



Reduce Costs and Improve Operations with Optimized Crew Scheduling

If you find it difficult to manage your crews efficiently and rising overtime costs continue to plague your organization, there's a simple solution that can help you maximize your current resources. It can lead to a reduced annual payroll and help increase the likelihood that your vehicles are properly staffed to meet call volume demand.

Scheduling EMS personnel is always a challenge

To adequately respond to emergencies, it's necessary to maintain a sufficient level of personnel as well as to ensure you have the right person doing the right job. Planning for manpower coverage can involve a wide variety of factors, including schedule optimization to reduce overtime costs, ensuring existing resources are available, and identifying and resolving conflicts. You also need to be concerned with crew satisfaction and the ability to ensure that each vehicle or crew member is properly equipped or certified to fulfill your complex shift requirements. Lastly, it is a tremendous business advantage to have a wide range of detailed reports at your fingertips to monitor resource utilization, shift summaries, daily schedules and more.

Since the cost of labor is the single largest cost factor in providing emergency medical services, it is also one of the central elements in efficient service provision. This paper discusses some of the major issues in managing crew scheduling for emergency medical services (EMS) organizations. It also presents the benefits that a technology solution can offer in addressing many of these issues.

A historical overview of EMS services and personnel

Labor costs have played a major role in emergency medical response. Historically, EMS was unregulated and pre-hospital care involved just transportation. To keep labor and vehicle costs to a minimum, it wasn't surprising that such services were often provided by funeral homes in many areas. This made sense from a labor perspective, as many funeral homes had employees either on call or available around the clock. Funeral homes could also use their vehicles for transport if they didn't have a vehicle devoted to ambulance services.

The level of care and personnel training was minimal if not nonexistent. Federal regulation in the early 1970s established standards on training requirements for paramedics and emergency medical technicians. Regulation was necessary to improve services, but this was at a substantially increased labor cost. Requirements to provide trained personnel, and the push to meet response time standards (especially in terms of trauma) meant that EMS became a primary activity instead of a secondary income source. Traditional scheduling tools have been a two-dimensional paradigm. Common processes account for only time and event information and use electronic tools such as spreadsheets, graphic programs and databases. Manual tools include paper and pencil, and whiteboards.



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Common crew scheduling problems can impede operations

You need to carefully consider the following questions when trying to pinpoint key problems that could cause inefficient scheduling operations and increased costs:

- How do you currently schedule your employees?
- How many EMTs / Paramedics do you have?
- What is your biggest challenge with scheduling?
- Do you have trouble controlling overtime?
- How do employees submit a request for a particular shift?
- How do you ensure your vehicles are staffed with members that have the appropriate qualifications?
- How do you find replacements for last-minute open personnel slots?
- How do you track resources such as vehicles or aircraft?
- How many physical locations do you have?
- Who will be accessing the system?
- What kind of infrastructure do you have? IT, DBA, Internet connectivity, pagers, email, cell phones?
- What kind of shifts and rotations do you use?
- Do you use a planning tool to create your staffing plans?
- How do you currently distribute schedules? What are the caveats?
- What are your critical factors for this system?



With new, technology-based scheduling applications, optimized planning can reduce costs and improve crew satisfaction with one, easy-to-use solution built for managers and end users.

These answers can help identify specific needs for your organization and steer you in the right direction to find a solution that can solve your business problem.

A new way to schedule is now available

Because the deployment planning problem is relatively complex, it is important to develop good planning models and techniques to aid decision makers and operations personnel. Even though advancements in both planning and execution have been made, such advancements have evolved over time as developments in computers, software, database systems, etc. have made new technological approaches possible.

With new, technology-based scheduling applications, optimized planning can reduce costs and improve crew satisfaction with one, easy-to-use solution built for managers and end users. Managers can create development plans for new service areas and standardize the shift bid process. With flexible scheduling, crews can get the shifts they want when they want them, which increases overall satisfaction and lessens workforce turnover.

When considering an automated crew scheduling solution, it's vital to look for core functionality such as:

- A web interface for supervisors and employees for ease-of-use
- The ability to manage a dynamic daily roster of all shifts & resources in conjunction with human resource policies to ensure the right person is scheduled at the right time
- A solution that provides real-time management reports for instant monitoring and decision-making
- Automated shift bidding
- Emergency notification via email & text messaging
- A solution that interfaces with other 3rd party applications such as Payroll, CAD, & Human Resources
- Time & Attendance

RescueNet Crew Scheduler makes it all so simple

The real power and simplicity of RescueNet Crew Scheduler is in the flexibility of its web interface, and its ability to model any type of shift combination and incorporate custom business logic rules. The application allows personnel to bid on open shifts, yet it can control who can successfully be placed through behind-the-scenes business logic. Therefore, an EMT-I can't fill a spot requiring an EMT-P, and a male can't fill a position requiring a female, etc.



Once users are established in RescueNet Crew Scheduler, they can configure their own notification options, such as by text to a pager or cell phone, or via e-mail, so Crew Scheduler can automatically notify personnel who meet minimum requirements when a new opening is available. The program can also notify managers or supervisors when personnel trade time slots, a conflict exists, or a slot is unfilled.

Take full control of your timesheets with the Time and Attendance module. Timesheets are automatically created and filled in as shifts happen, allowing supervisors to review them and handle exceptions as soon as they happen. The punch clocks collect actual clock-in and clock-out times for shifts. And the easy-to-use interface allows the editing of timesheets by employees and supervisors for shift corrections or entry of additional items such as PTO, mileage, additional shifts, and other earnings. When it's time to review timesheets, supervisors can automatically approve them with no exceptions, while focusing their time on problematic ones. Once the pay period is closed, the entire timesheet can be exported to virtually any payroll system including ADP® and Paychex®.



