How Automating Our Lab Scheduling Boosted Productivity, Improved Morale and Gave Managers More Time to Manage

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***DynaLIFE*$_{Dx}$ Edmonton, Alberta, Canada**

Who are we, what do we do and where do we operate?

- Western Canada's largest diagnostic medical laboratory, providing 15 million tests annually
- Employ over a 1,000 dedicated, professional lab staff
- Operate a large referral lab in Edmonton
- 38 locations across a land area the size of California serving 1.5 million community patients annually
- Provide laboratory testing, referral, consultation and support services to 136 hospitals and health centers across the province of Alberta and to 30 communities in the far North

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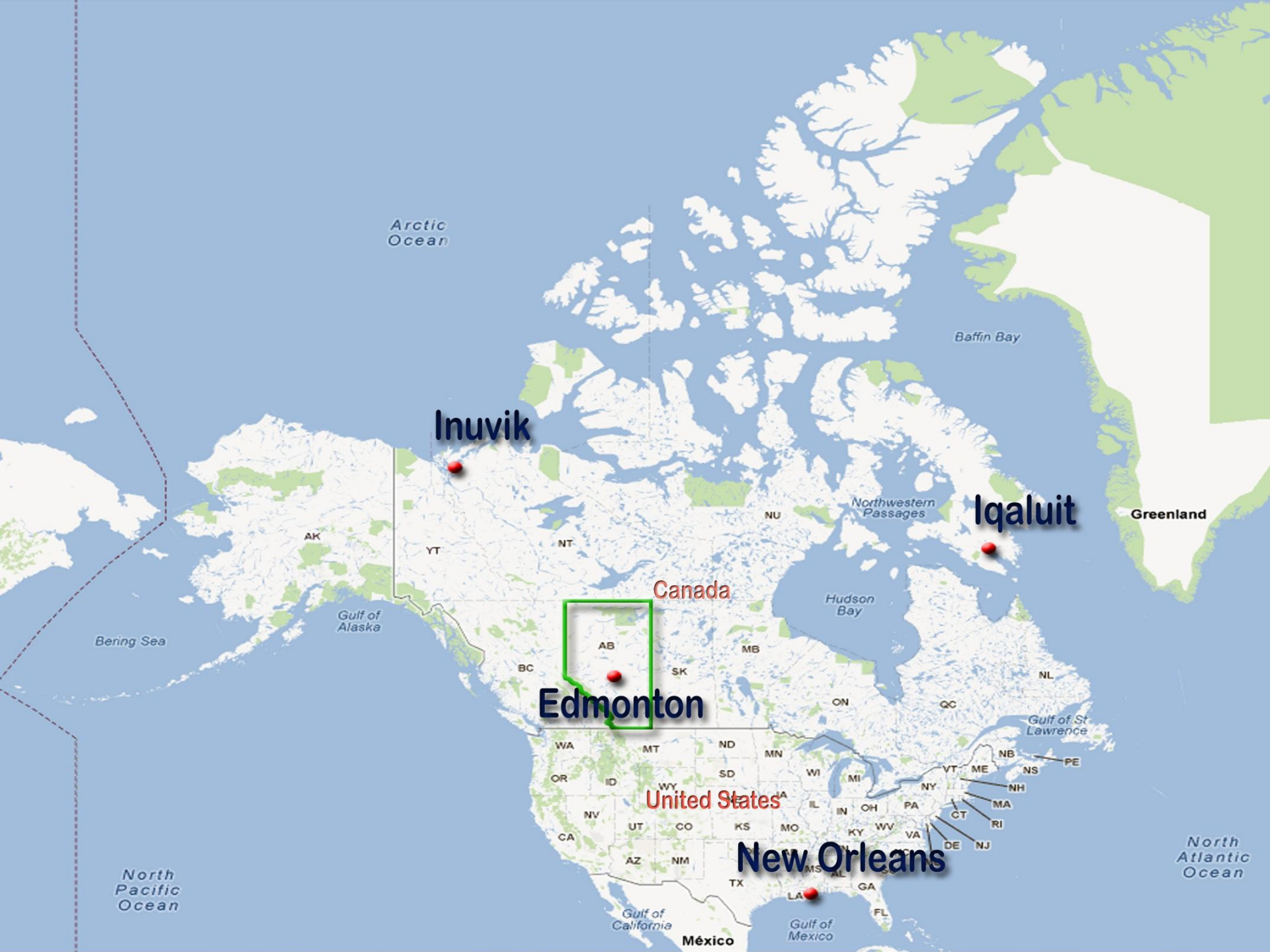
Arctic Ocean
Baffin Bay
Inuvik
Iqaluit
Greenland
Northwestern Passages
NU
NT
YT
AK
Canada
Hudson Bay
Gulf of Alaska
Bering Sea
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New Orleans
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North Pacific Ocean
North Atlantic Ocean
Gulf of California
México
Gulf of Mexico

