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Dimensional INSIGHT®

How to Use Analytics to Improve Hospital Throughput
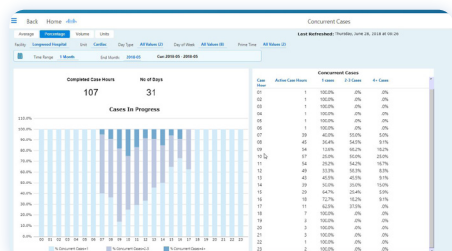
Learning About Scatter Plots

How Big Data is Changing Utilities

Eight Ways the Wine and Spirits Industry Will Change in 2021

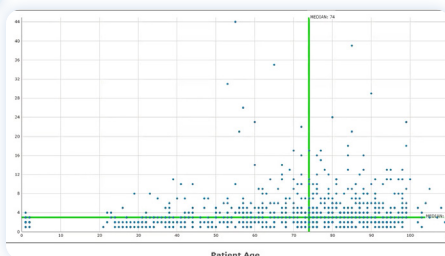**Dimensional Insight Named 2021 Best in KLAS in Healthcare Business Intelligence/Analytics**

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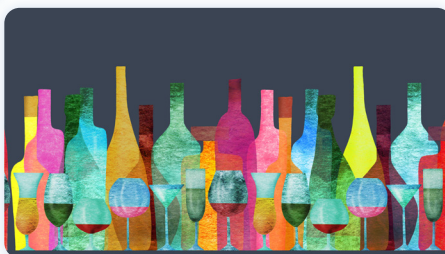
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How to Use Analytics to Improve Hospital Throughput

Hospital throughput is one of the most important metrics for hospitals to track. It is not only important to hospital leadership to measure the efficiency of your operation, but it is a huge factor in patient satisfaction. Here's how Dimensional Insight's healthcare application family can help your organization track throughput, with the overall goal of providing visibility into the workflow across the hospital and, ultimately, the entire health system.

