



Medical Service Options, Inc.

9-10 Saddle River Rd, Fairlawn NJ 07410

Tel: (201) 670-9999 Fax: (201) 794-3671 web Address: www.msobiz.com

Case #1

Patient Profile and demographics: This 68 year old male residing in Sylacauga, AL received an AVR in August 2001.

Reason Telemetry @ Home Surveillance Requested: The patient had a history of Atrial Fibrillation and heart block. The surgeon, concerned about post surgical management of these arrhythmias, ordered the Telemetry@Home service for ten days.

Patient Outcome or Intervention: During the first six days of monitoring the patient exhibited sporadic episodes of non-sustained Atrial Fibrillation, but was found to be asymptomatic. Over the next 48 hours the incidence of AF increased along with new onset of ventricular ectopy. On the ninth day of cardiac surveillance the patient converted to Atrial Flutter with 2: 1 and 3: 1 conduction, accompanied by a short run of non sustained V-Tach. The patient was again found to be asymptomatic. The surgeon was contacted per notification criteria and requested ECGs to be faxed to his office. The next day the patient called to inform the monitoring center that his surgeon advised him to return to the hospital for treatment.

Summary: The patient states "on the ninth day you all found out something for [my DR] and he said I need to come back to Birmingham to get some drugs to help my heart beat. I was out in less than 48 hours and now I feel pretty good, real good actually"



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Case #2

Patient Profile and demographics: A 75 year old female, residing in Pittsburgh, PA, was seen by her Cardiologist in October, 2000 and complained of episodes of palpitations.

Reason Telemetry @ Home Surveillance Requested: The cardiologist had previously ordered a holter monitor and a thirty-day event recorder for this patient but both of these tests produced no results. The patient was placed on Telemetry @ Home in an attempt to identify the underlying cause of her palpitations.

Patient Intervention: While on the Telemetry @ Home Surveillance service, she experienced several runs of a narrow complex, tachycardia, at a rate of between 170 to 180 BPM. The Cardiac Telecom technician contacted the patient and found her to be asymptomatic and unaware of any irregularity with her heart. The tachycardia remained sustained for a period of several minutes. The patient's physician was subsequently contacted and the episodes of tachycardia were reported. The physician decided to contact the patient directly. The episodes of tachycardia were sustained for the next 30 minutes with a resulting increase in ventricular ectopy. The patient then experienced a run of wide complex tachycardia (V-Tach) also without any symptoms. All of these runs were automatically transmitted to our Central Surveillance Lab from the patient. The physician was contacted again and he stated that he was going to attempt to convince the patient to go to an emergency department. The Cardiac Telecom technician recommended to the physician that the local EMS agency transport the patient to the nearest emergency department. The physician agreed and Cardiac Telecom immediately notified the EMS agency. While en-route to the patient's residence, the EMS agency contacted Cardiac Telecom's Central Surveillance Lab to receive a report on the patient's ECG activity and condition.

Patient Outcome: The patient was treated pharmacologically and observed over night. The patient was released and placed back on the Telemetry @ Home and found to be in normal sinus rhythm.

Summary: The patient remained in sinus rhythm for the remainder of the monitoring session.



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Case #3

Patient Profile and demographics: This 60 year old male residing in East Liverpool, Ohio received a CABG X 5 in September 2000 in Pittsburgh, PA.

Reason Telemetry @ Home Surveillance Requested: The patient had experienced episodes of Atrial Fibrillation post surgery, which were converted to Normal Sinus Rhythm pharmacologically. Upon Discharge the patient was in Normal Sinus Rhythm. The physician was concerned that the patient would convert back into Atrial Fibrillation

Patient Outcome or Intervention: During the first few days at home the patient experienced several episodes of atrial ectopy and close complex tachycardia. On the fifth day, the patient developed uncontrolled Atrial Fibrillation with 2nd degree AV Block Type II and periods of cardiac standstill in excess of 3 seconds. During this period the patient denied having any symptoms. The physician was notified and advised us that he would contact the patient. The physician called back to notify us that the patient was being readmitted to the hospital. The receiving Emergency Department was contacted and notified of the patient's arrival and condition. The monitoring technician also faxed representative ECG's to the ER. After five days in the hospital the patient was discharged on Telemetry @ Home and found to be experiencing episodes of Supraventricular Tachycardia. The physician's office was notified and the patient received anti-coagulants and other medication changes while remaining at home. The patient converted to Normal Sinus Rhythm two days later, but unfortunately converted once again into an uncontrolled Atrial Fibrillation and remained in this rhythm for the duration of the monitoring period.

