

# Best Practices for Prescribing and Administering Medications to Maximize Recovery and Avoid Adverse Events

By **Vinfen Corporation**, Cambridge Massachusetts

Winner: President's Award, 2005 Negley Awards for Excellence in Risk Management

Providing individuals with psychiatric and developmental disabilities with safe and effective medication administration, and helping them learn self-administration are essential to their living successfully in the community. It is also an area of significant risk. In the 1970s, community programs developed where non-licensed direct care staff administered medications and subsequently raised concerns with safety and liability issues. In 1993, the Commonwealth of Massachusetts and residential service providers collaboratively developed a training, certification and oversight process: the Medication Administration Program (MAP). The purpose of the program is to balance safety with a cost effective, community based system of providing medications. Vinfen, the largest human services provider in Massachusetts, worked closely with the Departments of Mental Health, Mental Retardation and Public Health to develop and implement the accountable and responsive statewide MAP program.

From the inception of MAP, Vinfen participated in the statewide MAP committee's development and revisions of curriculum and initiatives, and served as a leader in creating protocols to decrease medication errors. Vinfen first created a Proof of 3-Way Check protocol<sup>A</sup> to decrease the number of medication errors due to transcription errors, which MAP adopted as a statewide policy in 1993. We also created the first MAP Recertification Refresher training<sup>B</sup> which in 1997 became a best practice standard adopted by the Department of Public Health<sup>C</sup> and is now included in the official MAP Training Manual.

To ensure the most effective implementation and management of its internal MAP system, Vinfen's continuous quality improvement system has developed training curricula, service planning systems, data collection techniques, reporting and monitoring systems, and risk management programs. These efforts have resulted in low medication error rates and high quality care that empowers the people it serves.

Medication errors occur despite policies, procedures, protocols, and systems implemented as part of MAP. As part of our risk management program Vinfen closely monitors and quickly responds to all medication errors, and reviews data, serious incidents, and trends as part of monthly risk management committee meetings<sup>D</sup>. All errors are reported and analyzed, and preventative or corrective actions are taken to improve systems, and train (or re-train) staff or persons served. We continuously refine these systems and seek improvements in our data and analyses. The results have been a remarkably low rate of errors for the agency, and in special risk management projects, the elimination or substantial reduction of medication errors in targeted programs for up to one year after intervention. This application for the 2005 Negley Award provides details on the technologies that Vinfen employs to produce measurable, reproducible results to lower medication error rates.

## Empowerment and Skill-building:

Vinfen's Medication Management Skills Training<sup>E</sup> follows the Massachusetts MAP five step protocol levels in which certified staff train persons served in a graduated system of skill-building. MAP is step by step process in which staff work side by side with the person served to ensure that the person served understands the actions being taught, and accomplishes specific tasks and objectives. In Level 1 of the protocol, staff work with persons served to make and keep their appointments with their prescribing physicians, obtain their prescriptions and take their medications. Level 2 focuses on taking medications as the staff sit with and coach the person served as they self-medicate. In Level 3, staff help teach the person served to recognize symptoms and medication side effects, fill prescriptions at a pharmacy and obtain the correct prescriptions and dose. Level 4 allows the person served more independence in taking medications as staff observe the person in the process. In Level 5, the person served takes his or her own medication with monitoring by staff at longer intervals (1 day, 3 days, week, month, etc.). Within the past two years, 799 of persons served in Vinfen's community programs worked towards the goal of self-medicating and made progress towards their goals. Vinfen does serve individuals who are totally self-medicated, and others, who are not actively working on self-medication.

## Risk Management and Medication Occurrence Reporting :

The Vinfen Risk Management system gathers self-report data on medication errors from programs, provides for audits by nursing staff, sends all data to Vinfen's Risk Management Committee (including the COO, Medical Director, Director of Nursing, Quality Director, and Division Directors) which reviews individual, serious MOR's, trends in data, and takes actions to prevent or reduce risks. The Committee also plans and monitors specific risk management initiatives at the agency or program level, which are designed to address issues in targeted programs.

