Technology

TOP 5 HEALTHCARE TECHNOLOGIES

Ahead for 2020: Deeper, broader applications of health IT

Drugs in Pipeline
Promising NASH therapies

Population Health Management
Risky short-term health plans

Industry Analysis
Five healthcare changes payers, providers can expect

Oncology
Scheduling improves your care

Pharmacy/Formulary
Point-of-care tools take off
Indication
CAPLYTA is indicated for the treatment of schizophrenia in adults.

Important Safety Information
Boxed Warning: Elderly patients with dementia-related psychosis treated with antipsychotic drugs are at an increased risk of death. CAPLYTA is not approved for the treatment of patients with dementia-related psychosis.

Contraindications:
CAPLYTA is contraindicated in patients with known hypersensitivity to lumateperone or any components of CAPLYTA.

Warnings & Precautions:
Antipsychotic drugs have been reported to cause:
• Cerebrovascular Adverse Reactions in Elderly Patients with Dementia-Related Psychosis, including stroke and transient ischemic attack. See Boxed Warning above.
• Neuroleptic Malignant Syndrome, which is a potentially fatal reaction. Signs and symptoms include: hyperpyrexia, muscle rigidity, delirium, autonomic instability, elevated creatinine phosphokinase, myoglobinuria (and/or rhabdomyolysis), and acute renal failure. Manage with immediate discontinuation of CAPLYTA and close monitoring.
• Tardive Dyskinesia, a syndrome of potentially irreversible, dyskinetic, and involuntary movements which may increase as the duration of treatment and total cumulative dose increases. Discontinue CAPLYTA if clinically appropriate.
• Metabolic Changes, including hyperglycemia, diabetes mellitus, dyslipidemia, and weight gain. Measure weight and assess fasting plasma glucose and lipids when initiating CAPLYTA and monitor periodically during long-term treatment.
• Leukopenia, Neutropenia, and Agranulocytosis (including fatal cases). Perform complete blood counts in patients with pre-existing low white blood cell count (WBC) or history of leukopenia or neutropenia. Discontinue CAPLYTA if clinically significant decline in WBC occurs in absence of other causative factors.
• Orthostatic Hypotension and Syncope. Monitor heart rate and blood pressure and warn patients with known cardiovascular or cerebrovascular disease.
• Falls. CAPLYTA may cause somnolence, postural hypotension, and motor and/or sensory instability, which may lead to falls and, consequently, fractures and other injuries. Assess patients for risk when using CAPLYTA.
• Seizures. Use CAPLYTA cautiously in patients with a history of seizures or with conditions that lower seizure threshold.
• Potential for Cognitive and Motor Impairment. Advise patients to use caution when operating machinery or motor vehicles until they know how CAPLYTA affects them.
• Body Temperature Dysregulation. Use CAPLYTA with caution in patients who may experience conditions that may increase core body temperature such as strenuous exercise, extreme heat, dehydration, or concomitant anticholinergics.
• Dysphagia. Use CAPLYTA with caution in patients at risk for aspiration.

Drug Interactions:
Avoid concomitant use with CYP3A4 inducers and moderate or strong CYP3A4 inhibitors.

Special Populations:
Neonates exposed to antipsychotic drugs during the third trimester of pregnancy are at risk for extrapyramidal and/or withdrawal symptoms following delivery. Breastfeeding is not recommended. Avoid use in patients with moderate or severe hepatic impairment.

Adverse Reactions:
The most common adverse reactions in clinical trials with CAPLYTA vs. placebo were somnolence/sedation (24% vs. 10%) and dry mouth (6% vs. 2%).

Please see Brief Summary of full Prescribing Information, including full Boxed Warning, on adjacent pages.

CAPLYTA is a registered trademark of Intra-Cellular Therapies, Inc.
Copyright © 2019, Intra-Cellular Therapies, Inc. All rights reserved.
**Indication**
CAPLYTA is indicated for the treatment of schizophrenia in adults.

**Important Safety Information**

**Boxed Warning:** Elderly patients with dementia-related psychosis treated with antipsychotic drugs are at an increased risk of death. CAPLYTA is not approved for the treatment of patients with dementia-related psychosis.

**Contraindications:** CAPLYTA is contraindicated in patients with known hypersensitivity to lumateperone or any components of CAPLYTA.

**Warnings & Precautions:** Antipsychotic drugs have been reported to cause:

- **Cerebrovascular Adverse Reactions in Elderly Patients with Dementia-Related Psychosis,** including stroke and transient ischemic attack. See Boxed Warning above.

- **Neuroleptic Malignant Syndrome,** which is a potentially fatal reaction. Signs and symptoms include: hyperpyrexia, muscle rigidity, delirium, autonomic instability, elevated creatinine phosphokinase, myoglobinuria (and/or rhabdomyolysis), and acute renal failure. Manage with immediate discontinuation of CAPLYTA and close monitoring.

- **Tardive Dyskinesia,** a syndrome of potentially irreversible, dyskinetic, and involuntary movements which may increase as the duration of treatment and total cumulative dose increases. Discontinue CAPLYTA if clinically appropriate.

- **Metabolic Changes,** including hyperglycemia, diabetes mellitus, dyslipidemia, and weight gain. Measure weight and assess fasting plasma glucose and lipids when initiating CAPLYTA and monitor periodically during long-term treatment.

- **Leukopenia, Neutropenia, and Agranulocytosis (including fatal cases).** Perform complete blood counts in patients with pre-existing low white blood cell count (WBC) or history of leukopenia or neutropenia. Discontinue CAPLYTA if clinically significant decline in WBC occurs in absence of other causative factors.

- **Orthostatic Hypotension and Syncope.** Monitor heart rate and blood pressure and warn patients with known cardiovascular or cerebrovascular disease.

- **Falls.** CAPLYTA may cause somnolence, postural hypotension, and motor and/or sensory instability, which may lead to falls and, consequently, fractures and other injuries. Assess patients for risk when using CAPLYTA.

- **Seizures.** Use CAPLYTA cautiously in patients with a history of seizures or with conditions that lower seizure threshold.

- **Potential for Cognitive and Motor Impairment.** Advise patients to use caution when operating machinery or motor vehicles until they know how CAPLYTA affects them.

- **Body Temperature Dysregulation.** Use CAPLYTA with caution in patients who may experience conditions that may increase core body temperature such as strenuous exercise, extreme heat, dehydration, or concomitant anticholinergics.

- **Dysphagia.** Use CAPLYTA with caution in patients at risk for aspiration.

**Drug Interactions:** Avoid concomitant use with CYP3A4 inducers and moderate or strong CYP3A4 inhibitors.

**Special Populations:** Neonates exposed to antipsychotic drugs during the third trimester of pregnancy are at risk for extrapyramidal and/or withdrawal symptoms following delivery. Breastfeeding is not recommended. Avoid use in patients with moderate or severe hepatic impairment.

**Adverse Reactions:** The most common adverse reactions in clinical trials with CAPLYTA vs. placebo were somnolence/sedation (24% vs. 10%) and dry mouth (6% vs. 2%).

Please see Brief Summary of full Prescribing Information, including full **Boxed Warning**, on adjacent pages.

CAPLYTA is a registered trademark of Intra-Cellular Therapies, Inc. Copyright © 2019, Intra-Cellular Therapies, Inc. All rights reserved.

US-LUM-1900014 12/19
INDICATIONS AND USAGE
CAPLYTA is indicated for the treatment of schizophrenia in adults.

DOSE AND ADMINISTRATION
Recommended Dosage: The recommended dosage of CAPLYTA is 42 mg administered orally once daily with food. Dose titration is not required.

Dose Recommendations for Concomitant Use with CYP3A4 Inducers and Moderate or Strong CYP3A4 Inducers: Co-administration with CYP3A4 Inducers - Avoid concomitant use of CAPLYTA with moderate or strong CYP3A4 inhibitors.

Dose Recommendations for Patients with Hepatic Impairment: Avoid use of CAPLYTA in patients with moderate or severe hepatic impairment (Child-Pugh B or C).

CONTRAINDICATIONS
CAPLYTA is contraindicated in patients with history of hypersensitivity reaction to lumateperone. Reactions have included pruritus, rash (e.g. allergic dermatitis, papular rash, and generalized rash), and urticaria.

WARNINGS AND PRECAUTIONS
Increased Mortality in Elderly Patients with Dementia-Related Psychosis: Elderly patients with dementia-related psychosis treated with antipsychotic drugs are at an increased risk of death. Analyses of 17 placebo-controlled trials (modal duration of 10 weeks), largely in patients taking atypical antipsychotic drugs, revealed a risk of death in the drug-treated patients of between 1.6 to 1.7 times that in placebo-treated patients. Over the course of a typical 10-week controlled trial, the rate of death in drug-treated patients was about 4.5%, compared to a rate of about 2.6% in placebo-treated patients. Although the causes of death were varied, most of the deaths appeared to be either cardiovascular (e.g., heart failure, sudden death) or infectious (e.g., pneumonia) in nature. CAPLYTA is not approved for the treatment of patients with dementia-related psychosis.

Cerebrovascular Adverse Reactions, Including Stroke, in Elderly Patients with Dementia-Related Psychosis: In placebo-controlled trials in elderly subjects with dementia, patients randomized to risperidone, aripiprazole, and olanzapine had a higher incidence of stroke and transient ischemic attack, including fatal stroke. CAPLYTA is not approved for the treatment of patients with dementia-related psychosis.

Neuroleptic Malignant Syndrome: Neuroleptic Malignant Syndrome (NMS), a potentially fatal symptom complex, has been reported in association with administration of anti-psychotic drugs. Clinical manifestations of NMS are hyperpyrexia, muscle rigidity, delirium, and autonomic instability. Additional signs may include elevated creatinine phosphokinase, myoglobinuria (rhabdomyolysis), and acute renal failure. If NMS is suspected, immediately discontinue CAPLYTA and provide intensive symptomatic treatment and monitoring.