George Dealy

VP, Healthcare Solutions
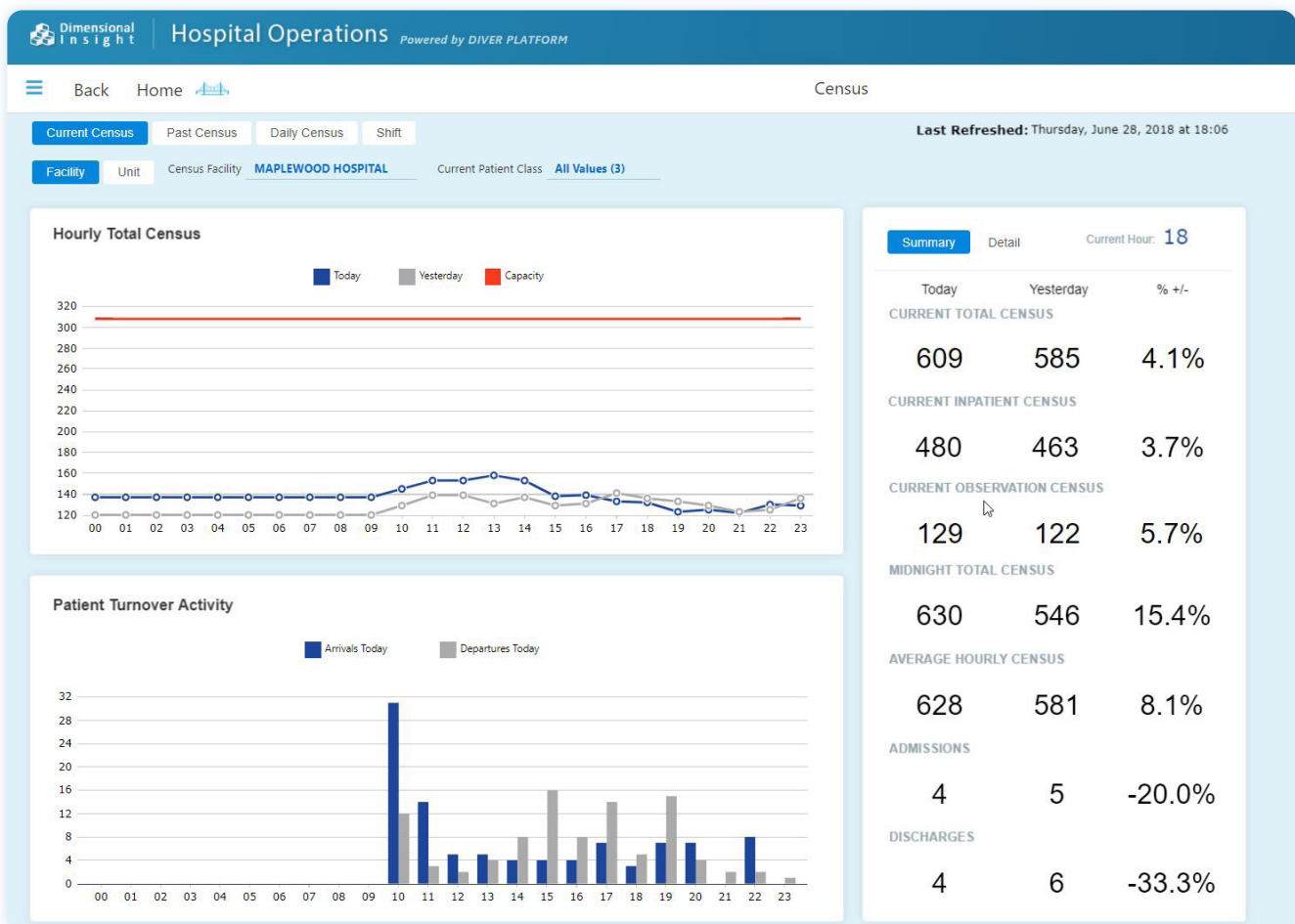LinkedIn

Hospital Operations

Hospital Operations allows organizations to track patients' locations on an hourly basis so that their journey through hospital units can be analyzed at a very granular level using timestamps provided by an EHR. With timestamps and location data, as well as information about the patient's condition, KPIs can be constructed to help understand flow at both the individual patient level as well as across units and the entire facility. All Dimensional Insight applications include a standard set of these throughput and utilization measures, which can be tailored to a specific hospital. Measures can be easily added by subject matter experts.

The workflows of ancillary operations, such as the laboratory, radiology, and pharmacy, have significant impacts on patient flow and the overall operations of the hospital. Measurements of ancillary workflows, including visibility into measures such as turnaround times and utilization, are integrated into Dimensional Insight's healthcare applications.

Surgery Advisor

Surgery Advisor is a service line-specific application which complements Hospital Operations by tracking perioperative workflows and patient flows across surgical units. This provides even more granular insight into activities both within surgical cases, such as how long individual procedures take, as well as across the service line, covering aspects like case, room, and surgeon turnaround time and facility and block utilization.
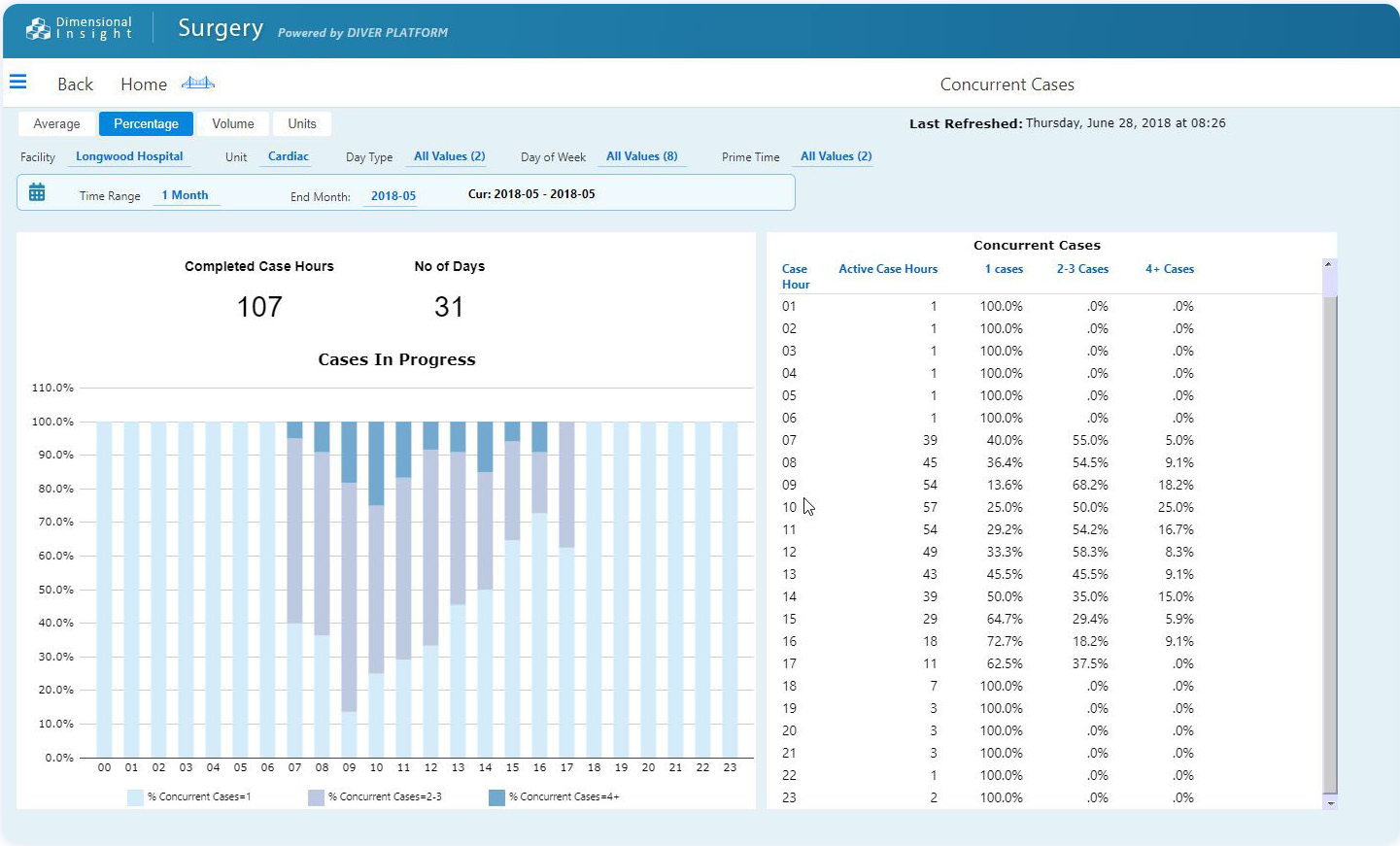
ED Advisor