## Medication Occurrence Reporting:

Although regulations require medication errors to be reported to the funding agency within 7 days, Vinfen requires staff to submit immediately, and at least within 24 hours, all medication occurrences (errors) reports (MORs) in their programs<sup>F</sup>. MORs are then distributed by Quality Department staff to the program's managers, nurse, and the Director of Nursing. This allows the manager, nurse, and Director of Nursing to immediately review each medication error and quickly provide the program with recommendations to address needed care reduce the risk of similar errors re-occurring. MOR data is reviewed and categorized, first by degree of seriousness (non-serious or serious), then by type

for review at the monthly Risk Management Committee meeting<sup>g</sup>. We track the five types of MORs which mirror the five “rights”. These include medication that is administered to the wrong individual, wrong medication, at the wrong time, wrong dose, or wrong route. “Non-serious” medication occurrences are any deviance from the health care provider’s medication order in the five types of occurrences that do not require a medical intervention. “Serious” occurrences require a medical evaluation and possible intervention. This five point analysis provides the detail needed to isolate problems, determine causes, develop solutions and then determine outcomes based on continued measurement. The key to the entire Vinfen Medication management system is that we encourage staff to self-report occurrences. The extent of our success with this approach can be demonstrated when we compare the high number of self-reported serious occurrences (11 in 2004) to the relatively low number of serious occurrences that are found by audits (2 in 2004).

#### Routine Audits:

Vinfen nursing staff audit all medications for a given week for every individual served at every community program at a frequency between monthly and quarterly, depending on the program’s history of occurrences. Program managers self-audit their MAP programs monthly. Occurrences discovered by audits are immediately addressed in program-specific action plans, to be implemented by program staff with other assistance as needed. Serious occurrences are immediately reported to and reviewed by the Vinfen Director of Nursing. They become the subject of targeted program-specific risk management initiatives, and may trigger division or agencywide initiatives. Such initiatives may include changing program-specific or agency policies or practices, training at the program or agency level, resource tool development, environmental changes, or staff corrective actions.

#### Annual Audits:

As part of an annual self-evaluation, nursing staff conduct a special quality audit of each program’s medication administration. Findings of occurrences from these audits, like those of routine audits, may produce program or agency-specific actions to improve medication administration.

#### Staff Training and Support:

The MAP certification process ensures that staff are trained and tested in medication administration. As part of Vinfen’s New Employee Training, all staff participate in a two-day medication training<sup>h</sup>. Before staff administer any medication, they must pass both a written 50 question multiple choice test with at least an 80% score and a practicum skills test (demonstrating the 5 rights and 4 checks), administered for DPH by the American Red Cross. The sixteen hour Vinfen MAP training course, longer than the twelve hours required by the state, includes an introduction to the human body, the effect of medication on its various systems, side effects of medication, how to store medication, how to encourage and support residents who may be resistant to taking medication. The course includes instruction in specially-developed protocols detailing the skills needed to safely administer medication, and reduce the possibility of adverse events. A large

part of the course is spent on practicing skills. Staff learn to transcribe a health care provider’s (HCP’s) order from a training exercise workbook. They practice medicating safely and accurately by “dosing” each other under the supervision of the nurse trainer. Vinfen trains staff to check and compare the health care provider’s order, the medication sheet and the pharmacy label (3 way check) in a uniform and consistent manner to ensure that all documents match before administering the medication. We also instruct staff in the five “rights”: right individual, right medication, right dose, right time and right route. Staff are instructed in how to train persons served in these skills. (See above.) The 4 checks requires staff to compare a provider’s order with a medication sheet, compare the order sheet with the pharmacy label and how to then safely “check” that the orders, the transcription, the resident and the documentation are accurate and match. Throughout the training, we reinforce the lesson that a break in the 5 rights protocol precipitates a Medication Occurrence Report (MOR) and requires that they contact their MAP consultant (RN’s at Vinfen) who then advises them how to proceed. Staff repeatedly practice learning the 4 checks, a tool that further reduces the possibility of an adverse medication event.