Tardive Dyskinesia: Tardive dyskinesia, a syndrome consisting of potentially irreversible, movement disorders, may develop with use of antipsychotic drugs, especially those with a high anticholinergic index. The risk appears to be highest among the elderly, especially elderly women, but it is not possible to predict which patients are likely to develop the syndrome. Whether antipsychotic drug products differ in their potential to cause tardive dyskinesia is unknown. The risk of tardive dyskinesia and the likelihood it will become irreversible increases with duration of treatment and the cumulative dose. The syndrome can develop within a relatively brief treatment period, even at low doses. It may also occur after discontinuation of treatment. Tardive dyskinesia may remit, partially or completely, if antipsychotic treatment is discontinued. Antipsychotic treatment itself, however, may suppress (or partially suppress) the signs and symptoms of the syndrome, possibly masking the underlying process. The effect that symptomatic suppression has upon the long-term course of tardive dyskinesia is unknown. Given these considerations, CAPLYTA should be prescribed in a manner that is as likely to minimize the risk of tardive dyskinesia as the likelihood that it will become irreversible. The lowest dose and the shortest duration of treatment producing a satisfactory clinical response. Periodically reassess the need for continued treatment. If and signs and symptoms of tardive dyskinesia appear in a patient on CAPLYTA, drug discontinuation should be considered. However, some patients may require treatment with CAPLYTA despite the presence of the syndrome.

Metabolic Changes: Antipsychotic drugs have caused metabolic changes, including hyperglycemia, diabetes mellitus, dyslipidemia, and weight gain. Although all of the drugs in the class have been shown to produce some metabolic changes, each drug has its own specific risk profile. Hyperglycemia and Diabetes Mellitus - Hyperglycemia, in some cases extreme, has been associated with ketogenic, hyperosmolar coma, or death, has been reported in patients treated with antipsychotics. There have been reports of hyperglycemia in patients treated with CAPLYTA. Assess fasting plasma glucose before or soon after initiation of antipsychotic medication and monitor periodically during long-term treatment. In pooled data from short-term (4- to 6-week), placebo-controlled trials of adult patients with schizophrenia, mean changes from baseline and the proportion of patients with shifts from normal to greater than normal levels of fasting glucose in patients treated with CAPLYTA were similar to those in patients treated with placebo. In an uncontrolled open-label trial of CAPLYTA for up to 1 year in patients with stable schizophrenia, the percentages of patients with shifts in fasting glucose and insulin values from normal to high were 8% and 12%, respectively, 4% of patients with normal hemoglobin A1C (<5% at <5% post-baseline) at baseline had elevated levels (≥6.5% post-baseline). D od 4% for total cholesterol, triglycerides, and LDL cholesterol, respectively. W eigh t G ain - Weight gain has been observed with use of antipsychotics. Monitor weight at baseline and frequently thereafter. In pooled data from placebo-controlled trials of adult patients with schizophrenia, mean changes from baseline and the proportion of patients with increases in weight >7% from baseline to end of study was similar in patients treated with CAPLYTA and placebo. In an uncontrolled open-label trial of CAPLYTA for up to 1 year in patients with stable schizophrenia, the mean change in body weight was approximately -2 kg (SD 5.6) at Day 175 and approximately -3.2 kg (SD 7.4) at Day 350.

Leukopenia, Neutropenia, and Agranulocytosis: Leukopenia and neutropenia have been reported during treatment with antipsychotic agents, including CAPLYTA. Agranulocytosis (including fatal cases) has been reported with other agents in the class. Possible risk factors for leukopenia and neutropenia include pre-existing low white blood cell count (WBC) or absolute neutrophil count (ANC) and history of leukemia or lymphoma. CAPLYTA is not approved for the treatment of patients with leukemia or lymphoma. In patients with a pre-existing low WBC or ANC or a history of drug-induced leukemia or neutropenia, perform a complete blood count (CBC) frequency during the first few months of therapy. In such patients, consider discontinuation of CAPLYTA if the first sign of a clinically significant decrease in WBC or ANC or other causative factors. Monitor patients with clinically significant neutropenia for fever or other symptoms or signs of infection and treat promptly if such symptoms or signs occur. Discontinue CAPLYTA in patients with absolute neutrophil count < 1000/mm³.

Oral Hypotension and Syncope: Atypical antipsychotics cause orthostatic hypotension and syncope. Generally, the risk is greatest during initial dose administration. In these clinical trials the frequencies of orthostatic hypotension for CAPLYTA and placebo were 0.7% and 0%, respectively. The rates of syncope for CAPLYTA and placebo were 0.2% and 0.0%, respectively. Clinical or blood pressure monitoring should be monitored prior to orthostatic hypotension (e.g., elderly patients, patients with dehydration, hypovolemia, and concomitant treatment with antihypertensive medications), patients with known cardiovascular disease (history of myocardial infarction, ischemic heart disease, heart failure, or conduction abnormalities), and patients with cerebrovascular disease. CAPLYTA has not been evaluated in patients with a recent history of myocardial infarction or unstable cardiovascular disease. Such patients were excluded from pre-marketing clinical trials.

Falls: Antipsychotics, including CAPLYTA, may cause somnolence, postural hypotension, and motor and sensory instability, which may lead to falls and, consequently, fractures and other injuries. In elderly patients, the risk of hospitalization for fractures is increased in all antipsychotic drug treated patients compared to placebo. In one study of patients with dementia-related psychosis treated with antipsychotics, the risk of severe injury and fractures was higher in patients treated with olanzapine or quetiapine. Patients treated with CAPLYTA may also experience somnolence. Inform patients that they should avoid driving and other activities requiring alertness until they are reasonably certain that antipsychotic therapy with CAPLYTA does not affect them adversely.

Conditions that lower the seizure threshold may be more prevalent in older patients.

Potential for Cognitive and Motor Impairment: CAPLYTA, like other antipsychotics, may cause somnolence and has the potential to impair judgment, thinking, and motor skills. In short-term (i.e., 4- to 6-week) placebo-controlled clinical trials of patients with schizophrenia, somnolence and sedation were reported in 24% of CAPLYTA-treated patients, compared to 10% of placebo-treated patients. Patients should be cautioned about operating hazardous machinery, including motor vehicles, until they are reasonably certain that therapy with CAPLYTA does not affect them adversely.

Body Temperature Dysregulation: Atypical antipsychotics may disrupt the body's ability to reduce core body temperature. Strenuous exercise, exposure to extreme heat, dehydration, and anticholinergic medications may contribute to an elevation in core body temperature; use CAPLYTA with caution in patients who may experience these conditions.

Dysphagia: Esophageal dysmotility and aspiration have been associated with antipsychotic drugs. Antipsychotic drugs, including CAPLYTA, should be used cautiously in patients at risk for aspiration.

ADVERSE REACTIONS
The following adverse reactions are discussed in detail in other sections of the labeling: Increased Mortality in Elderly Patients with Dementia-Related Psychosis; Cerebrovascular Adverse Reactions, Including Stroke, in Elderly Patients with Dementia-Related Psychosis; Tardive Dyskinesia; Metabolic Changes; Body Temperature Dysregulation; Dysphagia; and Clinical Trials Experience. Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates observed in practice. Adverse reaction rates in the clinical trials may not reflect the rates observed in practice. The safety of CAPLYTA has been evaluated in 1724 adult patients with schizophrenia exposed to one or more doses. Of these patients, 811 participated in short-term (4- to 6-week), placebo-controlled trials with doses ranging from 14 to 84 mg/day. A total...
Data on CAPLYTA in pregnant women is insufficient to establish any drug-associated risks for birth defects, miscarriage, or adverse maternal or fetal outcomes. There are risks to the mother associated with untreated schizophrenia and with exposure to antipsychotics, including CAPLYTA, during pregnancy. Healthcare providers are encouraged to register patients by contacting the National Pregnancy Registry for Atypical Antipsychotics at 1-866-960-2215 or http://womensmentalhealth.info/atypical-registry.php or Pregnancy Registry/ Risk Summary - Neonates exposed to antipsychotic drugs during the third trimester are at risk for extrapyramidal and/or withdrawal symptoms following delivery. Available data from case reports on CAPLYTA use in pregnant women are insufficient to establish any drug-associated risks for birth defects, miscarriage, or adverse maternal or fetal outcomes. There are risks to the mother associated with untreated schizophrenia and with exposure to antipsychotics, including CAPLYTA, during pregnancy. In animal reproduction studies, no malformations were observed in the offspring of pregnant rats and rabbits during organogenesis at doses up to 2.4 and 9.7 times, respectively, the maximum recommended human dose (MRHD) of 42 mg/day on a mg/m² basis. When pregnant rats were administered lumateperone during the period of organogenesis through lactation, the number of stillborn and/or resorbed fetuses at 4.9 times the MRHD, with no adverse effects on pups at 2.4 times the MRHD. The estimated background risk of major birth defects and miscarriage for the indicated population is unknown. All pregnancies have a background risk of birth defect, loss, or other adverse outcomes. In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2% to 4% and 15% to 20%, respectively. Clinical Considerations - Disease associated maternal and/or embryo/fetal risk: There is risk to the mother from untreated schizophrenia, including increased risk of hospitalization, and suicide. Schizophrenia is associated with increased adverse perinatal outcomes, including preterm birth. It is not known if this is a direct result of the illness or other comorbid factors.