Much of a hospital's patient activity typically originates in the emergency department. The flow through the ED impacts the flow through the rest of the hospital, and inefficient processes in the ED can delay the movement of patients into the next appropriate care setting. ED Advisor uses timestamps that reflect activities in the ED, including ancillary operations such as turnaround times for laboratory results and imaging studies, to provide a starting point for understanding where flow can be improved both within the ED and across units and service lines.
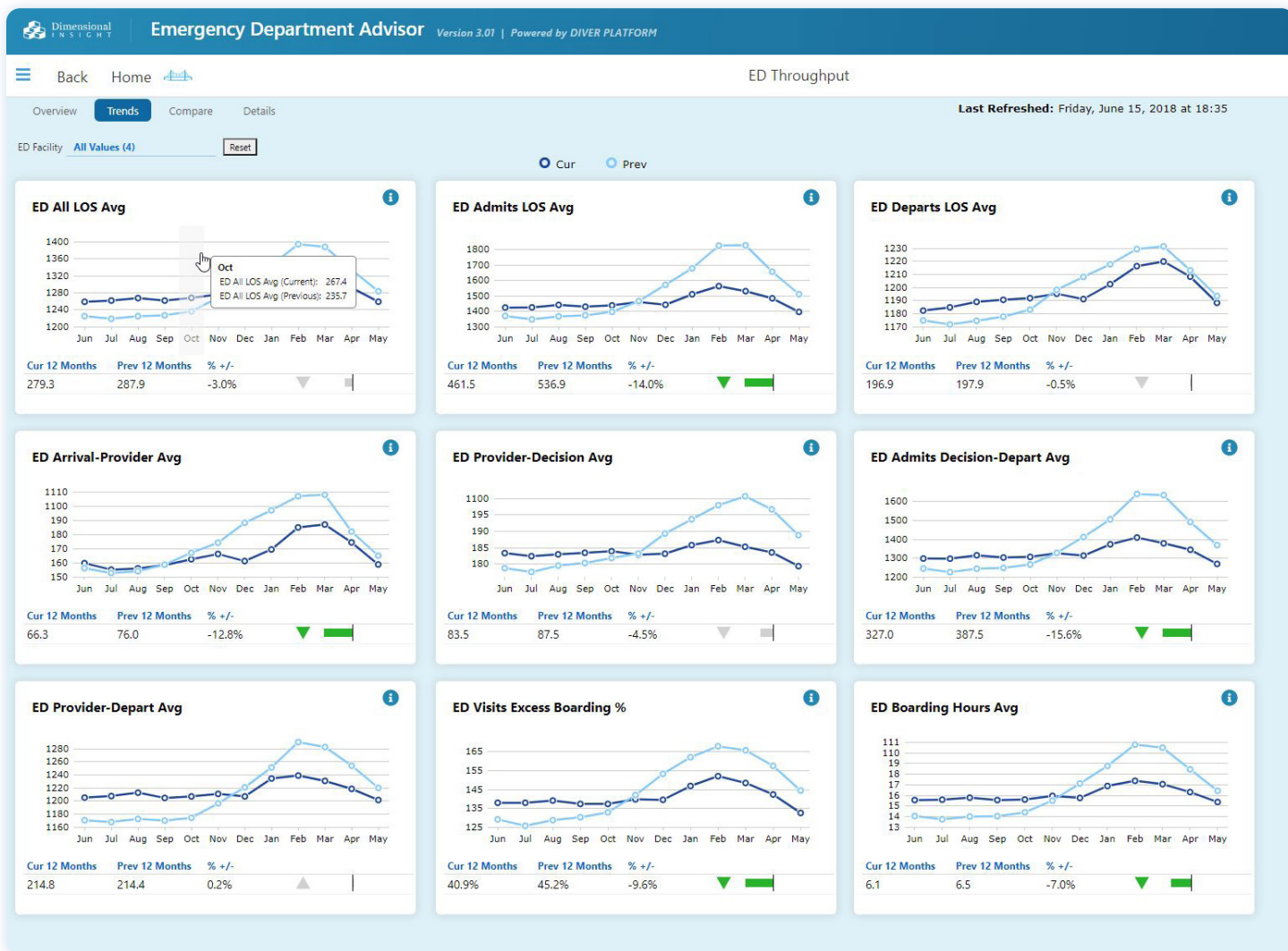
Dimensional Insight healthcare applications are built on the foundation of a single, cohesive, patient-centric data model and set of clinical/business rules. This allows analysts to use a combination of measures from across applications to analyze, manage, improve, and monitor workflow efficiency and utilization both within and across the components that comprise a healthcare facility. ☐

Learning About Scatter Plots

Learning About Scatter Plots

Creating charts with Dimensional Insight's DivePort dashboard interface is easy. We discuss the steps to create all our chart types in the educational webinar series "Knowledge Forum." This topic series is called *"Data Visualization Series Using Chart Portlets"* and covers a different chart type for each topic within that series.

In this article, I will walk you through the steps to create a scatter plot in DivePort. I will also cover some lesser-known settings and show a few screen shots of the DivePort interface. To follow every step visually, you can stream the online recording of the instructions in our "Knowledge Forum Library." Enjoy!

Scatter Plots

There are two things to know about scatter plots.

1. They are used to show the relationship between two different values.

2. They can be used with lots of values.

Figure 1 Add Chart Portlet

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Knowledge Forum

So, if you have a large dataset, or lots of things that you want to plot or graph, scatter plots are a great choice.