RescueNet Crew Scheduler fills an obvious need for large EMS organizations that have one or more full-time scheduler positions. However, it can also prove valuable for even the smallest of agencies in managing part-time and volunteer personnel.

The key benefits for RescueNet Crew Scheduler are:

- Schedule optimization—By reducing overtime and maximizing utilization of current resources, you'll see your annual payroll decrease as your call volume increases
- Conflict identification & resolution—By viewing your daily or monthly calendar, you can easily identify conflicts and empty shifts or replace scheduled resources quickly and effectively
- Crew satisfaction—With flexible scheduling, crews get the shifts they want, when they want them based on the criteria you've established
- Schedule currency—By using a dynamic scheduling system, you always access the latest and greatest schedule
- Qualifications & certification—By interfacing with your HR system, you can ensure that each vehicle and employee is properly equipped or qualified to fulfill your complex shift requirements
- Schedule distribution—All schedules are visible 24 hours a day, on or off site for instantaneous distribution. All you need is a computer with Internet access to view your schedule
- Scheduling duties—Schedules can be adjusted 24/7 from on site, a satellite office or even home

- Shift bidding—By enabling your team to view and bid for empty shifts, you can easily resolve availability conflicts or PTO requests. Schedulers can view all requests, current shifts scheduled and utilization statistics
- Detailed reports—Includes an extensive range of reports, such as Resource Utilization, Shift Summaries, Daily Schedules and more, which can be exported in most commonly used formats, such as Excel, Word or HTML
- Data import—Easily integrate data from current payroll, dispatch, human resources or timekeeping systems.



The real power and simplicity of RescueNet Crew scheduler is in the flexibility of its web interface.

The solution is available in two versions. One is the Application Service Provider (ASP) model, in which the application is hosted on a server and you use the Internet to securely administrate your scheduling system and personnel, and define all business rules. The ASP model is ideal for smaller EMS organizations that don't have the internal IT resources to manage their own data server and associated issues. This option offers a low-cost entry point, a minimal impact on your IT department, no term agreement, quick implementation, and it includes all upgrades and support.

The second method of deploying RescueNet Crew Scheduler is the Enterprise model, which would run on your own data server utilizing Microsoft SQL Server 2000. With this option, you have the benefit of integration with your current IT infrastructure, more control, flexibility, security, and a faster return-on-investment. The user experience is the same regardless of the deployment method. Managers and end users access the system via a Web browser, across the Internet for the ASP model and across the LAN or WAN for the Enterprise version.

RescueNet Crew Scheduler fills an obvious need for large EMS organizations that have one or more full-time scheduler positions. However, it can also prove valuable for even the smallest of agencies in managing part-time and volunteer personnel. Extensive training and support, ranging from web-based to complete on-site, train-the-trainer programs, are available to get you up and running faster and more efficiently than ever before. Thorough documentation and system support is offered as well as annual upgrades for continuous process improvement.

RescueNet Crew Scheduler Service/Benefit Overview

Services	Benefit
Payroll Management	Minimize unscheduled overtime and maximize the use of lowest cost salary scales
Personnel Tracking	Tracks qualifications and status of employees
Human Resources	Tracks individual employee preferred working schedules, holidays, and time off
Flexibility	Supports use of customized shift requirements such as Kelly Schedules
Resource Management	Tracks resource scheduling for equipment such as vehicles, aircraft, or boats

RescueNet Crew Scheduler is highly scalable, based on SQL database technology; it can keep pace with your growth and demand needs. It efficiently handles dozens or thousands of daily transactions. It offers broad Microsoft Windows support with a system that's easy to maintain and upgrade, and runs on the latest version of Microsoft Windows Internet Explorer. It's also compatible with off-the-shelf hardware. Its open database connectivity is a widely accepted application programming interface for database access, providing a standard that enables applications to interoperate with various databases. It's compatible with Crystal Reports, Microsoft Access, all solutions in the RescueNet suite, or ADP.

High return-on-investment equals business success

Return-on-Investment—Average Timekeeping Errors

Employees	Hours	Annual Payroll	5% Errors
100	208,000	\$5,070,000	\$253,500
250	520,000	\$6,760,000	\$338,000
500	1,040,000	\$13,520,000	\$676,000
1000	2,080,000	\$27,040,000	\$1,352,000
15000	3,120,000	\$40,560,000	\$2,028,000

*based on average wage of \$13.00 at 2080 hours a year; benefits & tax factor not included

Return-on-Investment—Schedule Optimization

(By optimizing your scheduling process by at least 1%)

Employees	Hours	Annual Payroll	1% Savings
100	208,000	\$5,070,000	\$50,700
250	520,000	\$6,760,000	\$67,600
500	1,040,000	\$13,520,000	\$135,200
1000	2,080,000	\$27,040,000	\$270,400
15000	3,120,000	\$40,560,000	\$405,560

* based on average wage of \$13.00 at 2080 hours a year; benefits & tax factor not included

About ZOLL Data Systems

ZOLL Data Systems of Broomfield, Colorado, develops, markets, and sells the RescueNet suite-computer-aided dispatch, billing, field data collection, and mobile data software for the emergency medical services (EMS) market. RescueNet is the only fully integrated EMS information management system that allows EMS organizations to manage critical information for maximum performance.

For more information, visit www.zolldata.com or call 800.474.4489.