Table 2 in the full Prescribing Information displays Drugs Having Clinically Important Interactions with CYP450. Concomitant use of CAPLYTA with moderate or strong CYP3A4 inhibitors: Concomitant use of CAPLYTA with moderate or strong CYP3A4 inhibitors increases lumateperone exposure, which may increase the risk of adverse reactions. Avoid concomitant use of CAPLYTA with moderate or strong CYP3A4 inhibitors. Examples of CYP3A4 inhibitors include: Moderate inhibitors - carbamazepine, cyclosporine, erythromycin, fluvoxamine, verapamil. Strong inhibitors - clarithromycin, grapefruit juice, itraconazole, voriconazole, nefazodone, ritonavir, neflinavir. CYP3A4 Inducers: Concomitant use of CAPLYTA with CYP3A4 inducers decreases the exposure of lumateperone. Avoid concomitant use of CAPLYTA with CYP3A4 inducers. Examples of CYP3A4 inducers include: carbamazepine, phenytoin, rifampin. St John's Wort, boswellia, elavirine, modafinil, neafilin, aprepitant, armodafinil, pioglitazone, prednisone. UGT Inhibitors: Concomitant use of CAPLYTA with UGT inhibitors may increase the exposure of lumateperone and/or its metabolites. Avoid concomitant use of CAPLYTA with UGT inhibitors. Examples of UGT inhibitors include: Valinacine, prokerenic

USE IN SPECIFIC POPULATIONS

Pregnancy: Pregnancy Exposure Registry - There is a pregnancy exposure registry that monitors pregnancy outcomes in women exposed to atypical antipsychotics, including CAPLYTA, during pregnancy. Healthcare providers are encouraged to register patients by contacting the National Pregnancy Registry for Atypical Antipsychotics at 1-866-960-2215 or http://womensmentalhealth.info/atypical-registry.php or Pregnancy Registry/ Risk Summary - Neonates exposed to antipsychotic drugs during the third trimester are at risk for extrapyramidal and/or withdrawal symptoms following delivery. Available data from case reports on CAPLYTA use in pregnant women are insufficient to establish any drug-associated risks for birth defects, miscarriage, or adverse maternal or fetal outcomes. There are risks to the mother associated with untreated schizophrenia and with exposure to antipsychotics, including CAPLYTA, during pregnancy. In animal reproduction studies, no malformations were observed in the offspring of pregnant rats and rabbits during organogenesis at doses up to 2.4 and 9.7 times, respectively, the maximum recommended human dose (MRHD) of 42 mg/day on a mg/m² basis. When pregnant rats were administered lumateperone during the period of organogenesis through lactation, the number of stillborn and/or resorbed fetuses at 4.9 times the MRHD, with no adverse effects on pups at 2.4 times the MRHD. The estimated background risk of major birth defects and miscarriage for the indicated population is unknown. All pregnancies have a background risk of birth defect, loss, or other adverse outcomes. In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2% to 4% and 15% to 20%, respectively. Clinical Considerations - Disease associated maternal and/or embryo/fetal risk: There is risk to the mother from untreated schizophrenia, including increased risk of hospitalization, and suicide. Schizophrenia is associated with increased adverse perinatal outcomes, including preterm birth. It is not known if this is a direct result of the illness or other comorbid factors. Fetal/neonatal adverse reactions: Extrapyramidal and/or withdrawal symptoms, including agitation, hypotonia, hypotonia, tremor, dystonia, ataxia, tremor, and respiratory distress, and feeding disorder have been reported in neonates who were exposed to antipsychotic drugs during the third trimester of pregnancy. These symptoms have varied in severity. Monitor neonates for extrapyramidal and/or withdrawal symptoms and manage symptoms appropriately. Some neonates recovered within hours or days without specific treatment; others required prolonged hospitalization. In the majority of cases, the symptoms resolved with treatment. The risk appears to be highest among the elderly, especially elderly women, but the risk is not increased in men or women compared to a rate of 0.3% in placebo-treated patients. In clinical studies, tremor, dystonia, and syncope were observed. The risk is greatest during initial dose administration. In studies of 10 weeks or longer, the rate of death in drug-treated patients of between 1.6 to 1.7 times that in placebo-treated patients. Most deaths were attributed to underlying medical conditions. In placebo-controlled trials, the rate of death in drug-treated patients was about 4.5%, compared to a rate of about 2.6% in placebo-treated patients. Over the course of a typical 10-week controlled trial, the rate of death in drug-treated patients was about 4.5%, compared to a rate of about 2.6% in placebo-treated patients. In placebo-controlled trials, the risk of death is not increased in drug-treated patients.

Up to 3.2% of patients receiving placebo and 0.6% of patients receiving CAPLYTA were similar to those in patients treated with placebo. In an uncontrolled open-label study, the rate of death in drug-treated patients was about 4.5%, compared to a rate of about 2.6% in placebo-treated patients. In placebo-controlled trials, the risk of death is not increased in drug-treated patients. An increase in viisceral malformations (cleft palate) at 27 times and skeletal malformations at 19 times the exposure at the MRHD of lumateperone, a dose that induced maternal toxicity. Lactation: Risk Summary - There are no available data on the presence of lumateperone or its metabolites in human milk or animal milk, the effects on the breastfed infant, or the effect of the drug on milk production. Nursing mothers should be advised not to breastfeed the infant. Attention, there are published reports of sedation, failure to thrive, jitteriness, and extrapyramidal symptoms (tremors and abnormal muscle movements) in breastfed infants exposed to antipsychotics. Based on findings of toxicity in animal studies and the potential for serious adverse reactions in the breastfed infant, breastfeeding is not recommended during treatment with lumateperone.

Females and Males of Reproductive Potential: Infertility - Based on findings from animal studies, lumateperone may impair male and female fertility. Pediatric Use: Safety and effectiveness of CAPLYTA have not been established in pediatric patients. Geriatric Use: Controlled clinical studies of CAPLYTA did not include any patients aged 65 or older to determine whether or not they respond differently from younger patients. Antipsychotic drugs increase the risk of death in elderly patients with dementia-related psychosis. CAPLYTA is not approved for the treatment of patients with dementia-related psychosis. Hepatic Impairment: Use of CAPLYTA is not recommended for patients with moderate (Child-Pugh class B) to severe hepatic impairment (Child-Pugh class C). Patients with moderate and severe hepatic impairment experienced higher exposure to lumateperone. No dosage adjustment is recommended for patients with mild hepatic impairment (Child-Pugh A).

OVERDOSAGE No specific antidotes for CAPLYTA are known. In managing overdose, provide supportive care, including close medical supervision and monitoring and consider the possibility of multiple drug involvement. In case of overdose, consult a Certified Poison Control Center (1-800-222-1222 or www.poisong.org).

HOW SUPPLIED/STORAGE AND HANDLING

CAPLYTA (lumateperone) capsules are supplied in boxes of 30. Each box contains 3 blister packs of 10 capsules.

<table>
<thead>
<tr>
<th>Capsule Strength</th>
<th>Capsule Color</th>
<th>Imprint Codes</th>
<th>NDC Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>42 mg</td>
<td>Blue cap and opaque white body</td>
<td>ITI-007 42 mg</td>
<td>72060-142-30</td>
</tr>
</tbody>
</table>

Store at controlled room temperature 20°C to 25°C (68°F to 77°F); excursions permitted to 15°C to 30°C (59°F to 86°F) [see USP Controlled Room Temperature].

Manufactured for ITI, Limited.
Hamilton, Bermuda

Distributed by Intra-Cellular Therapies, Inc.
New York, NY 10016

CAPLYTA is a registered trademark of Intra-Cellular Therapies, Inc.

© 2019 Intra-Cellular Therapies, Inc. All rights reserved
What Managed Care Executives Want

Today, the way people decide what to buy, where to eat, and where to travel is often driven by reviews—either accounts that appear in print or online, or perhaps firsthand reports from friends or family.

We’ve borrowed that idea for this issue of Managed Healthcare Executive® to bring you a sampling of what the C-suite leaders are using in their own lives, whether it’s the books they recommend, the apps they download, or the point-of-care tools they see making a difference in the year ahead.

Technology leads the way in this issue, which starts off with healthcare innovations for 2020. Some inventions are ready to hit that critical turning point—from use by a few experts to being embraced in broader ways.

Innovations that may ease burdens, reduce errors, and offer insights include:

- Voice interfaces that cut down on the time spent taking notes.

- Natural language processing that can pull precise items from patient records.

- Machine learning that predicts which patients will end up back in the hospital.

- Digitally connected devices, which take items we know—like blood pressure cuffs—and give them new power to share data with doctors.

- Robotics to automate high-volume tasks.

All these ideas have the promise of cutting costs from healthcare, which for executives is the key to adoption. Finding solutions that can deliver on the promise of the electronic health record—which has thus far fallen short of expectations, despite massive government spending, would be a welcome development for the new decade.

Thank you for reading.

Mike Hennessy, Sr.
Chairman and Founder of MJH Life Sciences
Don Hall, MPH, is principal of DeltaSigma LLC, a consulting practice specializing in strategic problem solving for managed care organizations. He most recently served as president and chief executive officer of a nonprofit, provider-sponsored health plan.

Cynthia Hundorfean is president and CEO of Allegheny Health Network (AHN), an integrated healthcare delivery system that serves Western Pennsylvania. AHN is part of the Highmark Health family of companies.

John Mathewson is chief operating officer for America’s Health Insurance Plans (AHIP), the national trade association that advocates for the health insurance community and the consumers they serve across the nation.

Margaret A. Murray, MPA, is the founding chief executive officer of the Association for Community Affiliated Plans, which represents 54 nonprofit safety net health plans in 26 states.

David Calabrese, RPh, MHP, is senior vice president and chief pharmacy officer at OptumRx, a pharmacy benefits firm that provides pharmacy care services for more than 65 million lives nationally.

Virginia Calega, MD, is vice president, medical affairs, Facilitated Health Networks at Independence Blue Cross. She oversees utilization management, medical cost, and health outcomes data, and interventions that optimize these outcomes.

Douglas L. Chaet, FACHE, is chief medical officer, Cleveland Clinic, and chairman, American Association of Integrated Healthcare Delivery Systems.

Perry Cohen, PharmD, is chief executive officer of The Pharmacy Group and the TPG family of companies, which provides services to associations, healthcare and information technology organizations, payers and pharmaceutical companies.

Darnell Dent is principal of Dent Advisory Services, LLC, a management consulting practice focused on helping leadership improve organizational effectiveness and overall performance. He most recently served as president and chief executive officer for the past seven years of a managed care organization.