Summary: The determination by the physician was that although the patient was still in Atrial Fibrillation, the monitoring session would be completed and the patient would be referred to his cardiologist for follow up.



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Case #4

Patient Profile and demographics: This 83 year old female residing in Uniontown, PA was referred by her cardiologist in October 2000 for complaints of feeling a rapid heart beat.

Reason Telemetry @ Home Surveillance Requested: The cardiologist referred the patient to attempt to identify the underlying cause of her rapid heart rate and felt Telemetry @ Home would offer a quicker identification due to the fact that the patient did not have to activate the system.

Patient Outcome or Intervention: After 3 days of monitoring the patient presented with a sustained SVT at a rate of 160 BPM. The patient was contacted by the monitoring technician and found to be asymptomatic. The technician advised the patient to be seen at an ER. The patient refused and stated that she would wait for her husband to return home. The referring physician was notified of the patient's condition. The physician advised the monitoring technician to watch the patient closely and notify him if the dysrrhythmia continued or if there were any significant changes. The dysrrhythmia continued for the next hour approaching a rate of 180 and the patient was once again contacted. The patient admitted to not "feeling well" but continued to refuse to go to the ER. The technician contacted the patient's son and he stated that he would take the patient to the ER. The technician notified the physician of the situation and contacted the receiving facility to advise them of the patient's arrival and condition. Also, ECG's were faxed to the Emergency Department for their review. The patient was hospitalized and treated pharmacologically. Three days later the patient was discharged on Telemetry @ Home.

Summary: The patient maintained a sinus rhythm for the duration of the monitoring period.



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Case #5

Patient Profile and demographics: This 71-year-old male from McKeesport, PA was referred by his cardiologist due to episodes of vertigo and syncope.

Reason Telemetry @ Home Surveillance Requested: The patient was placed on Telemetry @ Home to determine the underlying cause of his symptomatic vertigo and syncope.

Patient Outcome or Intervention: Initially the patient presented with an asymptomatic second-degree AVB type I & II with resultant bradycardia. The referring physician was contacted and requested that the monitoring technician fax the representative ECG's to the hospital where he was doing rounds. The physician called back and advised the monitoring staff to keep a close watch on the patient and fax all pertinent ECG's to his office. During the next few days the patient continued to exhibit similar asymptomatic dysrhythmias with an increase in ventricular ectopic beats. On the third day the physician's office notified us that the patient was being hospitalized to receive a pacemaker.

Summary: The physician felt that he had received an adequate amount of data to justify a pacemaker implant and therefore, the patient did not need to be monitored after the implantation.



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Case #6

Patient Profile and demographics: This 57 year old male residing in Houston, TX with a history of bi-lateral kidney cancer, a colostomy, home dialysis, and cardiac arrest was placed on Telemetry @ Home by his cardiologist

Reason Telemetry @ Home Surveillance Requested: The patient was placed on Telemetry @ Home for 30 days to monitor for ventricular arrhythmias while recuperating from colostomy surgery.

Patient Outcome or Intervention: During the monitoring period the patient was relatively event free. At one point the patient experienced one short episode of V-Tach. The physician was notified and she contacted the patient. At the time the physician spoke with the patient he was symptom free and back in Normal Sinus Rhythm. The physician contacted the monitoring center and requested an additional 30 days of monitoring. The extension was ordered because the physician wanted the patient monitored during a period of strengthening in anticipation of an additional surgical procedure. During the second 30 days the patient experienced a sustained V-Tach. The technician contacted the patient and found him to be complaining of chest pain. The physician was contacted and advised the technician to have the patient transported to the ER. The technician re-contacted the patient and informed them of the physician's orders. The family stated they would contact the local EMS and arrange transport. The technician obtained the name of the hospital to which the patient was being transported, contacted them informing them of the patient's arrival and condition, and faxed representative ECG's for their review.