Once a staff member passes the MAP certification exam, a MAP recertification exam (and training course) must be taken and passed after 2 years. As an additional safeguard, Vinfen requires that when a staff member is first certified, the front-line direct care supervisor or designee supervise the new staff to ensure their adherence to MAP procedures. We implemented this requirement in 2001 when we found newly certified staff making a lot of errors. Nursing Support: Over the past ten years Vinfen has increased the number of nursing positions in the organization to support MAP. In 1993 Vinfen had one full time nursing position that provided MAP support in community programs. Today Vinfen has 22 full time nurses who are assigned across programs. A Vinfen nurse is always available for consultation on medication issues. He or she also provides specialized training to the staff and persons served, e.g., helping staff care for individuals who need blood glucose monitoring, checking vital signs, and oxygen administration. The nurse primarily is responsible for supervising the execution of doctor’s orders. Persons served in need of additional nursing services are linked to agencies such as the VNA and Americare, with staff follow up to ensure persons served continue to receive all needed services. Our Medical Director and Director of Nursing are also on-call 24 hours a day to provide consultation, support and training.

#### The MAP communication systems feedback loop:

In addition to administering medications, a vital part of the staff’s role is to coordinate care. Staff learn to utilize the MAP systems communication feedback loop, essential to coordinating care of persons served. The loop has six steps. 1) Staff observe and report changes in behavioral, emotional and physical conditions to the Primary Healthcare Provider (HCP), administrator on call and program nurse. 2) Staff assist persons served with their visit to the HCP. 3) Staff assist persons served to obtain meds from the pharmacy. 4) Staff report and document information from the HCP visit and store

medication correctly. 5) Staff administer medication. During the medication administration time, staff also train persons served regarding their medication. 6) After the administration of medication, staff continue to observe and report changes in behavioral, emotional and physical conditions to the HCP, administrator on call and program nurse are trained continually to observe and report. This communication helps the HCP to prescribe medication and provide best care.

Under MAP, direct care staff assume partial responsibility to check that the HCP is accurate in his/her orders and directions. To facilitate accuracy, Vinfen adapted its psychiatrist provider order sheets to include information to further limit the possibility of adverse events<sup>l</sup>. Safeguards include the listing of all medication the person served is taking so that the possibility of drug interactions is reduced. The tool requests parameters for vital signs, asks psychiatrists to assess for tardive dyskinesia, other side effects and to review the medication mix at least every 3 months.

#### Risk Management: Examples of Initiatives and Results:

The following examples illustrate how the Vinfen MAP and Risk Management System have worked to reduce medication errors for the agency, or selected programs:

- As a result of the Vinfen MAP Risk Management system, the total medication error rate over the past four years has averaged 10.9 per 10,000 doses for total errors, and .48 per 10,000 doses for serious errors, on an average of over 2,085,000 doses annually<sup>j</sup>. This is attributable partly to specific initiatives, and partly to continued vigilance and management of the entire system. Most importantly, as trends and patterns have developed over time, the Vinfen MAP system has evolved to respond to reported trends.

- Total medication errors dropped from 11.94 per 10,000 doses in FY 2003 to 8.4 per 10,000 doses in FY 2004, with a rate of only .05 serious incidents per 10,000 doses while administrations have climbed to 2.7 million in FY 2004. Perhaps equally important has been an analysis of the pattern of errors, which has indicated a relatively small number of errors likely to cause serious harm (giving the wrong medicine to an individual, vs giving the right medicine but the wrong dose or at the wrong time).

- In FY-03 we found that relief staff were pre-pouring medications (wrong dose) and making transcription errors. We revised the MAP curriculum to address pre-pouring issues and transcription errors with a three-way check, dramatically reducing these types of errors.

- The Risk Management Committee noted an increase in medication errors in several new programs that opened in FY-03. In response, Vinfen modified its Community Site Start-Up Checklist<sup>k</sup> to include MAP and QM procedures to ensure medication systems would be established prior to each new program opening.