Let us look at an example using hospital data and patient length of stay. The two axes—or two values we want to analyze—will be the length of stay in days (Days), as well as the patient age (Patient Age).

To create a scatter plot in DivePort, add a Chart Portlet by right-clicking on the DivePort page and selecting "Add Portlet." The "Add Portlet" dialogue box appears, allowing you to choose a portlet type. Then, select "Chart" and "OK" to add a Chart Portlet. See Figure 1.

Once you have clicked "OK", the "Edit Chart Portlet" dialogue box appears. The first step is to select a data source. There are three types of data sources that can be used for this chart: cBase, cPlan, or a Marker. In this example, we will use a Marker containing information about discharged patients that has been named "discharges.mrk." Select "discharges.mrk" and click "Next." The next step is to select a chart type.
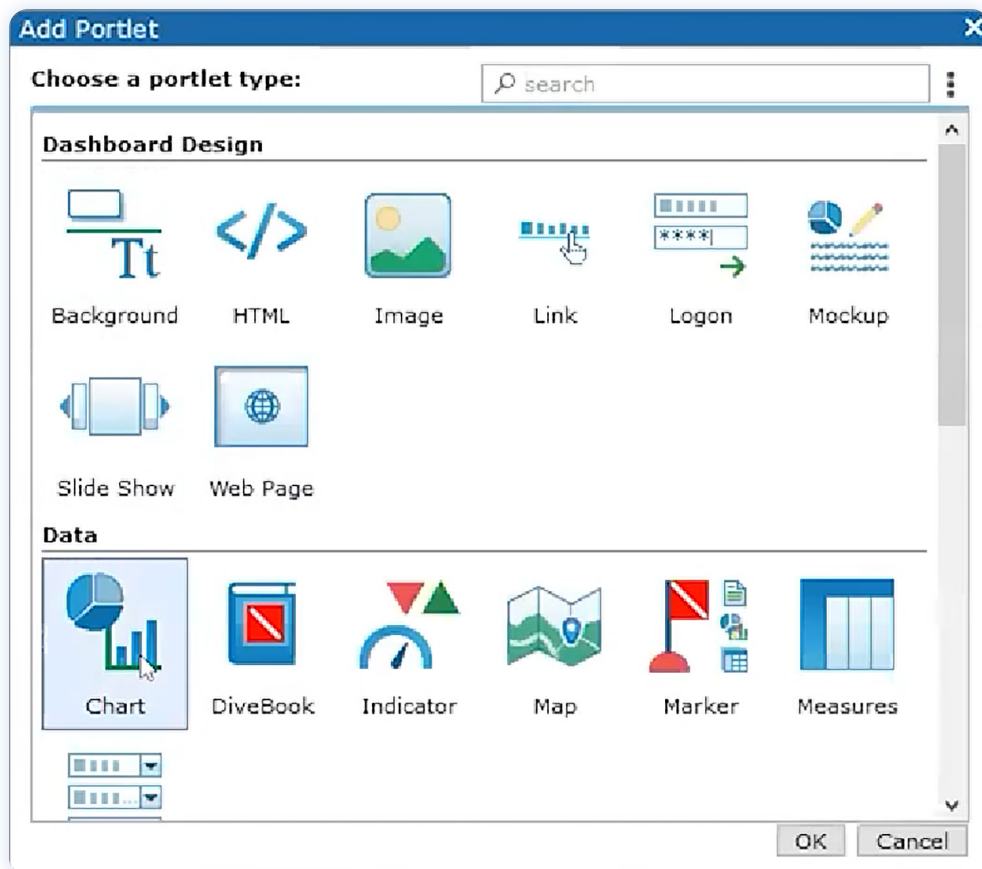
The interface at this stage of the process will display the numerous chart types available. In fact, there are so many that we must scroll down to reach the "Scatter Plot" button. It is easy to identify by the icon/drawing that looks like scattered dots. Choose the "Scatter Plot" button and then click "Next." See Figure 2.
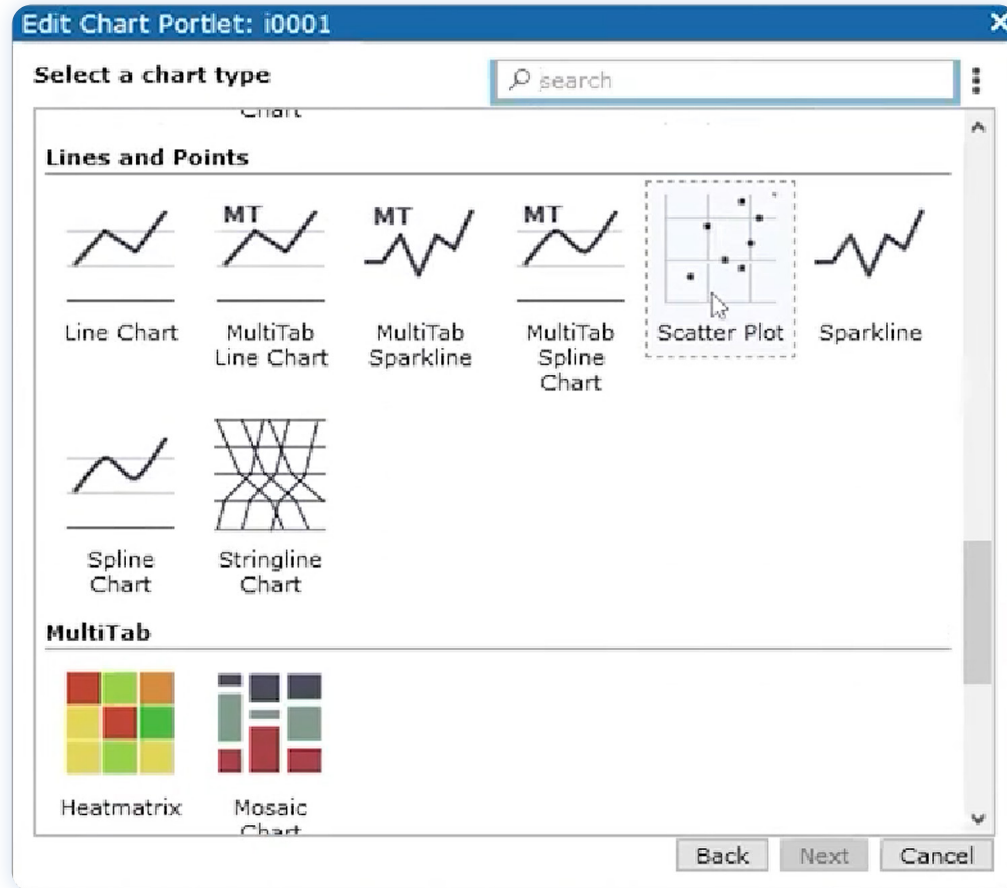