Summary: The patient was admitted to the hospital and received an Automatic Implantable Cardioverter Defibrillator implant. The physician felt that with the AICD in place the patient did not need any additional monitoring



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Case #7

Patient Profile and demographics: This patient, a 61-year-old male from Pittsburgh, PA, was referred by his cardiologist in July 2001 for presyncopal episodes. The patient was several years post status mitral valve replacement.

Reason Telemetry @ Home Surveillance Requested: The patient had experienced several episodes of presyncope for several days. His previous two visits revealed no ECG change, conduction delay or valvular dysfunction [as evidenced by an echocardiogram]. Although the cardiologist did not suspect any dysrhythmia, the patient was placed on the Telemetry@Home service to complete his tests.

Patient Outcome or Intervention: During the patient's first 24 hours of monitoring the central monitoring center received several ECG transmissions indicating AV Block Mobitz II, episodes of Complete Heart Block, runs of 6 P waves with ventricular stand still including pauses ranging from 2 to 4.5 seconds. The patient was contacted and found to be asymptomatic. The physician was contacted as per notification criteria and requested all ECGs faxed to the office. The patient was hospitalized the next day for a permanent pacemaker implant.

Summary: This patient experienced several potentially life-threatening dysrhythmias that were detected by the Telemetry@Home service before any symptoms developed. Telemetry@Home allowed the physician to successfully diagnose and treat the patient before he was in crisis. The physician commented:

"Any clinician knows that this cat-like recognition and treatment of a certain life threatening brady arrhythmia would not be possible without this technology. All clinicians realize the time dependent factor and the delay that occurs with Holter monitor application, along with loop recording application, the performance of the study, the study being taken off by a technician, then being read by a technician and then waiting for a physician for a final interpretation. In my experience with routine outpatient cardiac monitoring, this arrhythmia would have been missed another 48 to 72 hours based on the reality of clinical medicine and we will never know if there would have been further difficulties in the delay of diagnosis, i.e., true syncope while perhaps behind the wheel of an automobile,....."



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Case #8

Patient Profile and demographics: This 66-year-old male residing in Eustis FL received a CABG in June 2001.

Reason Telemetry @ Home Surveillance Requested: The surgeon was concerned about post surgical management of Atrial Fibrillation and therefore ordered the Telemetry@Home service for 7 days.

Patient Outcome or Intervention: During the first 24 hours of surveillance the patient exhibited a wide variety of cardiac dysrhythmias including intermittent Atrial fibrillation and frequent ventricular ectopy. After several hours the patient converted to Atrial Fibrillation with episodes of PAT. The patient was contacted and found to be asymptomatic. The surgeon was notified as per notification criteria and advised of the situation. He requested ECG tracings to be faxed to his office for review in the morning. During that morning the patient had many episodes of uncontrolled Atrial Fibrillation converting to a bradycardia with ventricular coupling. The patient was contacted and found, again, to be asymptomatic. The surgeon was contacted at his office and tracings were faxed for review. The physician's office called the surveillance lab back and advised that the patient's medications [Lopressor and Coumadin] were adjusted according to the ECGs received. The patient converted to a Normal Sinus Rhythm within 12 hours.

Summary: The patient's cardiac rhythms were successfully managed without readmission or a needless office visit. The patient's period of surveillance was extended for an additional 2 days. The patient remained in a sinus rhythm for the remainder of the monitoring period.



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Case #9

Patient Profile and demographics: This 76-year-old female from Carefree, AZ was referred by her cardiologist in January 2001 to aid in determining the reason for her rapid heart beat.