John D. Halamka, MD, MS, is president of the Mayo Clinic Platform, and leads a portfolio of new digital platform businesses focused on transforming health by leveraging artificial intelligence, the internet of things, and an ecosystem of partners for Mayo Clinic.
COVER STORY

TOP 5 HEALTHCARE TECHNOLOGIES

The top technologies for 2020 aren’t new, but they are on the cusp of moving into broader use in healthcare

PAGE 11

Managed Healthcare Executive®
Volume 30  Issue 2
FEBRUARY 2020

DRUGS IN PIPELINE

8 NASH Drug Pipeline Shows Promise

POPULATION HEALTH MANAGEMENT

9 Fighting for Coverage

INDUSTRY ANALYSIS

16 Managed Care Technology Survey 2020

22 Five Healthcare Industry Changes to Watch in 2020

26 Leadership Lessons Healthcare Execs Wish They Would Have Learned in School

27 5 Non-Business Books Healthcare Executive Must Read in 2020

ONCOLOGY

28 3 Game-Changers in Cancer Care

DEPARTMENTS

4 Chairman’s Letter

5 Editorial Advisors

Managed Healthcare Executive® (ISSN: 0025-7206) (Print ISSN: 0106-7155) is published semimonthly (24 times a year) by MultiMedia Healthcare LLC, 230 W Superior ST, STE 400, Duluth MN 55802. Subscription rates: one year $95, two years $180 in the United States & Possessions, $150 for one year in Canada and Mexico, all other countries $150 for one year. Single copies (prepaid only): $50 in US, $52 in Canada & Mexico, and $54 in all other countries. Include $5.50 for U.S. shipping and handling. Periodicals postage paid at Duluth, MN 55802 and at additional mailing offices. Postmaster: Send address changes to Managed Healthcare Executive®, PO Box 437, Cranbury NJ 08512-0437. Canadian GST Number: R-124213133RT001 Publications Mail Agreement number 42052968. Return undeliverable Canadian addresses to: IMEX Global Solutions, PO Box 25542 London, ON N6C 6B2 CANADA. Printed in the USA.

© 2020 Multimedia Medical LLC All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including by photocopy, recording, or information storage and retrieval systems, without permission in writing from the publisher. Authorization to photocopy items for internal use or personal use, or the internal distribution or personal use of specific clients is granted by MultiMedia Healthcare LLC for libraries and other users registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, 978-750-8400 fax 978-646-8600 or visit http://www.copyright.com online. For uses beyond those listed above, please direct your written request to Permissions Dept. email: etemple-morris@mmhgroup.com.

MJH Life Sciences provides certain customer contact data (such as customers’ names, addresses, phone numbers, and e-mail addresses) to third parties who wish to promote relevant products, services, and other opportunities that may be of interest to you. If you do not want MultiMedia Healthcare LLC to make your contact information available to third parties for marketing purposes, simply call toll-free 866-526-2822 between the hours of 7:30 a.m. and 5 p.m. CST and a customer service representative will assist you in removing your name from MultiMedia Healthcare LLC lists. Outside the U.S., please phone 218-740-6477.

Managed Healthcare Executive® does not verify any claims or other information appearing in any of the advertisements contained in the publication and cannot take responsibility for any losses or other damages incurred by readers in reliance on such content.

Managed Healthcare Executive® cannot be held responsible for the safekeeping or return of unsolicited articles, manuscripts, photographs, illustrations, or other materials.

Library Access
Libraries offer online access to current and back issues of Managed Healthcare Executive® through the EBSCOhost databases.

To subscribe, call toll-free 888-527-7008. Outside the U.S., call 216-740-6477.
HEALTHCARE-RELATED CYBERCRIMES WILL COST AN ESTIMATED $6 TRILLION IN DAMAGES IN THE NEXT THREE YEARS.*

Make certain your healthcare system isn’t impacted in providing care by having an ISMIE malpractice insurance policy that includes cyber liability protection. ISMIE has cyber coverages for every practice, featuring one of the industry’s highest aggregate limits and including:

- Breach response
- Cyber Extortion
- Business Interruption

LEARN MORE AT WWW.ISMIE.COM/CYBER

*Source: https://phoenixnap.com/blog/healthcare-cybersecurity-statistics
Drugs In The Pipeline

NASH Drug Pipeline Shows Promise

The first FDA-approved product for NASH on the horizon

by ERIN JOHANEK, PHARMD

According to the National Institutes of Health (NIH), nonalcoholic steatohepatitis (NASH) is a form of nonalcoholic fatty liver disease (NAFLD). The NIH defines NAFLD as a condition in which a buildup of fat—not caused by heavy alcohol consumption—occurs in the liver. Patients with NASH also have inflammation of the liver, known as hepatitis, and resultant liver cell damage.

According to the American Liver Foundation (ALF), NASH currently affects between 6.5 million to 16.3 million Americans, and up to 25% of adults with NASH may also have liver cirrhosis. By 2030, ALF reports NASH is expected to be the most frequent reason for liver transplants in the United States.

The American Association for the Study of Liver Diseases states the management of patients with NASH consists of treating liver disease as well as the associated metabolic comorbidities like obesity, hyperlipidemia, insulin resistance, and type 2 diabetes mellitus.

There are currently no FDA-approved medications for the treatment of NASH; however, it failed to meet the primary endpoint for treating NASH in the STELLAR-3 phase 3 study. Gilead is studying cenicriviroc, an oral medication currently in a phase 3 trial MAESTRO-NASH for the treatment of NASH. The FDA has granted cenicriviroc fast-track designation for the treatment of NASH.

"If approved, obeticholic acid would be the first FDA-approved product for NASH, and it would likely have a year or more marketing head start over the rest of the pipeline,” says David Calabrese, RPh, MHP, senior vice president and chief pharmacy officer, OptumRx. "However, this could quickly become a competitive marketplace, assuming other products achieve positive outcomes in their phase 3 trials."

Pipeline continues on Page 10

Managed Healthcare Executive.com
One of the main goals of the ACA, sometimes referred to as Obamacare, was to provide affordable health insurance to every American. The law’s passage in 2010 made it possible for nearly 54 million Americans—previously denied coverage due to pre-existing medical conditions—to purchase coverage, as well as landmark provisions to protect those who developed an expensive medical condition while insured from being unexpectedly dropped by their health plan.

By all accounts, such provisions helped a record number of Americans procure medical insurance coverage—and, by extension, reduce healthcare costs and avoid medical bankruptcies.

Yet, with the elimination of the individual mandate penalty in 2017, and other policy changes that have forced up the cost of premiums, many Americans are looking for options off the healthcare exchange.

One such option is the short-term limited duration insurance (STLDI) plan, loosely defined as bare bones medical coverage that can last up to 12 months with the potential for renewal. Managed Healthcare Executive® Editorial Advisor Margaret Murray, chief executive officer of the Association for Community Affiliated Plans (ACAP), said such plans “are not really insurance”—and refers to them as “junk insurance.”

With a new 2018 HHS rule that dramatically expands access to this type of coverage, she worries that their availability will hurt consumers. “Insurance brokers may offer these plans to consumers and those consumers may not realize that they largely reverse ACA protections regarding pre-existing conditions and coverage limits,” she says. “These plans don’t cover what you think they will cover, the insurance companies can cancel your policy at any time, and they can deny your access to maternity care and certain drugs. It’s not really major medical insurance and it’s not always easy for your average consumer to see that.”

**Changing regulations**
The Trump Administration contends with rising insurance premiums, that such short-term plans make health insurance more affordable for the average American.

Cathryn Donaldson, a spokesperson for America’s Health Insurance Plans, which is a health insurance trade association, says such plans “can provide a temporary bridge for those who are going through a life transition or gap in coverage like having a baby or changing jobs.”

Yet, Karen Pollitz, a senior fellow at the Kaiser Family Foundation, says STLDI plans embody the old adage about getting what you pay for. STLDI are not required to comply with many of the ACAs most important protections, which means insurance companies can exclude coverage for pre-existing conditions, charge higher premiums based on health status, impose annual and/or lifetime caps, and opt out of coverage for things like maternity care or mental health treatment. They can also revoke coverage at will.

"Under the ACA, it used to be that short term and minimum essential coverage [MEC] policies had to have a prominent warning printed on the front place that said, if you buy this, you are not getting full coverage and may even owe a tax penalty," she explains. "Those warnings are no longer there and that’s of concern."

Furthermore, late last year, HHS put forth a final rule extending the duration of STLDI from a mere three months up to 364 days. In addition, insurers can offer renewals and extensions for up to three years. What is even more concerning, Murray says, is the current Administration is now actively promoting the use of private web broker sites to market STLDI. This can make it more difficult for consumers to understand which plans offer comprehensive medical coverage and which are the riskier STLDI plans.

“The current administration says such plans offer consumers more affordable options—and more choice,” Murray explains. “But the marketing for these plans is really disingenuous. It’s not that they are just short-term. They don’t cover what people think they will cover. They are very profitable for insurance companies. But they can be very costly for con-
sumers, who likely won’t realize they don’t have comprehensive coverage until they are sick or injured.

The fall-out
Over the past few months, several high-profile publications like Consumer Reports and the Washington Post have printed stories about the dangers, and unexpected costs, of STLDI for consumers.

“IT’s like you are in the market for a car and someone offers you a really affordable roller-skate,” says Pollitz. “But a roller-skate is not the same thing as a car. It’s not going to get you as far if you really need to travel. And it’s going to cost you more in the long run.”

Murray also cautions more widespread adoption of such plans can affect the entire insurance market, siphoning cost-conscious consumers from risk pools and driving up premium costs for everyone.

“There are always some young invincibles, who think they won’t get sick—and there are some invincibles, too—and they will be attracted by the lower premiums,” she says. “But in doing so, that will leave people who are sicker to pay higher rates by moving people out of the ACA marketplace.”

That’s one reason why ACAP, as well as six other health organizations, filed a lawsuit in the U.S. District Court for the District of Columbia on September 14, 2018 in order to roll back the new STLDI rule and stop the expansion of such plans. Murray said the HHS rule violates the ACA. “Undercutting plans that comply” with the still active legislation. They argue the Trump Administration is using these new rules to try to overturn the ACA—which they have not yet been able to successfully repeal in Congress.

“We thought this was important enough that it was worth suing the federal government in order to try and stop it,” she says. “We had hoped to get a summary judgment last year because we wanted to stop the spread of STLDI plans for the 2020 open enrollment. Unfortunately, we didn’t get that. The judge ruled against us. But we are appealing it—and the hope is that we will have a decision to stop these things being sold in 2021.

Kayt Sukel is a science and health writer based outside Houston.

The take-home message
Donaldson says it is vital the healthcare community educate consumers about the risks of STLDI plans and make sure they are better aware of what sort of comprehensive plans are available on the Healthcare.gov marketplace.

Pollitz agrees.