Inuvik
NORTHWEST TERRITORIES
Yellowknife
Yukon
NUNAVUT
Iqaluit
Northwestern Passages
Hudson Bay
ALBERTA
Edmonton
Canada
Manitoba
Saskatchewan
British Columbia
Vancouver
Winnipeg
Ontario
Quebec
Quebec City
Gulf of St Lawrence
Newfoundland and Labrador
Prince Edward Island
Nova Scotia

Alberta's Integrated Laboratory Service Delivery Model

*Dyna**LIFE**$_{Dx}$* is a private laboratory that operates under a long term contract with the provincial government under a collaborative governance structure:

- Hospitals have Rapid Response Labs
- We provide Anatomic Path/Cytology, Microbiology, complex Chemistry and Hematology 24/7
- We operate community collection sites, offer home collections, specimen pick-up and transportation services
- We also operate a full service hospital lab and three small hospital/health center labs including TM and DI services

Service Delivery Metrics
Why Managing Staffing is Critical

We voluntarily offered service delivery commitments from the inception of our contract including:

- Cytology receipt to report TAT
- Chemistry and Hematology TAT
- Anatomical Pathology Slide TAT
- Satisfaction surveys
- Quality metrics

We are accountable to achieve these metrics and are contractually incented to do so.

Staff Scheduling Requirements Risks and Opportunities

In lab departments, support areas, transportation, patient collection sites:

- We need the appropriate number of staff in each staffing category, with required training, fully competent to cover all specified shifts 24/7.

- Sounds easy doesn't it…

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Manual Scheduling Risks

- Skill gaps - Staff scheduled for a bench or duty not fully trained/competent
- Wrong number of FTEs – too many/too few
- Wrong mix - tech 1 or 2 versus lab assistant 1 or 2
- Regulatory requirements not met – First aid, etc.
- Collective agreement not met: ie. 7 days notice of schedule change or pay at X 1.5
- Errors/gaps may result in moving staff between locations – lose travel time and increase costs

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Impact of Scheduling Errors

- Quality concerns
- Productivity loss
- Compliance issues
- Union grievances
- Patient Wait Times not achieved
- TAT Metrics not met –loss of credibility, potential for fines – long term contract concerns

Scheduling System - Opportunities

At *DynaLIFE*$_{Dx}$ we've had significant success developing innovative solutions to meet the needs of our operation including a patient appointment system, a patient wait time management system, and specimen tracking system.

Over the past couple of years we've realized we're using a significant number of management hours to do a not very good job of scheduling our staff so we set out to find a solution.

Unique Scheduling Challenges at *DynaLIFE$_{Dx}$*

1. Diverse employee population:
    - Multiple levels and skill sets for both lab assistants and medical laboratory and combined lab/xray technologists
    - Geographic limitations to staff deployment
    - Various levels of training/competency
    - Maternity leaves – 52 weeks in Canada

2. Variations in Work Agreements:
    - Casual, part-time to full time (0.2 to 1.0)
    - Grandfathered shift/rotation or permanent shift agreements
    - Modified hours and/or duties
    - Different hours/week standards – location driven
    - An employee can have more than one role – different departments and job categories

