EMC 445 EMS SYSTEMS MANAGEMENT

Calculating Personnel Costs

Unit Objectives

- Upon completion of this unit, you should be able to:
  - Identify the components of labor costs
  - Design a work schedule
  - Determine the number of FTEs required to staff a work schedule
  - Calculate the base compensation package for an hourly employee.
  - Calculate the overtime costs for an hourly position.
  - Calculate the associated costs of labor.
  - Explain the use of the fluctuating workweek method of overtime compensation.

Components of Personnel Costs

- Salaries or hourly rates
- Unemployment tax
- Social security tax (FICA)
- Worker's compensation
- Retirement
- Health insurance
- Benefit time (holiday, sick, vacation, educational leave, etc.)

Calculating Personnel Costs

- **Step 1. Determine the work schedule.**
  This must be for a complete "work cycle". For example, a 24/48 schedule has a 3 week cycle, i.e., it takes 3 weeks to work all of the different days and return to the starting day.
- **Work Cycle for 24/48 shift:**

	Sun	Mon	Tue	Wed	Thu	Fri	Sat	TOTAL
Week 1	24	0	0	24	0	0	24	72
Week 2	0	0	24	0	0	24	0	48
Week 3	0	24	0	0	24	0	0	48
TOTAL								168

- **Work Cycle for 24/72 shift:**

	Sun	Mon	Tue	Wed	Thu	Fri	Sat	TOTAL
Week 1	24	0	0	0	24	0	0	48
Week 2	0	24	0	0	0	24	0	48
Week 3	0	0	24	0	0	0	24	48
Week 4	0	0	0	24	0	0	0	24
TOTAL								168

Calculating Personnel Costs continued

- **Step 2. Determine the number of full time equivalents (FTEs) needed:**

A. Calculate FTEs for scheduled staffing:

- **For a 24/48 shift:**
  - 3 shifts * 6 ambulances * 2 paramedics per ambulance = 36 FTEs
- **For a 24/72 shift:**
  - 4 shifts * 6 ambulances * 2 paramedics per ambulance = 48 FTEs

Calculating Personnel Costs continued

- **B. Calculate FTEs for benefit time:**

Sick time: 8 hours/month
Vacation: 12 hours/month
Holiday: 80 hours/year

For 24/48 shift:
Sick time: 96 hours/year
Vacation: 144 hours/year
Holiday: 80 hours/year
TOTAL: 320 hours/year

Each employee works 168 hours every 3 weeks or work cycle. There are 52/3 or 17.34 work cycles per year. Therefore, each employee works 168 hours * 17.34 work cycles = 2913 hours per year.

There are 36 FTEs required for routine staffing of 24/48 shift with 6 full time ambulances. Each FTE receives 320 hours of benefit time for a total of:

36 FTEs * 320 benefit hours per FTE = 11,520 benefit hours

These benefit hours must be included in personnel costs. If one FTE works 2,913 hours per year and there are 11,520 benefit hours to be covered, this yields 11,520/2913 = 3.95 FTEs. In other words, for an ambulance service with 6 ambulances staffed 24 hours per day and 7 days per week and the benefit time outlined above, an additional 4 employees are required. Of course, you would not expect every employee to use their full allotment of benefit time. However, you may be required to pay employees for any unused benefit time should they leave the company.

- **C. Calculate total required FTEs:**

For 24/48 shift with 6 ambulances staffed around the clock and the benefit package described above:

36 FTEs for staffing + 4 FTEs for benefit time = 40 FTEs

Calculating Personnel Costs continued

- **Step 3: Calculate the base compensation for one FTE:**

Given: hourly rate = $7.25 per hour.
24/48 work schedule
OT calculated at 1.5 times base hourly rate for every hour over 40 hours/week

	Sun	Mon	Tue	Wed	Thu	Fri	Sat	TOTAL
Week 1	24	0	0	24	0	0	24	72
Week 2	0	0	24	0	0	24	0	48
Week 3	0	24	0	0	24	0	0	48
TOTAL								168

	Regular Hours	Overtime Hours	Regular Compensation	Overtime Compensation	Total Compensation
Week 1	40	32	$290.00	$348.00	$638.00
Week 2	40	8	$290.00	$87.00	$377.00
Week 3	40	8	$290.00	$87.00	$377.00
Total					$1,392.00

One FTE works 17.34 cycles at $1,392.00 per cycle for an annual compensation of $24,137.28.

