NHIF
National Home Infusion Foundation

Home Infusion Pharmacist Professional Services Study

RESEARCH PROPOSAL

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Background

Time utilization studies, also known as time-and-motion studies, are common in healthcare and assist in understanding the tasks, responsibilities, and time requirements specific to a healthcare profession. Home infusion services requires a coordinated effort by pharmacists and other professional and support staff to provide medications in the home setting. A review of the literature exposes a void in published research specific to time and activities of home infusion pharmacists. To gain a better understanding of the amount of time involved with daily home infusion pharmacist and responsibilities, this study is being proposed by the National Home Infusion Foundation (NHIF).

Within the home infusion industry, it is common knowledge that the roles of home infusion pharmacists are multifaceted and focuses on the patient's coordination of care and overall clinical management. This coordination is among a diverse and multidisciplinary team of providers and also includes dietitians and pharmacy technicians in consultation with the patient's physician and other health care providers. Pharmacists work in conjunction with the patient and their caregiver(s), nursing agency, physician, and referring agency to develop and coordinate the initiation of home infusion. This process involves a thorough review of the patient's past medical history, history of present illness, complete medication list, laboratory reports, home environment, ambulatory status or other physical limitations, vascular access, infusion medication order, and more. Once this assessment is complete, the pharmacy's home infusion team determines whether the patient and the prescribed therapy are appropriate for home infusion.

After it is determined that home infusion is appropriate for the patient, the home infusion pharmacist works with the patient, caregiver, and nurse to develop a comprehensive plan of care delineating all aspects of home infusion therapy. The home infusion plan of care articulates the goals of therapy, states the medication to be infused, provides specific instructions for administration (i.e., whether a pump will be used), assures access device care, sets a schedule for lab orders, nursing visit frequency and monitoring, and identifies other special orders such as pre-medications to be administered and standing orders for treatment of acute infusion reactions. The plan of care is evaluated each time home infusion drugs are furnished. This evaluation is a critically important service that requires the professional expertise and knowledge unique to home infusion pharmacists and is done in cooperation with the prescribing physician, nurse, and patient. Due to the number of healthcare professionals involved with the care of the patient, coordination of care takes place continuously during treatment. Communication between pharmacists, nurses, physicians and the patient and/or caregiver often occurs several times a week to assess for therapy effectiveness, adverse events, proper use of equipment and supplies, and to plan deliveries.

As illustrated, there is a basic understanding of the role of the home infusion pharmacist even so, there is a need to understand the intricacies of the job and the time commitment for each. The aim of this research is to conduct a time utilization study that includes a convenience sample of pharmacists from a variety of home infusion providers. Data from this study will assist in describing the role of the home infusion pharmacist and the average amount of time involved with home infusion tasks. Throughout the study protocol, the term "pharmacist time tracking" refers to the process of recording the amount of pharmacist home infusion patient care time. As previously described, it refers to both direct and indirect patient care.

<u>Study Purpose</u>
To better understand the home infusion pharmacist's daily tasks and the time commitment for each, there is a need to conduct a time utilization study specific to home infusion pharmacists. To our knowledge, there are no published studies of this type. The results from this study can be used to inform the Centers for Medicare and Medicaid Services (CMS) on the home infusion pharmacist's responsibilities and time commitment to support appropriate health care reimbursement for home infusion services. Accordingly, the aim of this study is to investigate worktime utilization among home infusion pharmacists.

Study Objectives
While pharmacists time track home infusion patients, the following objectives will be achieved.
1. Determine the average daily and weekly amount of time pharmacists are involved with managing and caring for various types of home infusion patients.
2. Determine the average daily and weekly amount of time the home infusion pharmacist spends providing certain professional services on the patients being tracked.
3. Evaluate the time differences spent on professional service functions by the home infusion pharmacist by therapy type and method of administration.

Methodology
To ensure that pharmacists represent a diverse group of home infusion providers, at least eight home infusion providers will be recruited to participate in this study. Working with these providers, their pharmacists will be requested to track the tasks and time involved with managing and caring for home infusion patients. The home infusion patient tracked for this study must be recently referred for home infusion by their physician. The patient's care plan will not be impacted by this study. No identifying patient data other than age, therapy type, and pharmacist care management activities will be provided to NHIF by the participating locations. Data will be deidentified by use of a data participant code (DPC).

<u>Therapy and Administration Types</u>
Pharmacists will self-report the amount of time (minutes) spent on each patient task. It is already known that the amount of pharmacist professional time varies according to the patient therapy type and administration. Accordingly, time measures will be collected and delineated for the following eight therapies and administration types.