Reason Telemetry @ Home Surveillance Requested: The patient had a history of Atrial Fibrillation and the Cardiologist wanted to determine whether the patient required anticoagulant therapy.

Patient Outcome or Intervention: The patient initially presented with Normal Sinus Rhythm with occasional Premature Atrial Contractions (PAC's). During the first few days the patient had numerous episodes of Atrial Fibrillation, which were short in duration and converted back into a Sinus Arrhythmia. During these episodes the patient was contacted and remained asymptomatic. On her fifth day the patient presented with a rapid Atrial Fibrillation with rates in excess of 200 bpm. The patient was contacted immediately and found to be symptomatic. She was complaining of palpitations and had cool clammy skin. The physician was notified and informed of the patient's condition. The physician stated she would contact the patient and have her transported to the hospital. The surveillance lab technician contacted the receiving facility, informed them of the arrival and condition of the patient, and immediately faxed representative ECG's for their review.

Summary: The physician felt that adequate information had been received to pursue a treatment course of action and decided that the patient did not require the Telemetry @ Home service after discharge.



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Case #10

Patient Profile and demographics: This 58 year old female residing in East Setauket, NY was referred by her cardiologist for episodes of dizziness. This patient had a known history of Right Bundle Branch Block, and Wenchebach Phenomenon.

Reason Telemetry @ Home Surveillance Requested: This patient was ordered the Telemetry@Home service to help discover if the episodes of dizziness had an underlying cardiac origin. This patient suffered from complete hearing loss and aphasia, making her an unacceptable candidate for traditional event recorder monitoring. The patient's symptoms occurred intermittently over long periods of time, therefore the physician ordered a 30-day course of cardiac surveillance.

Patient Outcome or Intervention: By the conclusion of the monitoring period the HEARTLink II System had detected and transmitted 478 true events. Included in the ECG findings were 16 AV Block Mobitz Type I events [Wenchebach Phenomenon], only one of which was accompanied by dizziness; 123 bradycardic events, 22 with periods of cardiac standstill approaching 3 seconds and 1 approaching 4 seconds, only one of which was accompanied by dizziness.

Summary: This patient was seen for follow-up by her cardiologist and the decision was made for the patient to receive a permanent pacemaker.

NOTE: The patient remarked to her physician that she had not felt as good in 10 years.



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Case #11

Patient Profile and demographics: This 78 year old female residing in Millen, GA was placed on Telemetry @ Home after receiving a CABG.

Reason Telemetry @ Home Surveillance Requested: This patient was referred by her cardiologist to monitor her for post CABG Atrial Fibrillation. The patient had episodes of Atrial Fibrillation post surgery that were converted to Normal Sinus Rhythm and was discharged on Telemetry @ Home.

Patient Outcome or Intervention: The first couple days that the patient was on service were problem free. During the second evening the patient sent several asystolic ECG's as well as numerous noisy ECG's indicative of a loose electrode or lead. The monitoring technician contacted the patient's caregiver to request that they check the patient's electrode and lead placement. After several minutes the events continued and the technician contacted the caregiver again. The caregiver stated that the patient was unresponsive. The technician asked if the patient had any other medical conditions and was informed that the patient was diabetic. The caregiver was instructed to check the patient's blood sugar level. The patient's blood sugar level was 33. The caregiver asked the technician if the patient should be transported to the hospital. The technician responded yes and offered to contact the local EMS Agency, but the family stated they would call the ambulance. The technician obtained the name of the hospital to which the patient was being transported, contacted them informing them of the patients' arrival and condition, and faxed representative ECG's to the ER for their review.

Summary: The patient was discharged later that evening and placed back on Telemetry @ Home and remained uneventful for the duration of the monitoring period.



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Case #12

Patient Profile and demographics: This 73 year old male residing in Winfield, MD was placed on Telemetry @ Home by his cardio-thoracic surgeon following a CABG.

