary	F		
Other	O		May be required to shout for help and additional assistance.
Hearing		5	Verbally responding to dispatcher's message on phone or radio is necessary for quick, efficient service that can be vital to life in emergency situations.
Ordinary conversation	F		
Other	F		Communication on scene is critical for interviewing patient and in some instances, significant others, and in relaying this information in most expedient manner. Sounds of vehicles may alert Paramedic that additional help is on the way. Other sounds can alert the Paramedic that other persons may be hurt or injured, i.e., someone thrown behind a bush in a vehicle accident who cannot be seen and whose voice may be barely audible.
6 Seeing		6	Sight is used to drive ambulance to scene of injury or illness, to visually inspect patient and area, to read map, to read small print on medication/prescription containers, to read drug reference manuals, and to administer treatment.
Acuity, Near	F		
Acuity, Far	F		
Depth Perception	F		
Accommodation	F		
Color Vision	F		
Field of Vision	F		

7. General Education: High school graduation or equivalency is required.

8. Vocational Preparation:

a. College: None

2. Vocational Education Courses: An additional 900-1200 hours of education beyond the 110 required for the Basic EMT.

c. Apprenticeship: None

d. In-plant Training: None

5. On-the-Job-Training: During course of training, the Paramedic in training status will spend varying amounts of time in supervised clinical work in hospital and field settings.

6. Performance on Other Jobs: None required; however, training in the military as a medic is seen as beneficial.

9. Experience: None

10. Orientation:

11. Licenses, Etc.: Certification as Emergency Medical Technician: Paramedic, ACLS and CPR. Must maintain annual certification through continuing education.

12. Relation to Other Jobs and Workers:

Promotion: In some locations, Paramedics may become instructors, dispatchers or administrators.

Transfers: None

Supervision Received: Physician

Supervision Given: Some to lower level Basic EMTs.

13. Machines, Tools, Equipment, and Work Aids: Ambulance, radio/telephone/pager, blood pressure cuff, thermometer, extrication devices, esophageal airway obturator, ventilation mask, spinal boards, intravenous therapy equipment: needles and fluids, anti-shock garments, wheelchairs, and stretchers, EKG machines, defibrillator, visual airway intubation and other complex equipment, and sometimes, a computer for documentation.

14. Materials and Products: Broad range of medications including narcotics, disposable latex gloves, bandages, universal dressings such as gauze pads, tape, blankets, pillows and sheets, oxygen, drugs, and intravenous fluids.

Description of tasks
(encompasses the range of all tasks performed by lower level EMTs)

1. Answers verbally to telephone or radio emergency calls from dispatcher to provide advanced efficient and immediate emergency medical care to critically ill and injured persons using a full range of equipment.
2. Drives ambulance to scene of emergency, reads map, responds safely and quickly to the address or location as directed by radio dispatcher. observes traffic ordinances and regulations. Visually inspects and assesses or "sizes up" the scene upon arrival to determine if scene is safe, determines the mechanism of illness or injury, the total number of patients involved, and remains calm and confident while demonstrating leadership and responsibility.
3. Radios dispatcher for additional help or special rescue and /or utility services. Reports verbally to the responding EMS unit or communications center as to the nature and extent of injuries and the number of patients. Recognizes hazards. Conducts triage, sorting out and classifying priorities for most immediate need for treatment. Uses excellent judgement to identify priorities based on the most critical needs for patient survival.
4. searches for medical identification as clue in providing emergency care, i.e. identification bracelet for patient who is diabetic. Reassures patient and bystanders while working in a confident and efficient manner, avoids misunderstandings and undue haste while working expeditiously to accomplish the task. Extricates patient from entrapment, works with other EMS providers in rendering emergency care and protection to the entrapped patient. Performs emergency moves, assists other EMS providers in the use of prescribed techniques and appliances for safe removal of the patient.
5. Determines nature and extent of illness or injury in patient, takes pulse, blood pressure, and temperature, visually observes patient, recognizes the mechanisms of injury, takes comprehensive medical history of patient, including patient's current usage of prescribed and non-prescribed medications/drugs. Communicates with and provides verbal direction to Basic EMT to assist with tasks within the Basic's scope of practice. Obtains consent and

refusal. Uses good judgement to draw conclusions with often, limited information; verbally communicates effectively to provide quality treatment to diverse age and cultural groups. Provides family support, manages the difficult patient, conducts fundamental mental status assessment, restrains patient, and intervenes pharmacologically.