“We understand that life happens and there may be all manner of reasons why you are separated from coverage,” she says. “But it is becoming harder and harder to distinguish these plans from real coverage especially now that they are now being aggressively marketed to people all over the country. And it’s vital that people understand that 90% of consumers will play less than the listed price on Healthcare.gov. marketplace because they qualify for subsidies. It really does pay to take the time to look before you sign up for one of these short-term plans.”

Kayt Sukel is a science and health writer based outside Houston.

Drugs in the Pipeline continued from page 8

that are in Phase II/III trials and are anticipated to be approved in 2021 and beyond.

Future
“Many of the pipeline drugs are being developed by different manufacturers and some manufacturers are developing multiple drugs for NASH,” says Calabrese. “Therefore, there may be potential for combination therapy down the road which would further increase the future cost of treatment.”

“This is going to be an emerging category in the coming years,” says Kjesbo. “Currently, pharmacotherapy is reserved for NASH patients with fibrosis; it will be interesting to see if lifestyle changes will continue to be the first-line treatment over medications.” According to Kjesbo, analysts have forecasted the market for NASH drugs could reach $20 billion by 2025.

Erin Johanek, PharmD, RPh is a staff pharmacist at Southwest General Health Center, Middleburg Heights, Ohio.
The top healthcare technologies for 2020 aren’t new, but they are on the cusp of moving into broader use in healthcare.

**By LINDA WILSON**

The top healthcare technologies for 2020 aren’t new, but they are on the cusp of moving into broader use.

In a sign of the growing maturity of some of these technologies—such as machine learning, voice recognition, and natural language processing—vendors are combining them to build solutions that solve real-world problems for providers and insurers.

That’s because the focus of digitally enabled healthcare “is less about the technologies to be used and more about doing things differently,” says John Bosco, chief technology officer at Northwell Health, a 23-hospital health system based in New Hyde Park, New York.

Here’s the list of technologies behind the transformation of business and clinical processes in 2020:
The ability to use voice to automate documentation for clinicians and reduce the administrative burden and use of manual scribes is something that has been in research and development but is now being more widely deployed across the United States,”

— BRIAN KALIS, ACCENTURE

1 Voice Interfaces

Voice-to-text solutions are emerging to help physicians and other providers cut down on the amount of time they spend documenting patient care.

“The ability to use voice to automate documentation for clinicians and reduce the administrative burden and use of manual scribes is something that has been in research and development but is now being more widely deployed across the United States,” says Brian Kalis, managing director of digital health and innovation at Accenture, a consulting, technology and outsourcing firm based in in Dublin, Ireland.

The players in the market include established voice-recognition vendors, large technology companies, and startups.

For example, Suki combines voice recognition, natural language processing, and machine learning to create a documentation solution that runs on laptops, Android and iOS devices. The Redwood City, California-based vendor claims that its software decreases the amount of time physicians spend on a clinical note by 76%, or from 13 minutes to three minutes.

Suki also claims that it’s integrated with the following electronic health records vendors: athenahealth, Watertown, Massachusetts; Cerner, Kansas City; eClinicalWorks, Westborough, Massachusetts; and Epic, Verona, Wisconsin, according to KLAS, a research and analysis company based in Orem, Utah, and focused on health information technology.

Suki rival Notable Health—based in San Mateo, California—has developed a workflow solution that combines patient intake and clinical documentation. Patients complete tasks such as registering and completing medical histories using their smartphones, while providers use digitally enabled watches to dictate visit summaries.

Chicago-based CommonSpirit Health, a 142-hospital Catholic health system, announced plans in 2019 to pilot Notable Health’s platform at some primary-care centers in California, with a goal of implementing the solution broadly across the organization.

Two other startup vendors of voice-to-text clinical documentation software are Robin Healthcare, Austin, Texas, and Saykara, Seattle, KLAS said in a 2019 blog post.

Legacy voice-recognition vendors also are developing intelligent voice-enabled documentation solutions. For example, Nuance Communications—based in Burlington, Massachusetts—and Microsoft—based in Redmond, Washington—are partnering to create a product to compete with the offerings from the startups. They hope to begin pilot testing their solution in 2020.

Meanwhile, Vanderbilt University Medical Center, an academic medical center based in Nashville, is combining voice recognition and natural language processing to create a solution that helps clinicians look up information in the electronic medical record.

Called Vanderbilt Enhanced Voice Assistant, the application “does what your phone does now. The idea is to ask a question of the health record,” explains Kevin Johnson, MD, Cornelius Vanderbilt professor and chair of the department of biomedical informatics and professor of pediatrics.

For example, providers could ask about their schedule of patients for the day or information about specific patients, such as their weight or medications. Johnson says providers could even ask a question such as, “Is there anything that I need to do today that I left in my notes from the last visit?”

“What we are trying to enable you to do is to have that conversation without having to stare at a computer screen,” he says.

The academic medical center, based in Nashville, Tennessee, plans to pilot the application in pediatric endocrinology in 2020 and then expand its use to other departments.

2 Natural Language Processing

Mountain View, California-based Google also is investing in solutions that ease providers’ workflow burden, in part, through the use of natural language processing.

In a blog post in November 2019, Google Health CEO David Feinberg, MD, said Ascension—a 150-hospital Catholic health system headquartered in St. Louis—is piloting a tool that uses Google’s finely honed search capabilities to help providers extract useful information from patients’ medical records. The idea is “to make health records more useful, more accessible and more searchable by pulling them into a single, easy-to-use interface for doctors,” Feinberg wrote.

Google is not alone. Accenture’s Kalis says that health systems and insurers also are using natural language processing to improve their interactions with consumers.

For example, he says, WellCare Health Plans, headquartered in Tampa, Florida, has
been using a product from Sensentia that uses natural language processing to help call center employees search through insurance documentation using plain English to answer enrollees’ questions about health insurance benefits. Based in San Francisco, Sensentia uses the same technology for a product that allows enrollees to look up benefits information online by themselves.

On the health system side of the industry, one example is an online symptom checker at Milwaukee-based Froedert & the Medical College of Wisconsin health network, a five-hospital network and academic medical center, developed using natural language processing and machine learning. Called Buoy Health, the interactive tool asks questions to help guide consumers to the appropriate medical care.

3 Machine Learning

Machine learning will continue to be adopted in healthcare in 2020, focusing on “back office” types of applications, Johnson says. He describes these “as technologies that are designed to improve the overall throughput of health care either by predicting patients who have specific risks, like readmission risks or length of stay risks, or by potentially doing things like decreasing denial days or improving overall compliance with billing.”

Vanderbilt is currently testing two risk-prediction tools—one for sepsis and another for suicide—by running them in the background. What this means is that the tools assign risk scores to patients and then Vanderbilt’s staff compares the tool’s predictions to what actually happens to patients.

If the results are promising for either tool, the next step would be a randomized controlled trial involving a clinical intervention, Johnson says. Without an intervention that mitigates the risk effectively, a tool isn’t useful, he says. “There are multiple steps to do high-quality work in precision analytics.”

“At Vanderbilt we believe very strongly in the learning health system, which allows data to be used for knowledge generation, knowledge to be used to change action, and action to be used to generate more data. That is the cycle.”

— KEVIN JOHNSON, MD, VANDERBILT

4 Internet of Things (IoT)

Digitally connected devices—known collectively as the internet of things, or IoT—is a promising source of the large-scale data sets needed to drive machine learning algorithms.

Many of these medical-grade digital devices—such as blood pressure cuffs and glucometers—are already recording patient data and transmitting the information to clinicians. Pessin says the next step involves collecting and analyzing data from consumer devices such as digital watches and fitness trackers.

“In 2020, the Internet of Things itself will pass the tipping point for healthcare, and we will see that it becomes ubiquitous. There won’t

“In 2020, the Internet of Things itself will pass the tipping point for healthcare, and we will see that it becomes ubiquitous.

There won’t be a hospital, at least in the United States or the Western World, that isn’t fully invested in IoT by the end of the year.”

— GREGG PESSIN, GARTNER
be a hospital, at least in the United States or the Western World, that isn't fully invested in IoT by the end of the year,” Pessin says.

In addition to incorporating data from consumer devices, Northwell Health’s Bosco says health systems are beginning to investigate how to move from intermittent data transmission from IoT devices to continuous patient monitoring.

Kalis says the movement toward continuous patient monitoring has been on the horizon for a number of years, but it is gaining some traction now because of the lower price points of the devices and sensors and the emergence of 5G on wireless networks.

Nonetheless, Bosco says there are three issues the industry needs to resolve before health systems adopt continuous patient monitoring at scale. He says that healthcare organizations need to implement the following:

1. Technologies that can ingest and store vast amounts of real-time data.
2. AI tools to analyze and interpret the information.
3. Clinical interventions aimed at improving patient care based on the information generated by the AI algorithms.

Bosco says continuous patient monitoring “holds a lot of promise for driving down costs and improving the quality of the care that we are giving,” particularly in-home care. “In general, the home is the most convenient, most safe and least costly venue of care,” Bosco says.

5 Robotic Process Automation

Robotic process automation—software that carries out high-volume, error-prone repetitive tasks—has been deployed in manufacturing, financial services and other industries. Now, some of those vendors are adapting their solutions for the healthcare arena.

One promising area involves automating repetitive tasks in the revenue cycle such as claims management, explains Doug Tolley, vice president of business development at KLAS.

Some examples: Automation Anywhere, is a vendor of robotic automation tools, located in San Jose, California; UiPath, New York, a vendor or robotic automation tools; and Blue Prism, a vendor of robotic automation tools, located in Warrington, United Kingdom.

Olive, headquartered in Columbus, Ohio, is slightly different because it was founded in 2012 specifically to develop solutions for the healthcare arena. KLAS, which interviewed five of Olive’s customers for a recent report, says the vendor’s solution automates such tasks as verifying insurance eligibility checks, pre-authorization requests, and patient registration.

“I think it’ll be far broader than just the rev cycle when it’s really deployed into healthcare, but it started with some of the simpler areas of rev cycle,” Tolley says. “However, we haven’t been able to yet, at KLAS, validate very many use cases outside of automating some of things in rev cycle,” he says. “We’re looking for those test cases.”