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3. Collective Agreement Mandates:
    - Hours of rest between shifts and days of rest within pay periods
    - Overtime triggers depend on hours per day/per week
    - Vacation days – entitlement and accrual rules
    - 15 to 30% of employee time spent on leave, not including maternity, long term disability, etc.
    - 22 different types of leaves
    - Schedules must be posted 4 weeks in advance
    - Penalties for shift changes without 7 days notice
    - Penalties for shifts worked over employee's FTE
    - Complex shift premiums, call and call-back rules

4. Operational Requirements:
    - Work volume can vary significantly with little notice – hospital labs refer work when they're short staffed, have instruments down, pathologists away, etc.
    - Testing frequency and TAT are mandated by contract
    - Achieving patient wait time metrics requires tight control over staffing levels and shift coverage in each location – balancing between multiple locations
    - Metrics may drive shift timing – ie. AP 4 am start time
    - Regulatory elements must be managed

Key Link Between Quality and Scheduling

Training of our staff is a significant component of our operation – training of:

- New staff on each bench
- Existing staff on new SOPs/Equipment
- Training of returning staff (away on leaves)

Only trained staff, assessed to be competent can meet our quality requirements and be scheduled for duty.

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Manual Scheduling Challenges
Drain on management resources

Manual Scheduling - Management Resources Utilized Annually - Hours/year

	Core Lab	Micro	AP/Cyto	SP/T	PCCs/HC	TOTAL
Building Initial Schedules	312	480	138	200	576	1,706
Managing revisions, requests, sick coverage	375	156	416	754	7,625	9,326
						11,032

Annual cost: $440,000

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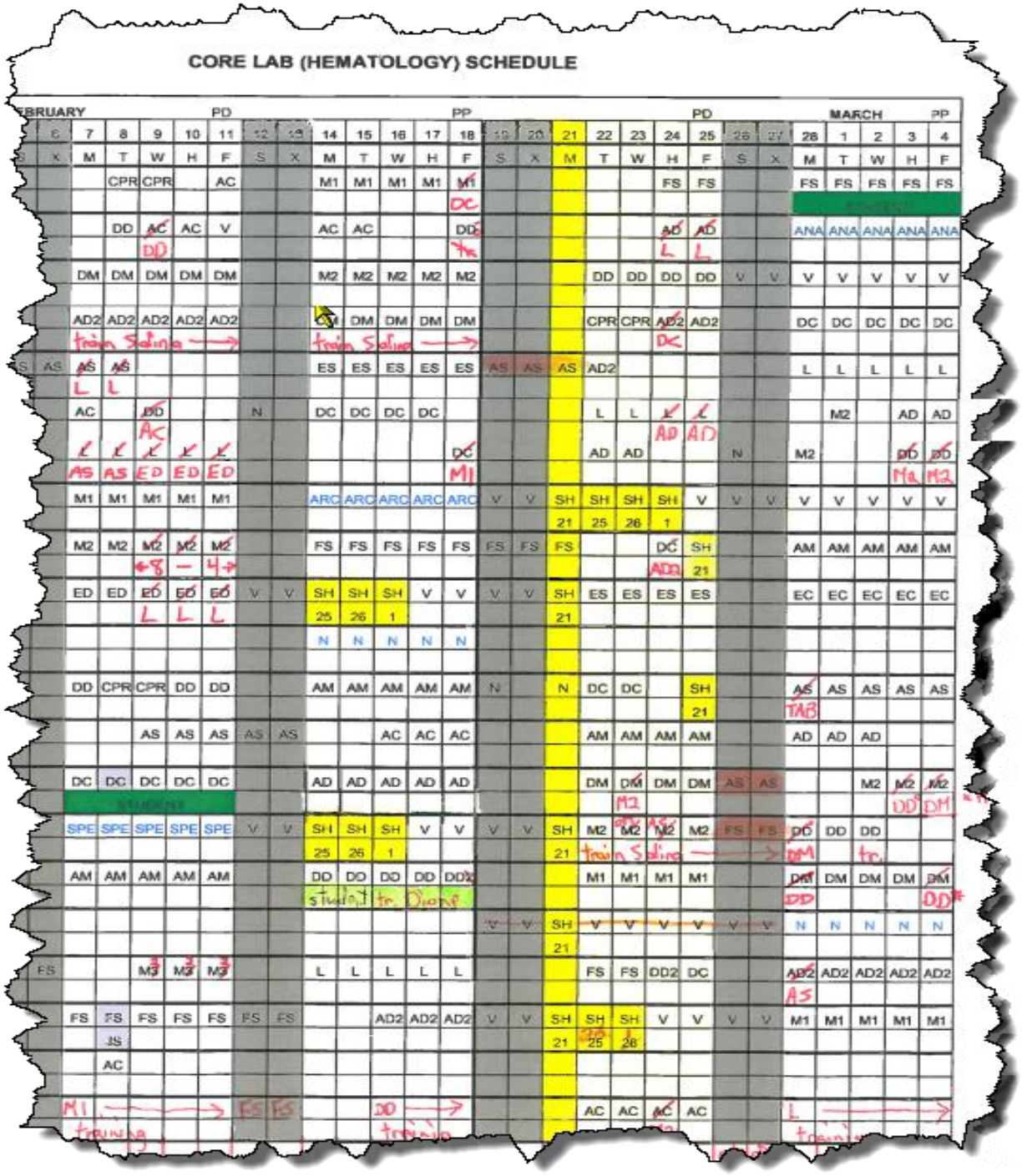
All That Time…. To End Up With This!