1. Anti-infective therapies using an ambulatory infusion pump for administration (10 days with 2 dispensing cycles)
2. Anti-infective therapies utilizing IV push administration (10 days with 2 dispensing cycles)
3. Inotropic therapy using an ambulatory infusion pump for administration (14 days with 2 dispensing cycles)
4. Anti-neoplastic chemotherapy (I.e. 5-FU) using an ambulatory infusion pump for administration (21 days, with 2 dispensing cycles)
5. Parenteral nutrition patient (14 days, with 2 dispensing cycles)
6. Monoclonal Antibody administered intravenously starting with initial home dose through 2nd dispensing cycle
7. Subcutaneous immune globulin -pump administered (45 days with 2 dispensing cycles)
8. Intravenous immune globulin -pump administered (45 days with 2 dispensing cycles)

If a tracked patient receives a secondary therapy, data from that therapy will also be included in the study. All the data related to the patient care starting at the time of referral through the minimum number of days will be collected. The goal is to capture data related to at least two dispensing cycles. Once the minimum data threshold is achieved, data collection through to discharge does not need to be completed. Two dispensing cycles will include the initial dispense at the start of care and one subsequent dispense. The time for the second dispense to occur will vary based on therapy type. This study aims to track a minimum of 15 patients for each therapy type to ensure that results are valid.

<u>Data Collection</u>
Using hard-copy study files, organized by patient numbers, pharmacist patient care activity times will be tracked by recording the amount of time involved with specific tasks. The specific pharmacist care tasks will be coded into 6 categories, as shown in Exhibit A. Pharmacists and nurses will document their tasks and time (minutes) for selected patients throughout their workday. All time recorded will be directly related to the pharmacist's role in the tasks below. Time spent by technicians and support staff will not be logged.

The pharmacist will track their time by using the appropriate task code and amount of time (minutes) dedicated to the task. The task codes (1-6) below will be used. For example, if the pharmacist is reviewing the prescribed infusion medication, the code would be "1." The pharmacist would then use the tracking form to document the amount of time involved with the task. Once a patient has completed two dispensing cycles, data collection tracking forms will be submitted to NHIF for further data entry and analysis.

Exhibit A
Detailed List of Pharmacist Care Activity Tasks Coding (1-6)

Code 1: Performing patient assessments and documenting the assessment results in the patient EMR, and including any of the following activities:

> **Examples of tasks:**
> - Review of current illness
> - Review of past medical history
> - Review of current medication list
> - Review of prescribed infusion medication
> - Assessment of home environment/caregiver status
> - Assessment of ambulatory status and other physical limitations that may interfere with self-administration
> - Assessment of vascular access device compatibility with prescribed medication
> - Interventions to facilitate initiation of home infusion therapy

Code 2: Developing, implementing and documenting the care plan, including the following:

> **Examples of tasks:**
> - Selection of administration method
> - Establishing goals of therapy

- Reviewing existing, and obtaining supplemental physician orders for prevention of acute infusion reactions, catheter declotting agents, access device maintenance solutions, etc.
- Developing a monitoring plan
- Developing an access device maintenance plan
- Patient education plan
- Interventions performed
- Documenting and updating the care plan in the EMR

Code 3: Remote monitoring and related intervention activities, including:

Examples of tasks:
- Obtaining, tracking, and trending lab results
- Lab evaluations
- Interventions performed
- Recommendations made as a result of monitoring activities
- Documentation of monitoring and interventions in the EMR

Code 4: Drug preparation and compounding activities, including:

Examples of tasks:
- Dispensing
- Determining appropriate beyond use dates
- Compounding process oversight (patient specific)
- Supply selection
- Shipping
- Documentation of compounding, dispensing, and delivery activities

Code 5: Care Coordination and communication

Examples of tasks:
- **Telephonic interactions and the time spent performing the task**
- Patient communication
- Prescriber communication
- Internal communication (i.e. billing,
- Only include if not able to fit into a category above

Code 6: Other patient related work tasks including:

Examples of tasks:
- Case conferences
- Work not covered above

To document the amount of pharmacist care time involved with each of the above tasks, the "Home Infusion Pharmacist Tracking Form" will be used for each patient in the study. See Exhibit B on the next page. **One excel file will be completed and submitted for each patient. The patient code will be the provider's unique DPC (Data Participation Code) followed by a 2-digit patient identifier. For example, if

your DPC is 123456 and this was patient 1, the patient ID # would be 12345601, and patient two would be 12345602, and so on.