With robotic process automation as well as the other top technologies for 2020, the real promise lies in their potential to help humans transform workflows, improving quality and reducing costs in healthcare. As Pessin explains, “We’ve been doing healthcare the same way for decades now, and we’re on the precipice of a new way of delivering care. We’re not in the new era, but we’re just kind of walking through the doorway.”

Linda Wilson is an experienced writer and editor specializing in the healthcare industry.

“I think it’ll be far broader than just the rev cycle when it’s really deployed into healthcare, but it started with some of the simpler areas of rev cycle. However, we haven’t been able to yet, at KLAS, validate very many use cases outside of automating some of things in rev cycle. We’re looking for those test cases.”

— DOUG TOLLEY, KLAS
References:

Visit NarcolepsyLink.com/Pediatric to learn more about pediatric narcolepsy.

* Based on a health-related quality of life (HRQL) study assessed through a questionnaire completed by children and adolescents with narcolepsy (N=117) and control subjects (N=69). Academic performance was evaluated in the study.
1 Based on a retrospective, cross-sectional, case-control, claims-based analysis of health care utilization and costs, that included narcolepsy patients ≤18 years of age (N=1427) and control subjects (N=4281).

$ 5 times higher medical costs vs pediatric patients without narcolepsy†

Visit NarcolepsyLink.com/Pediatric to learn more about pediatric narcolepsy.
Managed Care Technology Survey 2020

Managed Healthcare Executive surveyed hundreds of healthcare leaders and professionals to collect information on how their organizations are affected by technology. This year’s survey displays data focusing on healthcare organizations’ current status, patient access, data collection, communication, and future with technology.

CURRENT STATUS

Which of the following technology tools does your organization use?

- 64% Health information exchanges to share data with other organizations
- 45% Organization-specific apps for patients
- 34% Remote health monitoring/telemedicine/wearable devices
- 25% Artificial intelligence/cognitive computing

“The most interest aspect of this question is the notion that apps, layering on the top of the EHR, are the next frontier for innovation in healthcare. More and more providers will support apps and offer app stores of compatible third-party products.”

—John D. Halamka, MD, MS, president of the Mayo Clinic Platform.

What technology had the most positive impact on your organization in 2019?

- 35% Data analytics tools
- 32% EHRs
- 19% E-prescribing
- 6% Artificial intelligence/cognitive computing tools
- 5% Remote monitoring tools/wearable devices
- 3% Other
With Meaningful Use, patient generated data and increasing amounts of medical device telemetry, clinicians are overwhelmed with too much data. They need information, knowledge and actionable wisdom but hiring data scientists in healthcare organization is hard because we have to compete with big tech employers.

— John D. Halamka, MD, MS, president of the Mayo Clinic Platform.

What is your most pressing information technology problem?

- Turning data into actionable information: 26%
- Interoperability: 20%
- Cybersecurity: 18%
- Funding IT initiatives: 14%
- Training staff and/or physicians: 12%
- Compliance issues: 7%
- Other: 3%

What new health IT project is your organization working on this year?

- Telemedicine
- Data analytics
- Changing EHR
- Platform integration
- System transition
- Patient portal
- Texting patients
- System updates
- Reimbursement change
- Artificial intelligence
- Transparency levels
- Server upgrade
- Billing system
- Automated record keeping
- Remote monitoring
- Cybersecurity
- Interoperability

Have you created new technology roles at your organization in the past 12 months?

- Yes: 38%
- No: 62%
PATIENTS

Respond to the following statement: “The federal government should mandate that payers pay for telemedicine services.”

73% AGREE

27% DISAGREE

“In a world of value-based purchasing when we need to deliver the right care at the right cost in the right setting, there is no question that telehealth is our future and needs to be reimbursed.”
—John D. Halamka, MD, MS, president of the Mayo Clinic Platform.

Does your organization provide patients with tools to help them estimate the cost of healthcare?

NO 63%

Has your organization successfully used remote monitoring devices to improve patient care?

NO 76%

DATA

On a scale of 1-10, how would you grade your organization’s use of big data to reduce costs and improve quality?

Very weak

1 7%

2 2%

3 5%

4 10%

5 12%

6 19%

7 22%

8 9%

9 7%

10 7%

Very strong
The Future Will See You Now: The MSO Approach is a one-day healthcare executive conference for physicians, practice leaders, health systems and social agencies to learn, plan and take action to transform your healthcare structure into an active change model that can positively impact patients and the operational and financial strength of your organization.


Featured Presenters Include

Todd Park
Co-Founder of AthenaHealth and former U.S. Chief Technology Officer under President Barack Obama

Dr. Michael Fabrizio
Partner and CEO of Urology of Virginia. Visionary and clinical leader in urology, practice organization, transplant and robotic surgery

Dana Jacoby
President, DJI Consulting, Inc.

Maria Shinn Bouck
Senior Director of Strategic Initiatives, NextGen Healthcare

James Proctor
Principal, DHG Healthcare

Micail Samiere
Director, DHG Healthcare National Strategy Practice

Chris Setzler
President, UroMSO

David Coury
CEO, Specialty Networks, LLC

Matthew Rizzo
CEO and President, A Renewed Mind

Jerry Kelsheimer
President, Medic Management Group
Let’s Connect.

Managed Healthcare Executive® is on LinkedIn!

Network with fellow executives from across the world while you stay current on healthcare’s new developments and innovations.

Follow Us

managed healthcare executive
Does your organization employ data scientists (whose sole job is to analyze and interpret data, spot trends, and provide feedback to your organization)?

I'M NOT SURE: 11%
NO: 55%
YES: 34%

“With access to more data than ever, it will be very important for health systems to employ or utilize data scientists to make sense of the data in order to best serve their members, patients, and overall company.”

— Cynthia Hundorfean, president and CEO, Allegheny Health Network (AHN), an integrated healthcare delivery system that serves Western Pennsylvania. AHN is part of the Highmark Health Family of Companies.

COMMUNICATION

How is your organization doing when it comes to exchanging information with other plans/providers?

- 44% We are exchanging ALL information in real time
- 41% We are exchanging MOST information in real time
- 10% We are exchanging SOME information in real time
- 5% We are exchanging VERY LITTLE information in real time

How closely does your health IT leadership work with the rest of the leadership in your organization?

- Very closely: 43%
- Somewhat closely: 43%
- Not closely at all: 14%

“It’s vital to have health IT leadership at the table regularly for hospital and system strategic discussions. Their role, input, and expertise will only continue to become more essential as healthcare advances.”

— Cynthia Hundorfean, president and CEO, Allegheny Health Network (AHN), an integrated healthcare delivery system that serves Western Pennsylvania. AHN is part of the Highmark Health Family of Companies.
THE FUTURE

What is the biggest leadership challenge health IT executives face?

- Lack of resources: 45%
- Navigating a changing environment: 32%
- Dealing with unreasonable expectations: 19%
- Difficulty securing buy-in for initiatives: 4%

What are the top 3 technology initiatives that your organization is most focused on?

<table>
<thead>
<tr>
<th>INITIATIVES</th>
<th>1ST CHOICE</th>
<th>2ND CHOICE</th>
<th>3RD CHOICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data analytics</td>
<td>46%</td>
<td>38%</td>
<td>16%</td>
</tr>
<tr>
<td>EHR improvements</td>
<td>45%</td>
<td>20%</td>
<td>35%</td>
</tr>
<tr>
<td>Interoperability text</td>
<td>25%</td>
<td>48%</td>
<td>27%</td>
</tr>
<tr>
<td>Cybersecurity</td>
<td>38%</td>
<td>29%</td>
<td>33%</td>
</tr>
<tr>
<td>Remote health monitoring</td>
<td>29%</td>
<td>23%</td>
<td>53%</td>
</tr>
<tr>
<td>Price transparency/patient payment tools</td>
<td>23%</td>
<td>37%</td>
<td>40%</td>
</tr>
<tr>
<td>Patient portals</td>
<td>18%</td>
<td>29%</td>
<td>53%</td>
</tr>
<tr>
<td>Artificial intelligence</td>
<td>18%</td>
<td>50%</td>
<td>32%</td>
</tr>
<tr>
<td>Wearables</td>
<td>29%</td>
<td>43%</td>
<td>28%</td>
</tr>
</tbody>
</table>

How much do you expect to invest in technology in 2020?

- More than we invested in 2019: 51%
- The same amount we invested in 2019: 20%
- Less than we invested in 2019: 7%
- Not sure: 22%
Industry experts expect significant changes to shake up the healthcare landscape in the next few years, which will affect both health insurers and providers. Many are the result of a shift toward value-based care, a move toward decreased care in hospital settings, technological advances, and other forces.

Here’s a look at what payers and providers can expect to occur, why each change is occurring, and how payers and providers can prepare for each change.

1. A SHIFT IN HEALTHCARE DELIVERY FROM HOSPITAL TO AMBULATORY SETTINGS
Healthcare delivery will continue to move from inpatient to outpatient facilities. “More surgeries and diagnostic procedures that historically have required an inpatient hospital stay can now be performed more safely and efficiently in an outpatient setting,” says Stephen A. Timoni, JD, an attorney and partner at the law firm Lindabury, McCormick, Estabrook & Cooper, in Westfield, New Jersey, who represents healthcare providers in areas of reimbursement and managed care contracting. A growing volume of outpatient care will be provided in ambulatory surgery centers, primary care clinics, retail clinics, urgent care centers, nurse managed health centers, imaging facilities, emergency departments, retail clinics, and patients’ homes.

This change is occurring as the result of clinical innovations, patient preferences, financial incentives, electronic health records, telemedicine, and an increased focus on improving quality of care and clinical outcomes. “The upward trend in value-based payment models is also influencing this shift, with the goal of reducing the cost of care and improving the overall patient experience,” Timoni says.

Payers and providers can prepare for this shift by analyzing and forecasting the cost and reimbursement implications of providing care in outpatient settings compared to inpatient settings. They should continue to analyze changing patient demographics, consumer preferences, and satisfaction trends, Timoni says. Collecting and analyzing data regarding quality and clinical outcomes as the result of changes in delivery of care from inpatient to outpatient is also key. Healthcare providers should develop effective strategies to grow capacity and infrastructure for outpatient services and invest in innovative mobile technologies, diagnostic tools, and telemedicine systems.