Manual Scheduling Challenges

1. Finding balance between departmental needs and employee happiness
2. Remaining fair and objective
3. High potential for error
4. Lack of data availability to ensure appropriate staff training and competence is maintained

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Employee Frustrations

1. Difficult to maintain work/life balance with schedule only posted 4 weeks in advance
2. Paper requests for leave lost or misfiled
3. No access to updated schedule outside of work; paper copies at home often incorrect
4. Benches left unscheduled or benches double-scheduled
5. No rotations or patterns meant inconsistencies with scheduling for different benches

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The Move to Automated Scheduling

- Evaluation of three vendors
  - Feature Assessment Survey used to review each vendor's ability to meet our needs:
    - Schedule generator rather than pattern regurgitator
    - Lab specific/ability to accommodate our specific needs
    - Need for involvement from *Dyna**LIFE**$_{Dx}$* IT department
  - Price comparison

- Decision made by Executive to trial the ScheduleReady software product from Maplewood Software

Our Implementation Process

We plan to implement across the entire Clinical Operations group – 1000 employees/38 sites

- Completed pilot in Core Lab in Sept 2011
- Microbiology and Spec Processing completed
- Patient Care Services on track for completion by the end of May 2012
- AP/Cytology and Northern sites – July 2012

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Implementation of ScheduleReady

Growing pains

- Computer literacy
- Access to PCs with current version of Internet Explorer
- Staff acceptance of new system
- The unique needs of *DynaLIFE*$_{Dx}$

Next steps

- Roll-out to remaining technical departments and Transportation
- Pathologists- our biggest challenge!