- In FY-04 an analysis of three incidents of pre-pouring (an inappropriate and risky procedure) in a specific program over a period of six months found that medications were stored downstairs and administered upstairs. The medication storage cabinet was moved to the location where the medications were administered. Since then no incidents of pre-pouring have been reported over a 12 month period.

- From 2003-2004, Vinfen increased the number of staff that pass MAP's certification exam from an average of 61 % to 80%<sup>l</sup>, higher than reported state averages. We attribute this to our expansion of the Vinfen MAP Training program to include 4 more hours than required by the State to include role-playing and additional hands-on practice.

- Serious medication occurrences significantly decreased in FY-01 from 1.82/10,000 doses to .05/10,000 doses in FY-02. Total medication occurrences decreased in FY-01 from 12.8/10,000 doses to 10.8/10,000 doses in FY-02. We attribute these reductions to two related initiatives. In FY-01 we noted a series of errors caused by transcription errors, not following health care provider orders, not following policies and procedures. To address these problems, Vinfen required a medication officer assigned within each program to oversee the MAP systems alongside the program nurse and site manager. We provided additional training to all staff. Program nurses performed a complete MAP review when a serious error occurred and followed-up on all recommendations.

- Also in FY-02 Vinfen implemented a special MAP Supervisor Training<sup>m</sup> for managers to supervise, monitor, and provide additional training to relief and weekend staff. As part of this protocol, current managers were retrained if significant problems were identified in their program(s).

- The agency's MAP Technical Assistance Tool<sup>n</sup> which was developed in FY 2000 has been used extensively by staff and supervisors to help guide adherence to MAP procedures.

#### Continued Development of the Risk Management System:

In FY 2005, we will implement new medication data entry screens and a medication administration record on our web based client Outcome And Records System (OARS) that will decrease the number of transcription errors made by staff. Our new Risk Management module will enable staff to directly enter medication error data into the system. This will provide for on-line medication error reporting, communication, data collection and analysis, and will be linked to OARS. This will greatly expedite detection of patterns and trends within programs, program clusters, or the agency as a whole.

Conclusion: We believe that Vinfen's Medication Administration Program and Risk Management System can be applied by other human service providers in other states. While MAP certification is a regulatory mandate required for all community service providers in Massachusetts, we believe its curriculum and practices can be replicated and make a real difference in reducing medication errors. We also believe that our Risk Management System, with its tools, reporting system, problem solving approach, and quality initiatives, can also be duplicated elsewhere and can affect outcomes and improve quality of care while reducing risk. Finally, we feel that our Medication Administration Program is a powerful tool for empowering persons served to become independent and in control of their recovery and rehabilitation. We look forward to an opportunity to further discuss our program and share our results with other providers. ❖

**Note:** Attached references (A-N) available through Vinfen. Description of Vinfen Corporation is found on next page.

## Vinfen Takes Top Negley Honors

Vinfen Corporation of Cambridge, Massachusetts was chosen to receive the President's Award in the 2005 Negley Awards for Excellence in Risk Management at MHCA's Annual Conference on February 11. The award includes an unrestricted cash gift of \$15,000. Their program is described on pages 8-10.

Vinfen's mission is to transform lives by building the capacity of individuals, families, organizations, and communities to learn, provide, and achieve their goals. Founded in 1977, Vinfen has become the largest provider of its kind in New England, annually serving over 3,000 individuals at approximately 278 program sites in Eastern Massachusetts and Connecticut. The company provides a wide range of services for adults and children including outpatient services, emergency services, day and vocational programs, an extensive array of residential and community supports options, HIV services, nursing home services, and substance abuse services. Approximately 40% of Vinfen's revenue is derived from services for individuals with mental retardation and developmental disabilities, while 60% comes from services for individuals with psychiatric disabilities. Vinfen has an annual budget of \$84,000,000 and employs over 2,000 staff. The organization has been accredited by CARF since 1988. ❖