2. CONSOLIDATION WILL CONTINUE INDUSTRY WIDE
More healthcare entities will continue to
merge together. "Even though the number of available partners for transactions is shrinking, new deals pop up all the time because smaller entities are being targeted or entities that had been holding out are now changing their position," says Matthew Fisher, JD, partner and chair of the Health Law Group at Mirick O’Connell, a law firm in Westborough, Massachusetts. Increased consolidation will result in higher healthcare prices as larger sized institutions use their size to their advantage. Another impact will be narrowing the field of contracting options, which will result in greater dominance by fewer entities in a market.

"This change is occurring because industry stakeholder believes that consolidation is the way to survive in a healthcare landscape still being shaped by the ACA. "The belief is that value-based care models require single unified entities as opposed to more contractual-based ventures to succeed," Fisher says. Another factor is that momentum for consolidations across the industry has continued to build and no player wants to be left behind.

Along these lines, Timoni says that consolidation has been motivated by the evolving and challenging commercial and government reimbursement models which include lower fee-for-service payment rates, value-based payment components, and incentives to move care from inpatient to outpatient settings. "Basic economic theory suggests that consolidation of hospitals and physicians enables these combined providers to charge higher prices to private payers as the result of a lack of competition," Timoni says. "Likewise, combined insurers are able to charge higher premiums to their subscribers."

Payers and providers can prepare for this change by evaluating their operations and determining whether consolidation with another entity is advantageous. "This requires assessing an entity’s operations and the risks of consolidation," Fisher says.

Timoni advises payers and providers to monitor the consolidation landscape and develop effective merger and acquisition strategies. These strategies should focus on optimizing economies of scale to reduce costs and finding the best partners to achieve improved quality of care and effectively manage population health.

3 PROTECTING DATA PRIVACY

Ongoing attention will be given to protecting the privacy of healthcare data. New laws, at both the federal and state levels, will be considered that could introduce new regulatory requirements, Fisher says.

While a federal law in an election year may be doubtful, individual states are proceeding. The California Consumer Protection Act (CCPA), intended to enhance privacy rights and consumer protection, will become effective in 2020, for example. Even though the CCPA doesn’t cover all healthcare data, healthcare organizations will still collect additional information that could be subject to CCPA, which means more compliance obligations, Fisher says. Other states are considering how to jump on the privacy legislation bandwagon, which means that regulatory requirements will increase. "Even in the absence of legislation, payers and providers can expect individuals to assert concerns and use public pressure to drive increased attention to privacy issues," Fisher says.

Meanwhile, debates around what is meant by privacy continue to evolve, Fisher continues. A backlash against the non-transparent sharing of healthcare data and arguable profiteering is creating anger among patients and other groups. Simultaneously, data breaches continue to be reported on a daily basis. Add in that healthcare is a prime target, and all of the factors point to healthcare needing to do more to protect data.

Payers and providers can embrace increased data privacy by focusing on existing compliance efforts, which will require taking time to better understand HIPAA. "Ignoring or only making superficial efforts to respect data privacy is insufficient," Fisher says. "Merely doing what is legally permissible may not be good enough."

4 CONSUMERIZATION OF HEALTHCARE

As patients assume more financial responsibility for their healthcare costs due to higher premiums, copays, co-insurance, and deductibles, they have become more concerned with the value of the care they receive as well as cost. Patients will likely demand improved access to clearer benefits, billing, and network information to improve transparency, says Brooks Dexter, MBA, Los Angeles-based managing director and head of the healthcare M&A advisory practice at Duff & Phelps, a global consultancy firm.

"Healthcare providers must follow suit to meet value expectations and deliver more consumer-friendly services or may risk losing market share to innovative new healthcare arrangements, such as direct primary care, which offer convenient and quality care with simplified medical billing," Dexter says. Some ways to do this are to offer better patient portals, expand-
ed hours, improved access, and clear procedure pricing. Despite the trend, payers and providers will most likely continue to resist CMS’ efforts to force greater cost transparency by requiring hospitals to post payer-specific negotiated charges for common services that can be shopped.

Furthermore, Peter Manoogian, principal at ZS, a consulting firm focused on healthcare in Boston, says that the voices of older adults will become comparatively louder as this rapidly growing segment becomes more tech-savvy. The Trump Administration supports increased use of Medicare Advantage and expanding consumer choices. Plan options will reach a record high this year and create an unprecedented amount of choices for this population. The average number of plans a beneficiary has access to this year will be 28, up by a whopping 50% from 2017. What’s more, new entrants that boast a customer-driven approach such as Oscar Health are entering the fray in major markets such as New York and Houston.

Health plans need to be laser focused on improving their understanding and engagement of their customers—who are evolving themselves. “To stay ahead of the change, health plans need access to the right data coupled with leading-edge analytics and technology to continuously mine insights on what members are seeking in their healthcare experience, how patients and providers interact throughout their healthcare journey, and how to meet the needs of future healthcare customers,” Manoogian says.

Health plans will need to take more of a retail focus than what they’re accustomed to, Manoogian says. The bar for providing a great experience and retaining members will also increase.

5 MORE TECHNOLOGICAL INNOVATIONS WILL EMERGE

Technological innovation will continue to dramatically and rapidly change the manner in which healthcare is delivered, resulting in more personalized care, improved clinical outcomes and patient experience, and overall quality of life. “Information systems, mobile technology, high-tech digital devices, and electronic medical records will allow payers and providers to accurately measure clinical outcomes and effectively manage the continuum of medical care and their population’s overall health,” Timoni says.

One specific way that care will change is that providers will start seeing telehealth play a more critical role in care delivery as the brick-and-mortar, in-person care model becomes less common. “Telehealth will grow past a nice-to-have tool into a standard of care, particularly for low-risk and predictable appointments,” says Cindy Gaines, MSN, RN, clinical leader, Population Health Management, Philips, a company focused on transforming care through collaborative health management in Alpharetta, Georgia. This transformation will enable providers to better tailor their care to patients’ unique needs, while increasing patient autonomy and engagement.

Technological innovations are occurring due to booming private sector interest and investment in medical technology innovation. “Patients are demanding real-time health information, personalized medicine, higher quality of care, and convenient treatment options,” Timoni says. “Payers are demanding more detailed and expansive outcomes data to scientifically manage the reimbursement system to lower costs and improve their subscribers’ health. The medical and information technology fields are attracting more high-skilled workers, who will continue to drive innovation to new levels as long as investor interest is sustained.”

Regarding the increased use of telehealth, Gaines says that many appointments that occur in a hospital today can take place outside of the hospital. And, as the healthcare industry increasingly moves toward value-based care, providers need to extend their line-of-sight outside of a hospital’s four walls. For example, a low-risk follow-up appointment after an operation is usually most-ly dialogue and has a predictable outcome—it could be conducted electronically. “By filling up hospitals with visits that could occur virtually, it makes it harder for patients who need face-to-face healthcare access to get it,” she says.

A lack of insurance coverage is a major impediment to telehealth adoption for most health systems. Therefore, providers should pair guaranteed reimbursement opportunities with change management workflows to advance these efforts, Gaines says. They would also be smart to leverage their patients’ everyday devices to manage their care, whether it’s on their smart phone, a fitness watch, or voice assistant.

To embrace technological innovation, payers and providers must continue to be educated and aware of the expanding medical technology landscape and develop technology investment and deployment strategies. “Consider investing and participating in technology venture capital funds and partnering with private sector technology manufacturers and research institutions,” Timoni says.

Karen Appold is a medical writer in Lehigh Valley, Pennsylvania.
WHERE
SPECIALTY
PHARMACY
MEETS

MAY 3 - 7, 2020 • LAS VEGAS

Register now to join thousands of key decision-makers from across the industry at the epicenter of specialty pharmacy. Asembia’s value-packed 2020 agenda includes informative business workshops, interactive exhibits, live continuing education sessions, and unparalleled networking events.

asembiasummit.com • #Asembia2020
Engage frequently with patients and their families. "That’s the best advice Ellen Feinstein, RD, MHA, FACHE, vice president, cancer services, UChicago Medicine, has learned from her colleagues. "As we make daily strategic and operational decisions that have the potential to impact [patients and their families’] experience while in our care, I’ve learned to ask for their perspective, to ensure that we’re always guided to answer the most important question: ‘What is in the best interest of the patient?’" she says.

What follows is more advice from healthcare executives that they wish they would have learned in school.

Pursue continuous learning opportunities. Always take the opportunity to enhance your self-education—including "stepping outside your ‘comfort zone,” recommends Louis G. Jenis, MD, MHCDS, chief operations officer, UnitedHealthgroup Employer and Individual, a unit of Minnetonka, Minnesota-based UnitedHealth Group, Inc.

Seek out supporters and coaches. "For people early in their careers, it’s important to focus less on a position’s pay or industry, but whether you will have a strong supporter or coach within the organization," says Philip Kaufman, MHCDS, chief operations officer, UnitedHealthgroup Employer and Individual, a unit of Minnetonka, Minnesota-based UnitedHealth Group, Inc.

Understand the complexities and challenges faced by colleagues. Because of their focus on caring for patients, physicians can have ‘blind spots’ regarding how complex healthcare delivery is for their colleagues, says Adam Levy, MD, vice chair of network and strategic planning, Children’s Hospital at Montefiore, which is part of the Bronx, New York-based Montefiore Health System. “Especially as a physician leader, it’s vital to appreciate what makes everyone else’s job difficult—and rewarding, for that matter. It can be easy to comment on inefficiencies and imperfections in our practice settings, but solutions are derived from understanding what others face in their day-to-day responsibilities,” adds Levy, who says he didn’t gain this insight until years after medical school.

Write down stories that have impact. "Looking back, I wish someone had told me to be diligent about taking a little bit of time to write down the stories that had an impact on me," says Nancy W. Gaden, DNP, RN, NEA-BC, senior vice president and chief nursing officer, Boston Medical Center. Aine Cryts

Aine Cryts is a writer based in Boston.
5 Non-Business Books Healthcare Executive Must Read in 2020

Top thought leaders share their favorite non-business reads

by AINE CRYTS

Do you want to recognize and overcome the inner barriers that prevent you from igniting your creativity and pursuing your most authentic goals and dreams?