Manager's Dream Come True

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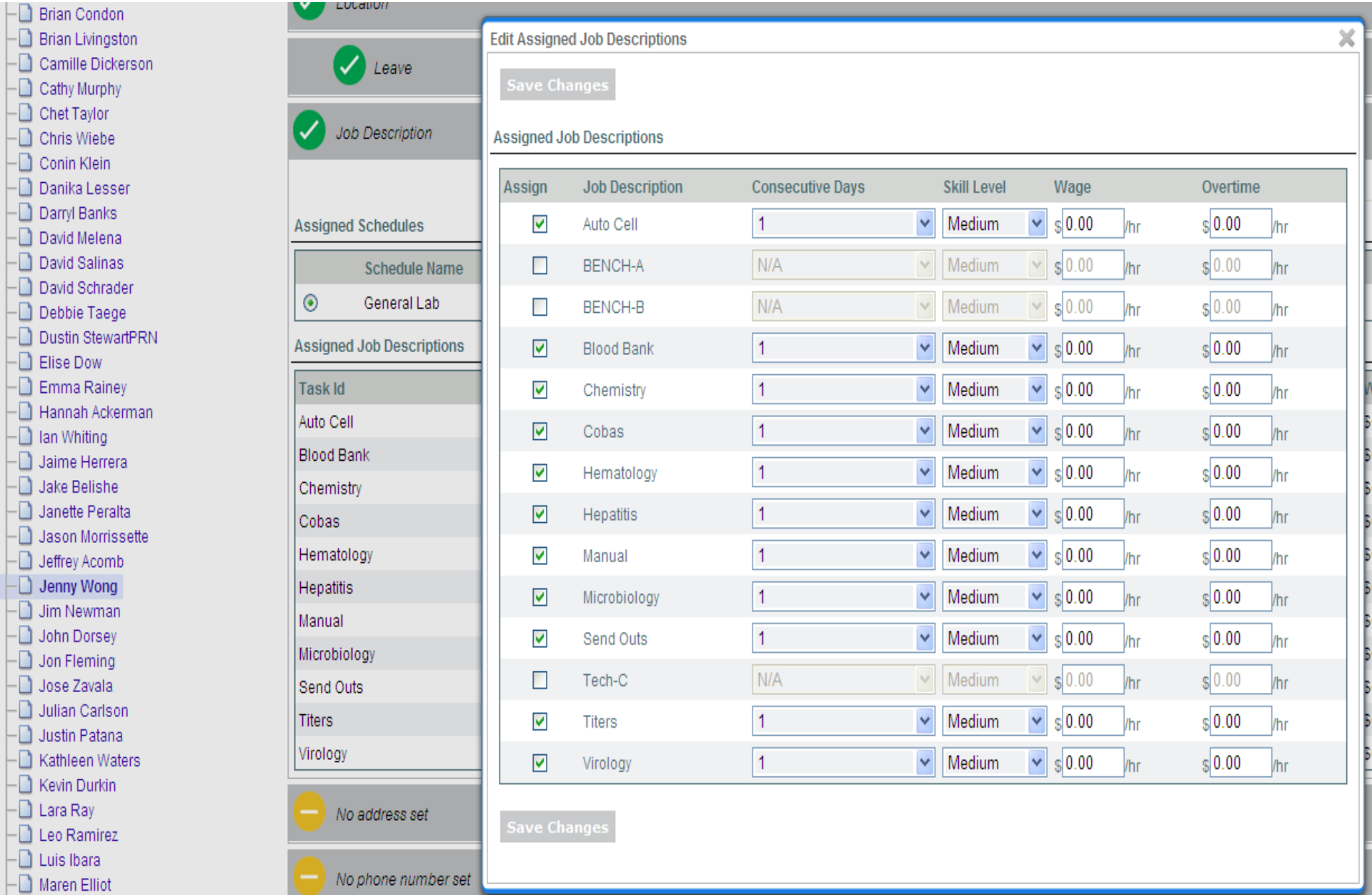
How the System Works

1. Employee database ensures the right person is assigned to the right work
2. Open shift tracking eliminates schedule gaps
3. Rotations allow for greater balance and fairness; ensures staff retain competency in all areas they have been trained
4. Shift changes, leave requests, coverage for sick leave – all done with one click!
5. Drastic reduction in management time
6. “SaaS” delivery model allows for greater flexibility

Example of Employee Database



Approval of Leave and Shift Trades

ScheduleReady™

Welcome | Calendar | Editor | Job Description | Schedules | Employee | Reports

Overview
Configure Layout

Schedules [show]

Sick Leave [show]

Leave Manager [hide]
Feedback | Help
Department Leave

Shift Trades [show]

Open Shifts [show]

My Activity [show]

Time Span: 6 Months Status: Request

Leave Requests

		Employee	Status	Leave Dates	Type	Requested	New
Confirm	Deny	Jenny Wong	Request	06/25/2012 - 06/27/2012	PTO	04/18/2012 01:17 PM	Edit
Confirm	Deny	Bill Smith	Request	08/01/2012 - 08/01/2012	PTO	02/20/2012 12:30 PM	Edit