Calculating Personnel Costs continued

- **Step 4. Calculate total costs for direct labor:**

For 24/48 shift with 6 ambulances and the benefit time described above, you will need 40 FTEs.
40 FTEs * $24,137.28 = $965,491.20.

- **Step 5. Calculate associated costs of labor:**

Assume the following:

Unemployment tax	1.00%
Social security tax	7.65%
Workman's compensation	1.00%
Retirement	10.83%
Health insurance	$1735.00 per employee per year

For each employee in the 24/48 shift example, the relevant annual costs are:

Base salary:	24,137.28
Unemployment tax:	241.37
Social security tax:	1,846.50
Worker's comp:	241.37
Retirement:	2,614.07
Health insurance:	1,735.00
TOTAL:	$30,815.59

- **Step 6. Calculate total personnel cost for the EMS system:** 40 FTEs * $30,815.59 = $1,232,623.60.

Other Issues

- The previous example was overly simplified. There are many other issues that would have to be incorporated into the actual budget for labor.
- The example assumed 6 ambulances, 24 hours per day, and 7 days per week. Actual staffing would probably incorporate peak load staffing or SSM, which would alter the actual number of FTEs required.
- The actual staffing schedule (24/48, 24/72, etc.) has a large impact on personnel costs.
- The method by which overtime compensation is calculated has a large impact on personnel costs.
- We assumed that all personnel received the same compensation package. This will rarely be true. Pay rates will vary according to certification levels and within each certification level there will be varying compensation packages.
- We did not incorporate factors such as merit pay, bonuses, annual raises etc. Not only must these be incorporated, but their timing is also important, i.e., when did the employee receive the salary increase?
- We dealt only with recurring costs; we didn't include training time, uniforms, overtime for late calls, etc.
- We assumed that all employees used all of their annual allotment of benefit time. We also assumed that we could cover that benefit at the same cost of the employee using benefit time. In actuality, it would cost us more per hour if we used regular full-time personnel as we would likely incur overtime costs. However, by using regular full-time personnel, we avoid the costs of hiring additional personnel to cover benefit time (health insurance, uniforms, hiring and training costs, etc.). Alternatively, we could use part-time personnel paid at a lower hourly rate, and may or may not incur benefit costs.

EMS, FLSA, and Overtime Pay

In general, the "fluctuating work week" has been used to decrease personnel costs, and, so far, has not been overturned by the courts. The fluctuating workweek assigns each paramedic an annual salary. Based upon this salary and the hours worked in a given week, the actual hourly pay rate varies, or "fluctuates".

- **For the 24/48 shift with a stated salary of $20,000 per year:**

	Sun	Mon	Tue	Wed	Thu	Fri	Sat	TOTAL
Week 1	24	0	0	24	0	0	24	72
Week 2	0	0	24	0	0	24	0	48
Week 3	0	24	0	0	24	0	0	48
TOTAL								**168**

- **weekly salary** = $20,000/52 weeks per year = $384.62
- **weekly hourly rate =** $384.62 / hours worked during that week

	Regular Hours	Overtime Hours	Total Hours	Hourly Rate	Regular Pay	Overtime Pay	Total Pay
Week 1	40	32	72	$5.34	$213.60	$256.32	$469.92
Week 2	40	8	48	$8.01	$320.40	$96.12	$416.52
Week 3	40	8	48	$8.01	$320.40	$96.12	$416.52
Total							$1,302.96

- **annual base salary** = 17.34 cycles * $1,302.96 = $22,593.33