Figure 2 Edit Chart Portlet: Select a chart type.

The next dialogue box allows the user to select the dimension and X and Y axis data to plot. The dimension is based off the Account ID. In other words, each patient encounter's details are stored in the dimension "Account ID." The patient length of stay in days and the patient's age are stored in this account ID. As mentioned at the beginning of this article, we are defining the X axis as "Patient Age" and the Y axis as "Days."

There are several links at the bottom of this dialogue box. For this exercise, we are going to enlarge the size of the points on this scatter plot. Select the "Point Size" link from "More settings" at the bottom of this dialogue box to reach the "Point Size" settings dialogue box. The default setting of 2 is changed to 3 pixels per dot.

Once "OK" is clicked, the dialogue box closes. The DivePort page is revealed with the new scatter plot chart positioned in the upper left-hand corner of the page. By clicking and dragging, the chart can be repositioned. Clicking and dragging the corners of the chart causes the chart to be resized. Do not forget to click "Save" in the upper right-hand corner of the DivePort page.

Once the chart is saved, we can see that all the discharged patients have been plotted by the individual's age and their length of stay. By rolling the cursor over any one of the points on this chart, we can see the details of that specific point in hover text. The default view for this rollover shows 3 things: Dimension, X, and Y axis values. Looking at the entire chart at-a-glance, one can see clusters of points as well as outliers—encounters that lie outside of other encounter data.

To further enhance our understanding of the data, we can add statistics to the chart. The link to the "Statistics" settings is next to the "Point Size" settings. We add in the median on the X and Y axis and change the color to bright green so that it stands out from the blue points in the chart. We also make it a little bit thicker and add a label. Now we can see that the median patient age is 74, and the median days length of stay is three.
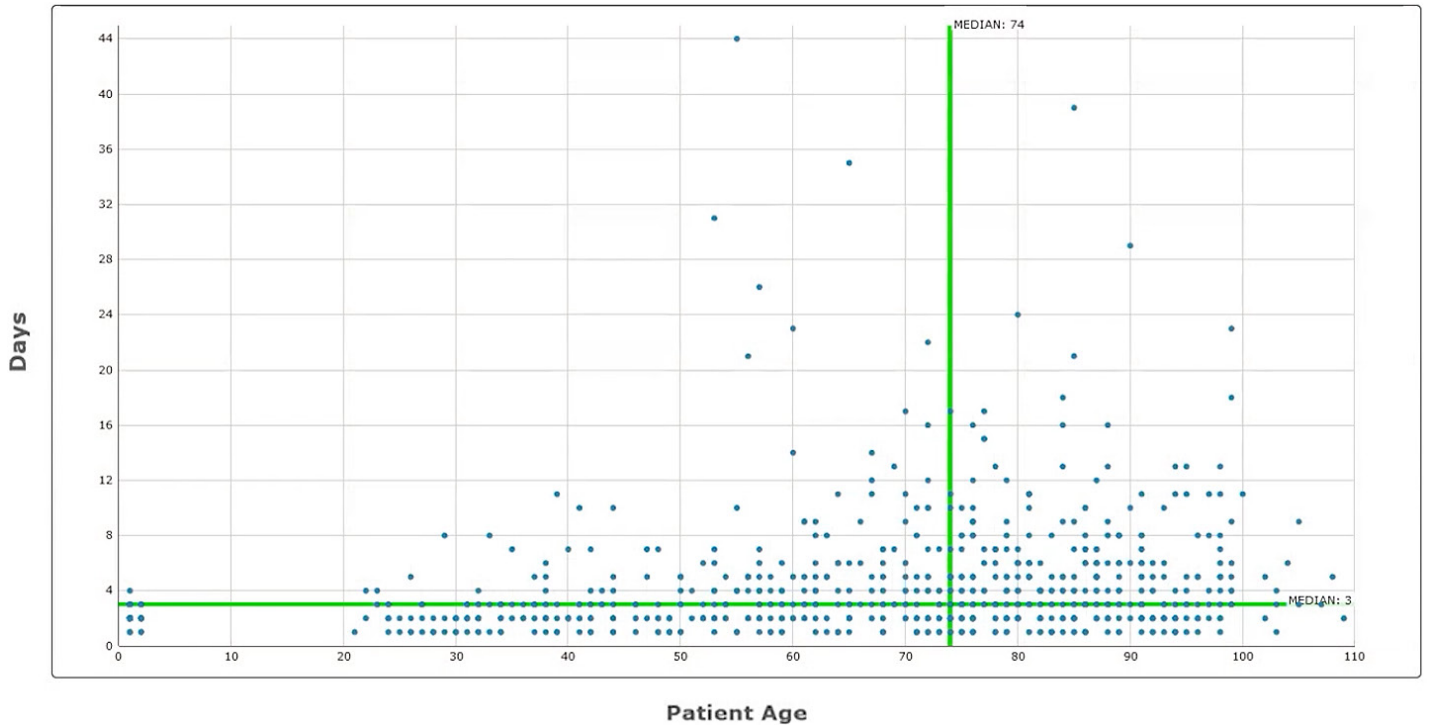
Figure 3 Scatter Plot with Median Lines