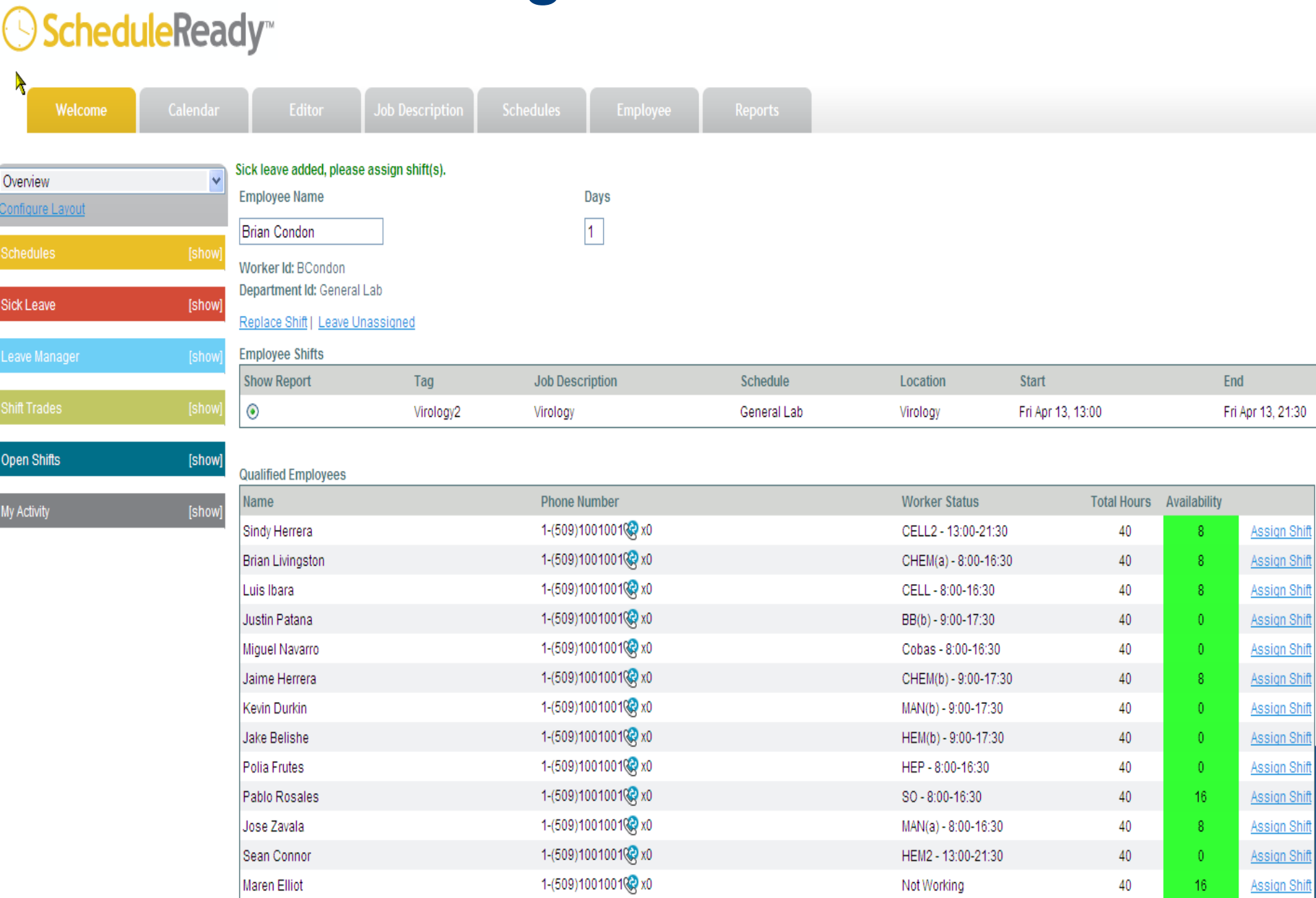
Shift Change Requests

		Shift Date	Shift Name	Current Status	New
Confirm	Deny	04/20/2012 (Friday)	HEP	Jenny Wong would like to give HEP (8:00 - 16:30) to Bill Smith on 04/20/2012.	View Reason
Confirm	Deny	06/16/2012 (Saturday)	BB (a)	Jenny Wong would like to give BB (a) (8:00 - 16:30) to Bill Smith on 06/16/2012.	View Reason

I particularly like the ability to use the system to request vacation and days off. You submit your request and you can see if it's pending or approved. I liked being able to do it from home, too!