Reason Telemetry @ Home Surveillance Requested: The patient had episodes of Atrial Fibrillation post surgery that converted to Normal Sinus Rhythm through pharmacological therapy. The surgeon wanted the patient monitored post discharge to evaluate for the recurrence of Atrial Fibrillation.

Patient Outcome or Intervention: The patient remained relatively event free throughout the surveillance period. On the seventh day the patient's daughter-in-law called and stated that she was taking the patient to the ER for low blood pressure. This seemed to occur each time the patient stood up (orthostatic hypotension). She asked if we had seen anything, the technician responded no. The technician asked to which ER she was taking the patient and informed her that we would notify them. The technician asked her to have the patient stand up and push the alert button sending us an ECG. She was informed that we would print the ECG and fax it to the ER. She was also instructed to support the patient while he stood to prevent him from falling. The ECG was obtained showing Normal Sinus Rhythm with a rate of 88 and a 1st degree AV Block. The ER was notified of the patient's arrival and condition, and the ECG's were faxed for their review.

Summary: Several hours later the patient arrived back home after receiving IV fluids for dehydration. He was placed on Telemetry @ Home for the remaining seven days of his surveillance period. The patient did well for the remainder of the surveillance period.



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Case #13

Patient Profile and demographics: This 77-year-old male from Portal, GA received a CABG in October 2000.

Reason Telemetry @ Home Surveillance Requested: The patient had a history of Atrial Fibrillation and the Cardiologist wanted to be sure that he did not convert into Atrial Fibrillation after discharge from hospital.

Patient Outcome or Intervention: During the afternoon of 10/19/00 the monitoring technician noticed that the heart rate of the patient was increasing from the low 100's to the 140's with a baseline of Atrial Fibrillation. Additionally, the PVC rate was increasing from occasional to 1 every 8 - 10 beats. The patient was contacted to determine his physical status. The patient's wife stated that the patient "felt poorly" and that the Home Healthcare nurse said his Blood Pressure was lower than usual. This patient seemed to be going into shock. The Cardiologist was informed that although the patient did not "strictly" meet notification criteria, we were concerned about the trend the patient was showing. The technician relayed our findings to the Cardiologist and he stated that he would call the patient. About 10 minutes later the patient's wife called the monitoring center and stated that the patient was going to the ER via ambulance as per the Cardiologist. The monitoring technician asked the patient's wife which ER the patient was being transported to. She stated that she would call when EMS arrived to let me know. Neither the patient's wife or the EMS agency called back with the name of the hospital. The next evening, the patient's wife called to say that the patient underwent emergency surgery to repair a collapsed colon and was very, very sick with an infection and in the Intensive Care Unit. All but two inches of his colon was removed due to necrosis. She stated that the only indicator of any problem with her husband was "what we all up there saw on the monitor". She said the consensus of the Drs. was that her husband might not have made it until morning had we not notified the doctor.

Summary: The Home Health Agency indicated the patient was only a few hours away from having an untoward outcome.



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Case #14

Patient Profile and demographics: A 75-year-old female residing in Cranford, New Jersey was seen in November 2001. The patient had presented to her cardiologist with a complaint of "palpitations" and dizziness.

Reason Telemetry @ Home Surveillance Requested: After an assessment the physician suspected near syncope resulting from bradyarrhythmias and ordered the Telemetry@Home cardiac surveillance for a two-week period.

Patient Outcome or Intervention: During the first 24 hours the Telemetry@Home cardiac surveillance system automatically detected and transmitted 52 true events including frequent premature atrial complexes, bigeminy PVC's, bigeminal coupling, and frequent sustained trigeminy PVC's creating a bradycardia in the mid 40's BPM. During the next 6 days 119 similar events were automatically received by the Central Monitoring surveillance lab and reported to the physician daily as per protocol. Only three of these events were accompanied by symptoms of a "disturbance in the chest" as reported by the patient. On the afternoon of the 7th day the physician requested the patient be seen at his office. Upon returning home the patient reported that the physician had received enough data to make a decision to implant a permanent pacemaker.

Summary: Service was discontinued on the seventh day and the patient received a pacemaker the following day.