We can gain insight using a scatter plot for this kind of data. We can instantly see that most stays were under eight days. Outliers were primarily from people age 55 to 100.

Let us look at a second example. We are going to compare this year's revenue against last year's revenue for each salesperson. We create the scatter plot using the same steps that were used in the plot above. To enhance our understanding of this data we will add additional text to what we see when we hover over any point. The "Hover" settings button is next to the "Statistics" settings button in the dialogue box. Clicking on the "Hover" button brings us to the "Hover Text" dialogue box. In the upper right-hand corner of that box is an ellipsis. We click on that ellipsis to access the template for what is shown on hover. It shows the default HTML found in the template.

By modifying this HTML, we can change what is shown in the hover text. We can even modify it with preformatted code. The new hover text shows not only the amount of revenue last year and this year. It also shows the percent change in revenue, decimal cases sold this and last year, and the percent change in decimal cases sold.

Each of these modifications to the scatter plot provide the user with more information, which may assist analysis of the data.

Figure 4 Scatter Plot with Points Sized by Sales Volume
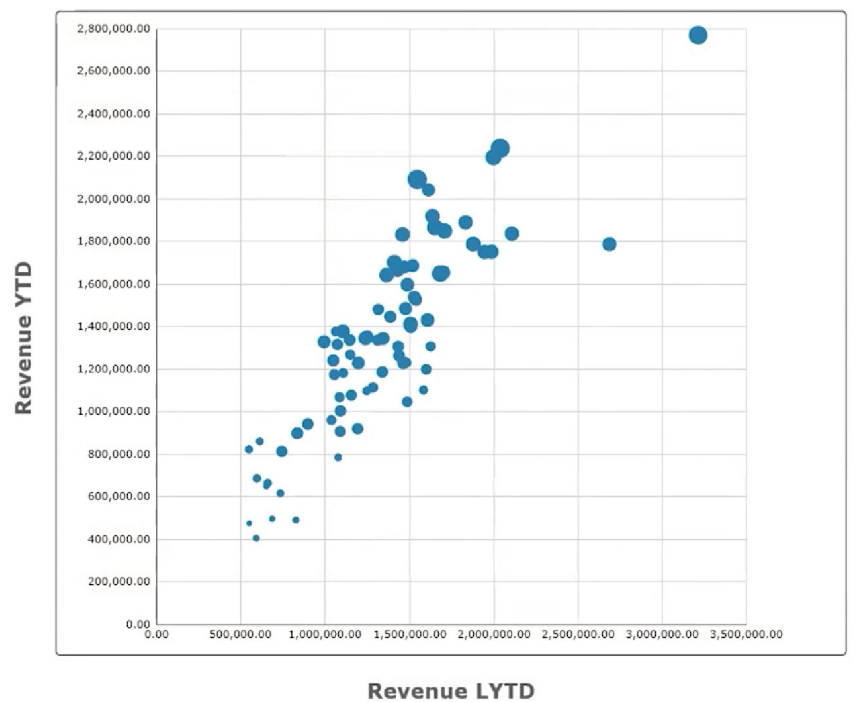
By returning to the "Point Size settings" dialogue box, we see the first option allows us to define a source of data for the point size. By defining this data, the point size will change to reflect the sales volume.

We now have this extra piece of information that is being displayed in the scatter plot. The size of the dot represents the volume of sales. See Figure 4. ▢

How Big Data is Changing Utilities

There is an ongoing data revolution happening within the utilities sector that is transforming nearly every aspect of how grids are laid out, monitored, and maintained. Much of this revolution is being driven by smart sensors, which are laced throughout power, water, sewage, and other utility lines to offer holistic and up-to-the-second information to keep these systems running smoothly and safely. The COVID-19 pandemic accelerated the rate of these changes by highlighting the importance of being able to do jobs remotely and having reliable systems in the face of an emergency. Thanks to the ongoing and precise data that these sensors provide, the efficiency and reliability of these grids can be dramatically increased.