-Brady, Technologist I

Coverage for Sick Time



Staff Perspectives

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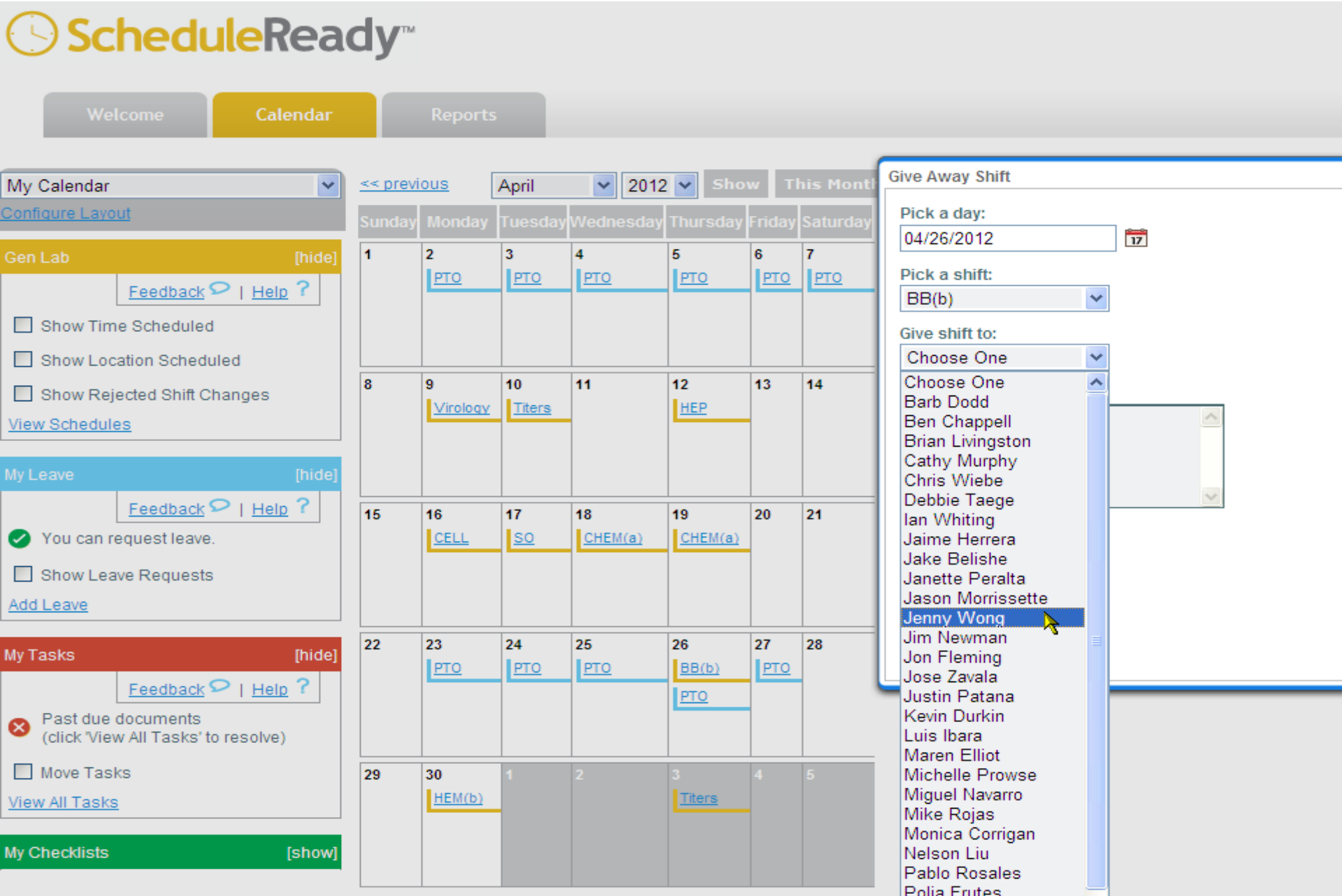
Employee Benefits

- Morale increases as staff feel more in control of their lives
- Automated system provides objectivity, fairness, flexibility and predictability
- Rotations ensure they are scheduled for all benches on a regular basis : no more six-month gaps!
- Shift trades made easy!
- Easy access to current schedule via the internet

Shift Trades: Selecting Shift to Trade



Shift Trade Acceptance

ScheduleReady™

I like that any pending shift exchanges are right on the Welcome Tab for easy viewing as soon as I log in. I also like that the system "knows" who I can trade with.