They’re enticing propositions that Joe Tye, founder and head coach at Solon, Iowa-based Values Coach, Inc., a consulting, training, and coaching company, says healthcare executives will discover reading "The War of Art" by Steven Pressman.

"While the book is written for writers and artists, the message is highly applicable to anyone who finds themselves struggling to overcome the inner Resistance," says Tye, who notes that Pressman capitalizes the word in the same way historians capitalize Great Depression or Black Plague.

Here are four more non-business books that healthcare executives should read in 2020:

“When Breath Becomes Air” by Paul Kalanithi, MD
Rebecca Madsen, chief consumer officer at the Minnetonka, Minn.-based for-profit managed care organization UnitedHealthcare, says “this book tells a harrowing tale of a brilliant doctor, and later writer, who is diagnosed with Stage 4 lung cancer. Exploring the patient-doctor relationship was insightful, especially because Kalanithi was in both roles.” Kalanithi’s memoir was published in 2016, nine months after his death in March 2015.

Madsen says this book will help executives “understand the patient experience, the harrowing ups and downs after receiving a difficult diagnosis, and how to help people throughout, and, at the end of, their journeys. The foundation for that is empathy, and Kalanithi left a beautiful legacy for all of us on how to walk that path with dignity and grace.”

“Being Mortal: Medicine and What Matters in the End” by Atul Gawande
Scott Pingree, chief strategy officer at Salt Lake City-based Huntsman Cancer Institute at the University of Utah Health, a National Cancer Institute-designated facility, describes Gawande’s book as taking a “compelling and needed look at the unacceptable state of end-of-life care in the United States. The personal stories in the book—especially that with [Gawande’s] father—reinforced and reconnected me to the concept that we are all in this together and, as healthcare executives, what we do really matters to people and can help them in their lives at very vulnerable times. It’s up to us [as healthcare executives] to address the shortcomings of the current system.”

Gawande, a surgeon at Brigham & Women’s Hospital in Boston, published “Being Mortal” in 2014; since then, he has been tapped to be CEO of Haven, the joint healthcare venture of Amazon, JP Morgan Chase, and Berkshire Hathaway.

“Talking to Strangers” by Malcolm Gladwell
Beth E. Walker, FACHE, chief executive officer of Ochsner Baptist, which is part of New Orleans-based Ochsner Health System, Louisiana’s largest nonprofit, academic health system, recommends this book because it “addresses some societal challenges, and suggests we may have had different outcomes had we not relied on logic or perceived truth,” she says. Gladwell’s advice is to approach others with “caution and humility,” and see what transformations may happen,” adds Walker.

“Where the Crawdads Sing” by Delia Owens
David G. Carmouche, MD, president of Ochsner Health Network, which is part of Ochsner Health System, recommends this book, in part, because it reminds him of the beautiful nature that surrounds the area where he grew up in North Carolina, where the novel is set.

The book’s other selling points? It’s “a murder mystery with an intricate, engaging plot and tremendous character development,” he says. “I like to move between fictional, business, and non-fiction books to create more diversity in what I read. This also doubles as good conversation starters when I meet new people.”

Aine Cryts is a writer based in Boston.
Three Game-Changers in Cancer Care

How cancer patients can better organize around their cancer care plans in a more redesigned system.

by AINE CRYTS

When a patient has cancer, often family and friends are involved. That’s because members of a patient’s personal network will drive the patient to and from treatments or sit with the patient while they receive treatment. Still, other patients will continue to work on either a full- or part-time basis. What all of these patients have in common is they have cancer and they’re seeking treatment. They also need to be able to plan their days around their cancer care.

Three years ago, Bobby Lester, director of ambulatory oncology operations at University of Chicago Medicine Comprehensive Cancer Center, one of two National Cancer Institute (NCI)-designated comprehensive cancer centers in Illinois, says he would have given his facility a “C” grade on its ability to schedule patients for treatment. For example, it was common for patients to experience delays of seven hours or more. Today, to keep patients on schedule, schedulers at the cancer center start by capturing patient’s availability.

To reengineer its scheduling for transfusion treatments, Lester’s team started by analyzing the time patients need to sit in infusion chairs, realizing that patient flow would look different on a Monday (the first business day of the week) than on a Tuesday or other days of the week. While collaborating with the cancer center’s data analytics team to crunch the historical data, Lester kept in mind that the cancer center averages 90 to 95 treatments each day; some patients are participating in clinical research trials, which includes another level of complexity, he adds.

To illustrate how scheduling works today, Lester offers the example of a fictional patient named Alice, who was recently diagnosed with cancer. After an oncologist designs her therapy, which includes 12 cycles of treatment, Alice will need treatment every other week for the first four weeks and every three weeks for the remainder of her care plan. In addition, she’ll need four CT scans over the course of two months to track the response of the treatment on her cancer.

In the redesigned process, a scheduler will select a series of two-hour options in the infusion chair for this patient on these dates, and Alice can choose based on her access to transportation or the need to return to work.

“Truth in scheduling” means that patients can plan their schedules, says Lester. It also means that the cancer center can schedule staffing appropriately. Before redesigning the scheduling system, it was common for a patient to expect to leave the infusion chair at 6:30 p.m., only to leave after 8 p.m. That meant that clinical staff had to stay with the patient, which led to an increase in overtime and frustrated staff members who couldn’t manage their schedules. Today, staff engagement is improved as a result of the new scheduling process, says Lester.

The results of reengineering the transfusion treatment schedule:

- Average daily patient volume increased 17%
- Average daily infusion minutes increased 10%
- Overbookings decreased 57%

Huntsman at Home treats patients at home

Providers at the University of Utah Health’s Huntsman Cancer Institute, an NCI-designated cancer research facility and hospital located on the campus of the University of Utah in Salt Lake City, want to care for patients where they want.
to be. That’s at home. Going to the hospital when you’re feeling nauseous after chemotherapy is a big deal, says Karen Titchener, MSN, NP, RN, administrative director of the Huntsman at Home program, which has treated approximately 500 patients with cancer in their homes since the program’s launch in August 2018.

Patients often feel well after the first couple of doses of chemotherapy, says Titchener. But they can become violently ill later in their treatment, which often requires a trip to the emergency department. “The last thing that person wants to do is...to get in a car and keep their head in a bucket while they’re going to the emergency room,” she says.

Instead, patients who live within a 20-mile radius of the cancer center can get a referral to the Huntsman at Home program from their oncologist. That means they’ll be visited at home by one of the following: a registered nurse, nursing aide, physical therapist, pharmacist, or social worker employed by West Valley City, Utah-based Community Nursing Services, which hires these healthcare workers. Huntsman Cancer Center partners with the nursing service non-profit and has access to a dedicated team of its clinicians for this program, says Titchener.

Registered nurses and physical therapists are the mainstays of Huntsman at Home, she adds. Nurse practitioners employed by the cancer center conduct complex visits and patient assessments; they’re also on-hand to visit patients urgently in their homes if they’re deteriorating. Otherwise, it is registered nurses employed by Community Nursing Services who do home visits. All of these people are under the direction of a medical director at the Huntsman Cancer Center, according to Titchener.

Salt Lake City isn’t plagued by traffic. “If there are 10 cars on the road, that’s morning rush hour,” she says. Still, to make the best use of clinicians’ time, they’re organized by geographic region. ‘That means, for example, that clinicians aren’t being sent north, east, south, and west; instead, a group of nurses focuses on patients in each region.

What sells healthcare executives on this program? According to Titchener, it’s data. For example, in 2017, there were more than 40,000 emergency department admissions, 40% of whom were among patients who were admitted to the hospital; these patients had an average length of stay of 10 days.

The Huntsman at Home program will lead to fewer emergency room visits, fewer unplanned hospital admissions, reduced length of stay for patients, and improved patient outcomes and family experience, says Titchener. She was unable to share statistics, but her team is in the process of having the results published in a study.

Froedtert & Medical College of Wisconsin offers innovative therapy

In January 2019, Milwaukee-based Froedtert & the Medical College of Wisconsin, a regional health network that operates eastern Wisconsin’s only academic medical center, treated the first cancer patient in the United States using the MR-linac, which integrates high-field MRI and modern linear accelerator technologies. This is a history-making event because, with this technology, providers can image tissue from cancers of the pancreas, liver, and kidney more easily—that’s in addition to being able to tailor the therapy precisely for each patient’s tumor type.

Delivering this therapy entailed a 10-year journey that started with the health system’s process of strategizing about its capital equipment purchases, says Christopher Schultz, MD, chairman of radiation oncology at the health system.

Some lessons he learned:

- Recruiting physicists with experience in MR imaging, not a typical skill set for physicists, is a challenge.

Once on board, the physicists helped develop a workflow to incorporate MR imaging into the radiation therapy workflow.

- Planning and patience are important.

Schultz describes it as “an engineering hurdle” to put two strong electromagnetic fields next to each other in a room—one magnet in the MRI scanner and the other in the linear accelerator.

Stockholm-based Elekta, a medical device company that manufactures radiotherapy solutions for cancer care and brain disorders, partnered with Amsterdam-based Philips, healthcare technology company with global reach, to develop the platform, which received FDA approval in December 2018.

- Cross-specialty collaboration is key.

At first, radiologists weren’t comfortable interpreting these images, since they weren’t in organized in the series they were used to, says Schultz. The solution? His team of physicists and physicians knew enough about MR imaging to build trust with radiologists and bring them on board. The collaboration continues in monthly meetings, mostly to coordinate scheduling; the MRI machine is also used for breast biopsies, brachytherapy planning, and sometimes cardiac imaging.

Aine Cryts is a writer based in Boston.
WHAT IS HPV?

For most people, HPV clears on its own. But, for those who don’t clear the virus, it could cause certain cancers and diseases. There is no way to know which patients who have HPV will develop cancer or other health problems.

About 50% of all HPV-related cervical cancers are estimated to be attributable to HPV infections acquired after the age of ~20.

There are about 14 MILLION new HPV infections each year in the United States.

Only 17.5% of girls and women were exposed to 2 or more types of HPV.