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Reducing energy usage

Many smart sensors are accurate enough to monitor the electricity usage of households down to individual appliances. They can then organize that data into reports that are sent directly to the consumers. These energy audits give people a better understanding of how electricity is being used, and what they can do to reduce their personal energy consumption. While home energy audits have been available for some time, until recently they could only be conducted in-person. This often resulted in a hassle for the home owners, who would have to be home at a certain time; and the auditors, who would often have to return to the same residence multiple times due to missed appointments. Now these audits can be conducted automatically, without the need for in-person visits. The reports can be delivered in the form of emails that are sent out monthly or when particularly high energy usage is detected. This is, of course, especially important right now due to the pandemic.

Once the wasteful uses of energy are identified, users are encouraged to upgrade their home fixtures with newer and more efficient models for which they can shop online and receive rebates immediately. Before, they would have to visit a hardware store and go through the trouble of getting a mail-in rebate.

But not all of these changes towards greener utilities are happening on the consumer level. Data is also presenting new ways for the utility companies themselves to increase their efficiency. By monitoring overall energy usage throughout the grid (which has dramatically shifted towards residential areas while most people are working from home), utilities providers can create smarter systems that prioritize getting the utilities to where they are needed most.

Making grids safer and more reliable

In addition to becoming more efficient, merging with Big Data has made utility systems safer and more resilient. When there is a problem, utilities providers need to be able to immediately

pinpoint it within the grid so that they can resolve it as quickly as possible. This is especially true during major emergencies, when a lack of water or power could endanger peoples' lives.

This is accomplished through the use of thousands of smart sensors that are built into the grid. These sensors are designed to keep reporting data, even when other systems are failing. They do this by running on a 4G (or LTE) networks, which run separately from the normal power and internet grids. These 4G-powered smart sensors are so quick and precise that they can identify and deactivate a broken power line in the 1.4 seconds that it takes to reach the ground—protecting bystanders from a potentially lethal shock.

Conclusion

Much like with supply chains, Big Data will be instrumental to utilities moving forward, as the constant stream of new information pushes these systems towards safety, efficiency, and reliability. Installing new water, electricity, and internet grids is extremely expensive, and so is upgrading these systems after they are already in place. That is why it is so important that the layouts of these installations are based on substantial and up-to-date information. Smart meters are paving the way to more intelligent infrastructure, and bringing the utilities sector into the information age. ☐

Eight Ways the Wine and Spirits Industry Will Change in 2021

by **Meredith Galante,**
Contributing Writer

After an unprecedented and historic year globally, most people are happily ushering in the new year.

In 2020, Americans mostly stayed home—and that resulted in more drinking than ever. The climate change crisis continued to peak, and civil rights movements helped focus on Black entrepreneurs across many industries.

2020 will forever affect all of our lives and significantly impact the 2021 wine and spirits industry. Look out for these 8 trends in the year ahead:

Eco-friendly packaging

In 2021, paper products will hit the shelves, and we're not talking about toilet paper.

Frugalpac, a company that created Frugal Bottle—a bottle made of 94% recycled cardboard—created a product that utilizes a water footprint four times less than a traditional bottle. These bottles have already hit the shelves in the United Kingdom.

According to Beverage Daily, wine brands that switch to paper wine bottles will cut their carbon footprint by 84%.

"The launch of the Frugal Bottle is a big leap in sustainability without compromising wine quality," Frugalpac owner Ceri Parke told Beverage Daily.

Image source: www.frugalpac.com

Liquor laws permanently change across the country

Before the pandemic began, many states banned alcohol delivery. But when governors issued stay-at-home orders, the laws forced bars and restaurants to shutter operations except for delivery. Many state legislatures

rushed to change liquor laws to allow carry-out and delivery options to help businesses in any way possible.

Now that Americans have had their taste of alcohol on demand delivered to their front door, expect liquor giants and their customers to lobby for these rule changes to become permanent in 2021.

"There's probably five or six states that are actively reaching out right now saying, 'How do we get up to the status quo of some of the other states who have done this?'" Drizly CEO Cory Rellas told The Hill. "I think this is something that is going to be a much longer-term shift, so we need to set this up correctly."

Virtual tastings are here to stay

Even with promising COVID-19 vaccination news, Q1 of 2021 looks like it will be very similar to 2020. Wineries, such as Wolffer's Vineyard in Long Island, NY, started hosting virtual wine tastings for customers so that they can experience the magic of their wines at home.

Wolffer's private tastings cost between $150 and $175 for tasting groups of three to thirty. Customers can have the wines shipped to them or pick up the wines at the winery's Hamptons locations.

Virtual wine tastings allow all vineyards to increase their customer base outside their immediate geographical vicinity, therefore increasing sales.

Rosé market consolidates

When walking around a liquor store, you'll likely find a wall of pretty rosé bottles. In 2021, expect that wall to shrink.

"While the category has been seeing impressive growth, some may wonder if rosé is beginning to peak—or if its upward trajectory will continue," Kathleen Willcox wrote for SevenFiftyDaily.

Rosé won't disappear completely—plenty of drinkers will reach for premium rosé during those hot summer months—but expect the excess array of cheaper brands on the shelves to start to diminish due to consolidation among larger brands and others going out of business.

Rob McMillan, the executive vice president and founder of Silicon Valley Bank's Wine Division, feels rosé faces "serious competition" from CBD-infused products and less expensive options with "similar premium-style taste profiles."

Less alcohol, more taste

Whether you're participating in a trend like Dry January or just looking to cut back on your alcohol intake, in 2021 there will be more options than ever to enjoy a delicious cocktail without the buzz.