Exhibit B
Home Infusion Pharmacist Tracking Form

Temp					
Location DPC				**Patient Therapy Type Codes**	
Patient ID #				1: Antiinfective using an ambulatory infusion pump	
				2: Antiinfective utilizing IV push administration	
				3: Inotropic using an ambulatory infusion pump	
				4: Anti-neoplastic chemotherapu (i.e.5-Fu) using ambulatory infusion pump	
				5: Paretenral nutrition patient	
				6: Monoclonal antibody administered intravenously with initial home dose	
				7: Subcutaneous immuno globulin-pump administered	
				8: Intravenous immune globulin-pump administered	
Patient Age				**Care Activity Task Codes**	
Patient Data Start Date				1: Performing patient assessments and documentation	
				2: Developing, implementing, & documenting care plan	
				3: Remote monitoring and intervention activities	
				4: Drug preparation and compounding activities	
				5: Care coordination and telephonic communications	
				6: Other patient related works tasks	
Patient Data Stop Date					
Patient Therapy Type Code					
Secondary Therapies (IV)	Therapy	Medication	Date Added	Administration Method	

Data Entry *Please enter start time and end time in military time (00:00-24:00)				
Date	Task Code #	Start Time	End Time	Comments/Notes

Example: Home Infusion Pharmacist Tracking Form

<u>Analysis</u>
The main objective of this study is to measure how much time pharmacists spend on tasks related to seven common home infusion therapies. The specific study objectives along with the analysis that will be conducted is described below. Due to the number of calculations in this study, an Excel® spreadsheet will be used for the initial calculations with the results being downloaded into IBM SPSS for crosstabulation and mean/SD calculations.

- Determine the average daily and weekly amount of time pharmacists and are involved with managing and caring for the home infusion patient.
  An Excel® spreadsheet will be used for the following analysis.
    a. For each patient the total time for all tasks will be calculated.
    b. This number will be divided by the number of patient days (determined by the patient start and stop date) to determine the average daily amount of pharmacist patient time.
    c. The average daily amount of time will be multiplied by seven to determine the weekly average.
    d. A mean/SD daily and weekly time will be determined by adding all patient's daily and weekly averages and dividing by the number of patients.

- Determine the average daily and weekly amount of time the home infusion pharmacist spend on specific home infusion tasks.
  An Excel® spreadsheet will be used for the following analysis:
    a. For each patient, the total time spent on each task will be calculated.
    b. This number will be divided by the number of patient days (determined by the patient start and stop date) to determine the average pharmacist time spent on the task each day for the given patient.
    c. The average daily time will be multiplied by seven to determine the weekly average.
    d. By task, a mean/SD daily and weekly time will be determined by adding all patient's daily and weekly averages for each task and dividing by the number of patients.

  The results from the above analysis will be organized in an Excel® spreadsheet. The following patient data columns will be used. The column labels for row 1 are in parenthesis ().

    a. Patient ID (pt id)
    b. Patient Age (pt age)
    c. Total Days (determined by the patient start and stop date) (days)
    d. Therapy Type (ThType)
    e. Average Pharmacist Time Per Day (avtday)
    f. Average Pharmacist Time Per Week (avtwk)
    g. Task 1 Average Pharmacist Time Per Day (t1tday)

  h. Task 2 Average Pharmacist Time Per Day (t2tday)
  i. Task 3 Average Pharmacist Time Per Day (t3tday)
  j. Task 4 Average Pharmacist Time Per Day (t4tday)
  k. Task 5 Average Pharmacist Time Per Day (t5tday)
  l. Task 6 Average Pharmacist Time Per Day (t6tday)
  m. Task 1 Average Pharmacist Time Per Week (t1twk)
  n. Task 2 Average Pharmacist Time Per Week (t2twk)
  o. Task 3 Average Pharmacist Time Per Week (t3twk)
  p. Task 4 Average Pharmacist Time Per Week (t4twk)
  q. Task 5 Average Pharmacist Time Per Week (t5twk)
  r. Task 6 Average Pharmacist Time Per Week (t6twk)

- Categorized by therapy type and administration, determine the average daily and weekly amount of time pharmacists are involved with managing and caring for the home infusion patient.
  Analysis: The spreadsheet with the above data (a-r) will be downloaded into IBM SPSS. Using IBM SPSS, a mean/SD daily and weekly amount of pharmacist time will be calculated by therapy type.
- Categorized by therapy type and administration, determine the average daily and weekly amount of time a pharmacist is involved with specific tasks related to managing and caring for the home infusion patient.
  Analysis: Using IBM SPSS, a mean/SD daily and weekly amount of pharmacist time per task number will be calculated.

IRB (Internal Review Board) Status

The patient's care plan will not be impacted by this study. No identifying patient data other than age and therapy type will be provided by the participating locations. While time tracking, the patient will be labeled by their patient number. All time tracking will be recorded on a hard-copy form and hand entered into IBM SPSS statistical program. Each patient will be randomly labeled by a unique subject number. The hard-copy forms will be destroyed once the time and tasks have been entered. WORKING ON THIS SECTION.

Study Time Frame

  This study will be open-ended and NHIF will determine when we have achieved a significant sample size.

References

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