-Derek, Technologist I

Welcome | Calendar

Overview

Configure Layout

Shift Trades [hide]

Feedback | Help

Work with my shift changes

My Leave [show]

Shift Change Requests

		Shift Date	Shift Name	Current Status	New
Agree	Disagree	05/17/2012 (Thurdsay)	HEP	Bill Smith wants to give you the HEP (8:00 - 16:30) shift on 05/17/2012.	View Reason

Shift Change Requests

Shift Date	Shift Name	Current Status	New
05/17/2012 (Thurdsay)	HEP	You are awaiting approval from your schedule administrator for the HEP (8:00 - 16:30) shift from Bill Smith on 05/17/2012.	View Reason

Other Things Employees Like…

Balancing a schedule between home and work can be challenging. I like that I have access to my schedule wherever and whenever right on my phone- it takes the guesswork out of planning things like appointments and other events.

-Pam, Technologist I

As a supervisor for two different groups of staff that each have their own schedule, I often need access to both for a variety of reasons. With the scheduling software I can access both up-to-date schedules at once from any computer. This has allowed me to plan more efficiently.

-Joan, Technologist II

I work in both chemistry and hematology- I can see either schedule on one screen, and can switch from one to another with a simple click. The format is user-friendly and it's easy to read.

-Carman, Technologist I

Key Lessons Learned

- We under-anticipated setup time and complexity; target “Go Live” date in trial department changed multiple times
- Our training time and delivery model not optimal. Maplewood Software has since launched a new training program to address these shortcomings
- The initial roll-out would have benefited from a concrete training plan and sessions away from the bench to allow staff to focus on the information and fully understand the system
- A change management strategy with multiple messages to staff weeks in advance of the launch would also have helped
- Computer literacy of staff can be a challenge

Major Benefits of our Automated Scheduling System

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Management Productivity Gains

Management Resources - Impact of Automated Scheduling System - Hours/Year

	Core Lab	Micro	AP/Cyto	SP/T	PCCs/HC	TOTAL
Hours/year - Manual Scheduling	700	650	550	950	8,200	11,050
Management Time Saved	560	520	440	760	4,920	7,200
Percentage Saving	80%	80%	80%	80%	60%	65%
	Achieved		Projected			

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Staff Productivity Gains

Staffing Optimization:

- Scheduling errors resulting in techs having to cover lab assistant role or LA 2 covering LA 1 role
- Overscheduled – two people to cover one bench
- Unnecessary redeployment of staff to alternative locations

Staffing Cost Management Gains:

- Overtime paid due to lack of 7 days notice
- Cost of incorrect job category scheduled

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Risk Mitigation and Managing Our Metrics – Increased Control

The employee database supports quality management by ensuring that competent staff are performing testing.

ScheduleReady provides data on staffing peaks and valleys that can be linked with volume trends to allow for better utilization of our staff. This results in better control and ability to ensure we meet our metrics:

- Wait time
- Stat TAT
- Chem & Hem TAT
- AP Slide TAT
- Cyto receipt to report TAT
- Gram Smear TAT
- Proficiency testing
- Specimen rejection

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Next Steps

Automating Payroll:

- Download of data from scheduling system to payroll system – potential 2.0 FTE savings plus 200 hours of Management time/month to review and approve

Expand reporting capabilities:

- Link daily test/patient volume data to FTEs to better predict staffing requirements and improve productivity
- Implement Overtime, Leave, Stat Holiday, Shift Count and other key reports to support further optimization

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Conclusion

The adoption of an automated scheduling solution has brought about a dramatic reduction in time spent scheduling while systematically reducing errors made with a manual scheduling process. This system has a key role to play in ensuring that *Dyna**LIFE**$_{Dx}$* continues to provide the exceptional service and quality we promise our clients while allowing our employees more control over their lives, and our managers more time to manage!

QUESTIONS?

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