The non-alcoholic beverage market currently totals $280 million, according to Statista. The industry expects growth by 7.1% in 2020. But the best is yet to come: the non-alcoholic drink market, which does include soft drinks, is expected to be valued at more than $2 billion by 2022, according to Allied Market Research.

An "increasing population of working people, gym-goers, and athletes is expected to promote the demand for nutritious drinks, which will increase their performance as well as keep their energy level high throughout the day," Grandview Research wrote in a report released last year. "This is expected to aid the growth of non-alcoholic beverages such as energy drinks, juices, as well as functional drinks in the next few years."

COVID-19 affects the 2020 vintage

COVID-19 has affected nearly every aspect of our lives, and the wine world is no exception. Wine-producing powerhouses such as New Zealand, Napa Valley, France, and Australia have to grapple with the challenges the pandemic has imposed upon the wine industry and their 2020 vintages.

Napa Valley was one of the hardest hit areas, since it faced months of wildfires in addition to the pandemic. There is serious concern among wine producers and enthusiasts that the 2020 crop may have been irreparably damaged by the smoke that filled the air. "It is called smoke taint and does drastically affect the quality of the wine," Lewis Perdue, publisher and

executive editor of Wine Industry Insight told The Los Angeles Times. "So much so that many wineries have decided not to make a 2020 vintage."

In France, the government gave 250 million euros to struggling vineyards to help create more alcoholic sanitizer. However, the aid package only pays "a minimum price for surplus wine to distill into industrial alcohol," according to NPR.

"Covid is a catastrophe for us," Jérôme Mader, a 38-year-old winemaker based in France, told The New York Times.

Black-owned wineries become more prominent

Roughly 11,000 Black-owned wineries exist in the United States, but this small contingent is powerful, and they are making unique and delicious vintages. As Americans pledge to spend more money with Black-owned businesses, wine and spirits companies have a chance to shine.

"Wine and the wine industry has historically been a white man's world, and that's changing quickly," Robin and Andréa McBride, who founded The McBride Sisters, told Forbes in 2018. "We encourage the wine consumer to explore outside of the old expectations of wine.

"Women make up a small percentage of the wine industry and women of color even smaller. We are often met with skepticism and automatically dealt with a lack of credibility."

However, the McBride Sisters' marquee offering, Black Girl Magic, has seen a spike in sales since the Black Lives Matter protests have shined more attention to Black-owned businesses.

Expect 2021 to be a big year for Black-owned wineries.

More eco-friendly practices at wineries and distilleries

In 2021, more wineries and distilleries will strive to earn certified sustainability for their products.

Earning these certifications can help set brands apart and cater to customers who want a brand that matches their values.

Wines that earn a USDA Organic certification do not use synthetic fertilizers, pesticides, and other chemicals to make their wine.

Even without that certification, some wines and distilleries will strive to be more sustainable in all their practices to attract customers and help with climate change. □

Dimensional Insight Named 2021 Best in KLAS in Healthcare Business Intelligence/Analytics

Dimensional Insight has once again been ranked #1 in healthcare business intelligence/analytics in the annual Best in KLAS: Software and Services report. This is the 8th Best in KLAS win for us and 9th time Dimensional Insight has been ranked #1 in this category by KLAS Research.

The annual Best in KLAS awards are truly the "voice of the customer," as they are determined by feedback that customers at hospitals and health systems provide to KLAS Research over the course of the prior year. Customers give numerical scores to vendors in areas such as product functionality, ease of use, likelihood to recommend, and more.

In addition to publishing customer scores, KLAS Research also publishes grades of all the vendors in its Best in KLAS report. KLAS graded Dimensional Insight an A+ in culture, an A in loyalty, an A- in operations, an A- in product, an A in relationship, and an A- in value.

➢ **Culture:** Based on customer scores in keeps all promises, product works as promoted, and proactive service

➢ **Loyalty:** Based on scores in part of long-term plans, would you buy again, likely to recommend, overall satisfaction, and forecasted overall satisfaction

➢ **Operations:** Based on quality of implementation, quality of training, and ease of use

➢ **Product:** Based on supports integration goals, overall product quality, product has needed functionality, and delivery of new technology

➢ **Relationship:** Based on quality of support and vendor executive involvement

➢ **Value:** Based on avoids charging for every little thing, drives tangible outcomes, and money's worth

Healthcare Business Intelligence & Analytics

How do vendor solutions **compare?**

Score Breakdown (Grading methodology can be found on page 4)

A+ = 95.0+	B+ = 85.0–87.9	C+ = 75.0–77.9	D+ = 65.0–67.9	F = <58.0
A = 91.0–94.9	B = 81.0–84.9	C = 71.0–74.9	D = 61.0–64.9	
A- = 88.0–90.9	B- = 78.0–80.9	C- = 68.0–70.9	D- = 58.0–60.9	

Overall Score

Healthcare Business Intelligence & Analytics Average **85.9**

		Overall Score	Trend	Total Evaluations	Culture	Loyalty	Operations	Product	Relationship	Value
1.	**Dimensional Insight** Diver Platform	92.0	-1%	n=24	A+	A	A-	A-	A	A-
2.	Health Catalyst Analytics Platform	88.7	+1%	n=33	A-	A	B	B+	A	A-
3.	Epic Cogito	84.6	-4%	n=24	B	A-	B-	B-	B+	B

Software Average **82.4**

As always, thank you to our customers, for this Best in KLAS win is truly a reflection of your success. Let's build on your analytics success in 2021! ☐

News Brief