6. Positions unresponsive patient, protects the seizing patient, identifies and treats the hypoglycemic patient, provides heating/cooling interventions, manages burns and exposures, overdoses, conducts ingestion management. Manually stabilizes neck and body of child and adult, immobilizes extremities, straightens selected fractures and reduces selected dislocations. Delivers newborn. Provides pre-hospital emergency care of simple and multiple system trauma such as controlling hemorrhage, bandaging wounds, manually stabilizing painful, swollen joints and injured extremities, and immobilizing spine.
7. Uses basic and advanced life support equipment to open airway and upper airway adjuncts, removes foreign bodies, uses upper airway suction devices, performs orotracheal intubation, nasotracheal intubation, oral intubation with pharmacological assistance and surgery on airway. Uses dual or single lumen airway devices. Provides mouth to mouth barrier device ventilation, oxygen administration, chest injury management, bag-valve mask resuscitation. Uses powered ventilation devices, hand held aerosol nebulizer. Performs cardio-pulmonary resuscitation, uses automatic defibrillator apparatus in application of electric shock to heart, manages amputation, uses anti-shock garment, conducts peripheral venous access, intraosseous infusion, manual defibrillation, interprets EKGs, uses external pacemaker.
8. Administers medication (narcotics), determines the patient's most appropriate body route based on patient diagnosis. Calculates amount of medication to be given in relation to patient's weight, age, and other factors that warrant adjustment of volume. Uses oral, auto-injection, sublingual, inhalation, subcutaneous, intramuscular, intraosseous, transcutaneous, rectal, endotracheal, and intravenous routes including central and peripheral lines and venesection as well as infusion pumps to administer medications.
9. Assists other EMS providers in lifting patient onto stretcher, places patient in ambulance, secures stretcher. Continues to monitor patient en route to hospital.

10. Checks, maintains vehicles, and provides mechanical report. Restocks and replaces used supplies, uses appropriate disinfecting procedures to clean equipment, checks all equipment to insure adequate working condition for next response. Takes inventory of and accounts for all medications (narcotics) given. Keeps log of all transactions. Prepares accurate and legible medical reports. Provides medical reports to staff.
11. Transports non-emergency patients to regularly scheduled appointments, for example, transport geriatric patients in nursing homes. Uses computer to enter data for EMS reports.
12. Supervises the activities and educational experiences of assigned observers and students. Complies with regulations in handling the deceased.
13. Functions as the primary direct care provider of emergency health care services to sick and injured patients in pre-hospital settings. Works primarily in advanced life support units affiliated with fire departments, police departments, rescue squads, hospitals, or private ambulance services under the off-site supervision of a physician, usually through radio communication, is usually the senior level member of a two person team, working in conjunction with a Basic EMT.
14. Accepts primary responsibility for all aspects of advanced life support given to the patient, including use of advanced life support equipment and administration of medication that includes narcotics; responsible for thorough written documentation of all activity related to patient care and medication dispensation. Successfully completes continuing education and refresher courses as required by employers, medical direction, and licensing or certifying agencies. Meets qualifications within the functional job analysis.

Qualifications

Must be at least 18 years of age and be a high school graduate or equivalent. Must have proof of valid driver's license. Ability to communicate verbally; via telephone and radio equipment; ability to lift, carry, and balance up to 125 pounds (250 with assistance); ability to interpret and respond to written, oral, and diagnostic form instructions; ability to use good judgment and remain calm in high-stress situations and take on role of "leader".

Must have the ability to read road maps; drive vehicle, accurately discern street signs and address numbers, read medication/prescription labels and directions for usage in quick, accurate, and expedient manner, ability to communicate verbally with patients and significant others in diverse cultural and age groups to interview patient, family members, and bystanders, and ability to discern deviations/changes in eye/skin coloration due to patient's condition and to the treatment given. Must be able to document, in writing, all relevant information in prescribed format in light of legal ramifications of such; ability to converse with dispatcher and EMS providers via phone or radio as to status of patient.

Good manual dexterity with ability to perform all tasks related to advanced emergency patient care and documentation. Ability to bend, stoop, balance, and crawl on uneven terrain; and the ability to withstand varied environmental conditions such as extreme heat, cold, and moisture. Ability to perform quickly, precise, practical mathematical calculations pertinent to ratio and proportion of medication and supplies used in emergency patient care. Must be independent, confident, able to work independently without defined structure, have good stable reasoning ability with ability to draw valid conclusions expediently relevant to patient's condition, often, using limited information. Must have knowledge and skills relevant to position and be able to implement them in stressful situations. Must be cognizant of all legal, ethical, and moral obligations inherent within scope of practice.

Must be able to perform mathematical calculations/ratios and apply them in expedient, practical manner. Must be independent, confident, able to work independently without structure, have good stable reasoning ability and able to draw valid conclusions quickly relevant to patient's condition, often, using limited information. Must have knowledge and skills relevant to position and be able to implement them in practical fashion in stressful situations. Must be cognizant of

all legal, ethical, and moral obligations inherent within scope of practice.

Must have successful completion of approved curriculum with achievement of passing scores on written and practical certification examinations as defined by programmatic guidelines. Re-certification is dependent upon an individual's successful completion of inter-agency approved Paramedic continuing education fresher courses. At any given time, performs any or all tasks performed by a lower level EMT. May supervise activities of students or interns, and/or may engage in writing of journal articles or teach. Meets qualifications within the functional job analysis.

Source: NHTSA