Space Stat-30 is a compact instrument which determines the sodium and potassium levels of a blood sample in just 48 seconds. It is a spinoff from NASA technology developed to monitor health of astronauts on long-duration missions.

New Diagnostic Aids

New methods of testing blood are among a variety of diagnostic tools brought forth by space research. As part of a program to develop techniques for astronaut health monitoring on long-duration flights, NASA contracted with Orion Research, Inc., Cambridge, Mass. to produce a compact blood analysis system. As spinoff from this work, Orion manufactures a pair of typewriter-size devices which simplify and speed blood analysis.

An important blood electrolyte, ionized calcium is necessary for blood coagulation, nerve function, and normal skeletal and cardiac muscle contraction. Earlier methods of measuring ionized calcium in blood were complex, requiring the use of highly-skilled technicians. Orion's development is a simply-operated, flat-bed box that makes ionized calcium determination a routine clinical test. It is called Space Stat-20 (the "Stat" is from the Latin statim, meaning "immediate.")

A very small blood sample—less than a milliliter—is injected into the machine where an electrode converts the ionized calcium concentration directly into an electrical signal. In less than three minutes, the value appears on a digital display. The device uses whole blood, making it unnecessary to extract the serum from the blood. Its speed of operation is important where rapid analysis is essential—during surgery, for instance. The companion system is Space Stat-30, which determines the sodium and potassium levels of a whole blood sample in just 48 seconds.

Gemeni, a new chemical testing instrument, can determine a broad range of blood components. Latest of a family of miniature centrifugal analyzers produced by Electro-Nucleonics Inc., Gemeni was developed originally for the Energy Research & Development Administration and for NASA's space shuttle.

Gemeni can handle 20 blood samples simultaneously. Punch-card programmed, it can make 12 tests of each sample to determine such values as blood sugar, calcium, cholesterol, albumin, glucose, uric acid, and other constituents. It can accomplish in 30 seconds tests that would take 15 to 20 minutes by manual methods. The first working model was installed in a U.S. hospital last year.

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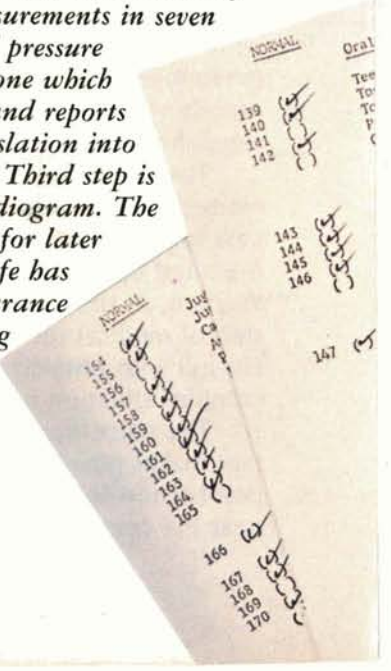

General Electric Company's Medical Data Acquisition Unit allows a seven-minute physical examination—no disrobing and no physician needed. The examination is a three-step process. Unit at left automatically records weight and measurements in seven seconds. In photo, blood pressure cuff contains a microphone which detects pressure sounds and reports them to console for translation into blood pressure readings. Third step is an automatic electrocardiogram. The console records all data for later analysis. Metroplitan Life has 200 units and other insurance companies are evaluating the system, a spinoff from GE's experience in biological telemetry acquired as contractor for NASA's Biosatellite program.

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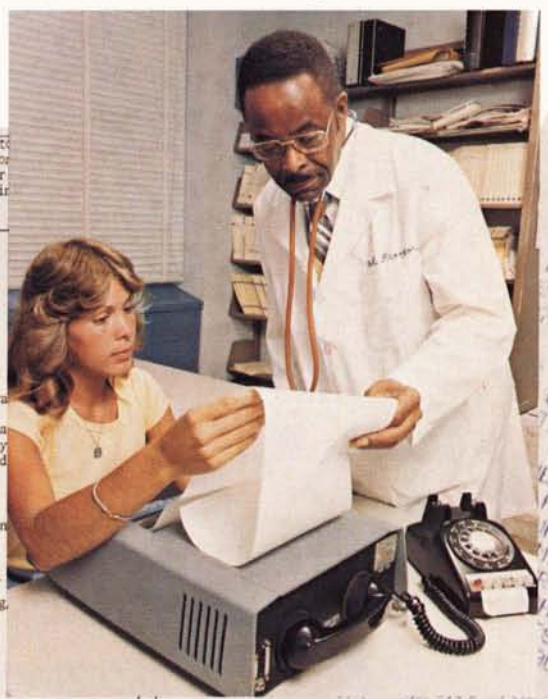

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Give narrative description i

	NO		
		General	
2	(✓)	Weight change	
3	( )	Fever/chills	
4	( )	Night sweats	
	( )	Other	
		Endocrine System	
5	( )	Heat/cold intoler	
6	(✓)	Thyroid problems	
7	( )	Family history dia	
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9	(✓)	Neck surgery/irrad	
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		Eye	
10	(✓)	Visual dysfunction	
	( )	Other	
		Ear, Nose, Throat	
11	(✓)	Difficulty hearing	
12	(✓)	Tinnitus	
13	(✓)	Epistaxis	
14	( )	Hoarseness	
15	( )	Sinusitis	
16	(✓)	Vertigo	
	( )	Other	
		Gastrointestinal System	
17	(✓)	Nausea/retching	
18	(✓)	Vomiting	
19	(✓)	Hematemesis	
20	(✓)	Dysphagia	
21	( )	Indigestion	
22	( )	Heartburn	
23	(✓)	Abdominal pain	
24	(✓)	Abdominal swelling	
25	(✓)	Jaundice	
26	(✓)	Hematochezia	
27	(✓)	Melena	
28	( )	Diarrhea	
29	(✓)	Constipation	
30	(✓)	Hernia	
31	( )	Hemorrhoids	
32	(✓)	Peptic ulcer disease	
33	(✓)	Gastrointestinal surgery	
34	(✓)	Gallbladder disease	
35	(✓)	Pancreatitis	

A NASA computer program for monitoring the health status of astronauts served as a departure point for development of an automated medical data system. The Medical Information Management System (MIMS) permits a hospital to maintain up-to-date medical records for patient diagnosis and treatment. It also provides a large, readily available data base for medical research. With MIMS, doctors and aides can call up the record of a specific patient in seconds or search for specific data in the computerized file. MIMS was developed by NASA's Goddard Space Flight Center in cooperation with Lincoln University, Federal City College and Howard University Medical School. The system is commercially available from United Computing Systems Inc., Falls Church, Virginia.